

Challenges to be an Artist: The Inequality of Opportunities in The Labor Market in Arts and Entertainment in Brazil¹

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Abstract:

Our main goal in this paper is to describe the inequalities of opportunities for Brazilian women working in the arts and entertainment industry. Circumstances and efforts determine the differences between individual economic results, but the first is a factor beyond the control of the individual, so a luck component despite the efforts. The inequality of opportunities drives when circumstances contribute more than efforts to achieve outcomes and performance. The importance of culture in economic development are also vastly researched as well, but there are not so many studies on the two themes considered together, resulting in the lack of information about gender inequality within the arts' labor market. We generate an inequality of opportunity indicator following the proposal of ex-ante inequality estimation presented by Juárez and Soloaga (2014) and analyze the inequality indicator using Shapley's decomposition. We use the data available in the Demographic Census of the Brazilian Institute of Geography and Statistics (IBGE) for 2010. Descriptive statistics show that groups of non-white women receive lower average monthly earnings, although there are no physical limitations or necessary attributes to engage in such activities that could favor men. The opportunity index indicates unacceptable inequalities are around 20% for the Brazilian territory that stems from factors associated with sex in Sao Paulo, Minas Gerais, Tocantins, Rondônia, Espírito Santo, Piauí, Alagoas; skin color in southern states and Mato Grosso do Sul and formalization of employment rate in the rest of the country. Our findings improve the knowledge of the inequalities of this particular economic sector by analyzing its working conditions in terms of regional opportunities and illustrate how difficult is to be an artist in Brazil.

Keywords: Inequality of opportunities; Labor Market; Economics of Culture.

JEL: D63, O12, Z10

Desafios de ser artista: desigualdade de oportunidades no mercado de trabalho em artes e entretenimento no Brasil

Resumo:

Nosso principal objetivo neste artigo é descrever as desigualdades de oportunidades para as mulheres brasileiras que trabalham no setor de artes e entretenimento. As circunstâncias e os esforços determinam as diferenças entre os resultados econômicos individuais, mas o

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primeiro é um fator fora do controle do indivíduo, um componente de sorte, para além dos esforços. A desigualdade de oportunidades ocorre quando as circunstâncias contribuem mais para alcançar resultados e desempenho. A importância da cultura no desenvolvimento econômico também é amplamente pesquisada, mas não existem muitos estudos sobre os dois temas considerados conjuntamente, resultando em uma lacuna sobre a desigualdade de gênero no mercado de trabalho das artes. Geramos um indicador de desigualdade de oportunidades seguindo a proposta de desigualdade ex ante apresentada por Juárez e Soloaga (2014) e analisamos o indicador de desigualdade usando a decomposição de Shapley. Utilizamos os dados disponíveis no Censo Demográfico do Instituto Brasileiro de Geografia e Estatística (IBGE) de 2010. Estatísticas descritivas mostram que grupos de mulheres não brancas recebem menor renda mensal média, embora não haja limitações físicas ou atributos que indicassem maior engajamento dos homens nessas atividades. O índice de oportunidade indica cerca de 20% de desigualdades inaceitáveis para o território brasileiro, decorrentes de fatores associados ao sexo em São Paulo, Minas Gerais, Tocantins, Rondônia, Espírito Santo, Piauí, Alagoas; cor da pele nos estados do sul e Mato Grosso do Sul e formalização da taxa de emprego no restante do país. Nossas descobertas melhoram o conhecimento das desigualdades desse setor econômico em particular, analisando suas condições de trabalho em termos de oportunidades regionais e ilustrando o quão difícil é ser um artista no Brasil.

Palavras-chave: Desigualdade de oportunidades; Mercado de trabalho; Economia da Cultura.

JEL: D63, O12, Z10

Introduction

The main purpose of this paper is to estimate and describe the inequalities of opportunities in Arts and Entertainment in Brazil. Following John Roemer's (1998) principle of equal opportunities, there is a rich literature on the relevance of circumstances and efforts to achieve results and outcomes (ABRAS et Al, 2013; ALMÁS et Al, 2011; CHECCHI & PERAGINE, 2005; COGNEAU & GIGNOUX, 2005; FERREIRA & GIGNOUX, 2011; FLEURBAEY & PERAGINE, 2013; GAER, SCHOKKAERT & MARTINEZ, 2001). The importance of culture in economic development is also widely researched (BLAUG, 1976, 2011; FURTADO, 1978, 1984; PEACOCK, 1969, 1976, 1993, 2000; SILVA, 2007; TOLILA, 2007; TOWSE, 2006, 2010, 2015), but there are not many studies on the two themes considered together, resulting in a lack of information on gender inequality in the arts labor market.

The opportunity to choose has an agency aspect of freedom when it allows someone to choose a job just because of his or her ability to act on behalf of what matters for him. If there is gender inequality in salaries there are disadvantages in converting income into particular functionings hence limit the real opportunity to achieve valued functionings. The real opportunity to select from among various good possibilities is necessary, is capability, is development as freedom, including the freedom to choose to be an artist. Additionally, the access to culture allows to expand basic functioning and could be considered a conversion factor to human development and other free choices (SEN, 1992).

We can address inequalities within a given sector from the analysis of its working conditions, in a way that the inequality existing in a given market can also be analyzed in terms of its workers' income, opportunities, and appreciation. The labor market in arts and entertainment can be assessed not only from the perspective of inequality but also by its possibility of generating jobs, income, and socioeconomic inclusion. Additionally, the

sector's activities relate to development from both the economic activity perspective per se and the social aspect, as well as its human capital formation function. Activities in the cultural field generate income, employment, and well-being capable of promoting social inclusion and cohesion, especially among minority groups (GORGULHO et al, 2009).

It is both important and interesting to study the characteristics of the arts' labor market and of its workers (the artists), due to its relevance for the formulation of public policies aimed at promoting socio-economic development. On the one hand, it allows us to think about how a dynamic – yet informal and undervalued – market can be important for the economy and society, contributing to a reflection on broader public policies for human development. On the other hand, it brings up the reflection on the possibility of personal fulfillment through the profession of artist. If there are barriers to entry associated with personal or market characteristics, there is evidence of deprivation in choices.

The capabilities are the manifestation of each individual's opportunities to achieve functionings inherently associated with freedom of choice among possible lives to achieve well-being. If there are wage differences explained by personal attributes, there is evidence of inequality of opportunities in the sector. According to the capabilities approach, the inequalities are deprivations related to the insufficiency of capability achievements (SEN, 1985,1992; ROBEYNS, 2005; BANERJEE, 2016).

We use data from the 2010 demographic census to describe the profile of workers in the art sector in Brazil and to identify the most and least vulnerable socioeconomic groups. We then apply the Equality of Opportunities approach (ROEMER, 1998) in the specific field of the artistic labor market. According to this approach, the concept of opportunity can be expressed through the definition of its two fundamental elements: the efforts made by individuals and their innate particularities. The last ones are the circumstances in which these individuals are inserted, usually gender, race, and background familiar (BOURGUIGNON et al., 2007). The two elements are considered, respectively, as factors of responsibility and non-responsibility.

Differentiating between factors of responsibility and non-responsibility, or efforts and circumstances, is important to distinguish the two forms of income inequality identified in Roemer's approach: the fair inequalities (when they come from differences in effort) or the unfair (when they are due to differences in circumstances). Only unfair inequalities, as they come from factors that are independent of individual effort and, therefore, individuals cannot control, should be neutralized (BOURGUIGNON et al., 2007).

To discuss inequality of opportunities in the artistic sector we generated an indicator of inequality of opportunities following the ex-ante estimate proposal presented by Juárez and Soloaga (2014). We then decomposed the indicator using the Shapley methodology, which allowed us to obtain the fraction of inequality that arises from each of the circumstances. We used data from the 2010 Demographic Census of the Brazilian Institute of Geography and Statistics (IBGE).

Equality of Opportunity

Roemer (1998) argues that while some fraction of the inequalities in economic results is determined by morally acceptable factors, there is a fraction that results from morally unacceptable, unjust factors. The analysis of Equality of Opportunity assumes, a priori, that the variable “return” - defined as any economic result that one is interested in measuring - is the result of these two groups of factors. The first group contemplates the degree of effort that the individual chooses to exert in the search for the maximization of his return, also called “factors of responsibility”; the second group consists of a set of characteristics that are

beyond the control of this individual (such as sex, skin color, family background, place of birth, among others), also called “non-responsibility factors”.

Roemer's theory (1998) considers that these two groups of factors (responsibility and non-responsibility), in addition to a luck component, determine the differences between individual economic results. According to this approach, “individuals who apply the same degree of effort should also be held responsible for the consequences; as they are equally responsible, their rewards (that is, levels of advantage or relevant well-being) must be equal” (ROEMER, 1998, p. 18). Consequently, not all differences in results are ethically unacceptable since there are different levels of individual effort. "Opportunity inequality" is that part of the inequality that is due to circumstances beyond the control of the individual and, therefore, is the ethically offensive part of the inequality (JUÁREZ & SOLOAGA, 2014).

The effort variables are those over which the individual has the responsibility and decision autonomy. These include the number of hours worked in the week, the level of education, and the decision to migrate or not, for example. On the other hand, social and economic inequality can result from variables that are beyond individual responsibility, factors that the individual cannot control or over which he does not have significant power to change through his own choices. These are circumstantial variables, such as personal attributes (race, sex, age) and family background. Defining the set of interesting circumstantial variables for a study is an arbitrary choice, being influenced both by the theoretical background and by the possibility of accessing data. Roemer (1998, p. 09) highlights that circumstances must be easily observable and non-manipulable characteristics of individuals.

To describe justice in society from Equality of Opportunity, we depend, at first, on the identification of sources that generate inequalities so that we can then discuss the issue of equalizing opportunities. This equalization of opportunities must be guided by the concern to ensure that individuals with similar efforts (people carrying out the same activities with the same knowledge and the same commitment) receive the same rewards, regardless of the circumstances.

We can define ethically acceptable (fair) inequalities as those arising solely from effort factors or “factors of responsibility”. In the meantime, inequalities that are due only to exogenous factors (circumstances or “factors of non-responsibility”) are considered morally unacceptable, unfair (ALMÁS et al., 2011). In a context of perfect equal opportunities, circumstances should not affect individual economic results. In the world built by Roemer (1998), the differences in returns obtained by individuals result from different levels of effort or, as the author also defines, different individual choices. Income inequalities resulting from differences in characteristics innate to individuals, such as gender, skin color (or race), and age, constitute unacceptable inequalities based on the established individual responsibility criterion (ROEMER, 1998; ALMÁS et al., 2011). This is because they stem from circumstances exogenous to the individual.

In this paper, we use the circumstances of sex and color, and we also consider the type of employment (formal or informal) as a variable of non-responsibility, since the individual has little power of change over it, which is a condition imposed on him by his employer. The unacceptable inequalities resulting from differences in sex, color and type of employment are the focus of this study. Other works that use similar circumstances in the analysis of inequality of opportunity were developed by Bourguignon et al (2007) and Ferreira and Gignoux (2011), who consider the race variable as a circumstance, Adamczyk (2017) and Figueirêdo et al (2014) who consider gender, and Adamczyk (2017) who considers formalization of employment.

Greater equality of opportunity can lead to effects opposite to those of income inequality: more efficient use of human and physical capital, increased social cohesion, and more sustainable development (ROEMER, 1998). Hence, we can interpret equality of opportunity policies as responsible for “leveling” economic agents in terms of the conditions for individual action, in such a way that individual achievements reflect not the initial circumstances, but the different levels of effort, being, therefore, ethically acceptable (ROEMER, 2002). Only unacceptable inequalities (in the context where the agent cannot be considered worthy of its outcome), should be prevented or compensated through public policies.

The papers that use Roemer's (1998) Equality of Opportunity framework are mainly divided into two groups according to their objectives: the first group aims to assess the impact of specific policies on reducing inequality of opportunities (RAUDENBUSH & ESCHMANN, 2015; RAVALLION, 2011; SØRENSEN, 2006), while the second group seeks to obtain a measure of inequality of opportunity (ABRAS et Al, 2013; ALMÅS et Al, 2011; CHECCHI & PERAGINE, 2005, 2010; COGNEAU & GIGNOUX, 2005; FERREIRA & GIGNOUX, 2011; GAER, SCHOKKAERT & MARTINEZ, 2001). This paper is aligned with the second group.

Cogneau and Gignoux (2005) researched inequality of opportunity and income in Brazil using data from the National Household Sample Survey (PNAD). They constructed two measures of inequality of opportunities for the specific group of economically active men between 40 and 49 years old. Gaer, Schokkaert, and Martinez (2001) proposed an opportunity inequality index based on the income expectancy of a person conditioned to his parents' income class and the probabilities in the transition matrix between the two generations.

Abras et al. (2013) quantify inequality of opportunities in labor market returns in Europe and Central Asia using the Human Opportunity Index (IOH) methodology structured by Barros et al. (2009). Their results suggest the existence of substantial inequality of opportunities in employment status and wide variations between countries. Also, the authors found correlations between measures and perceptions of inequality that suggest that inequality between groups, as opposed to general inequality, has a stronger association with perceptions of justice in society. Ferreira and Gignoux (2011) constructed a scalar measure of inequality of opportunity that captures inequality between groups defined exclusively based on predetermined circumstances and applied it to six countries in Latin America. The authors found results for inequalities of opportunity that represent about a quarter to half of the total inequality.

Interested in making the distinction between just and unjust inequalities, Almas et al (2011) investigated the implications of "sensitive to responsibility" theories of justice in assessing income distribution in Norway from 1986 to 2005. The authors concluded that both distributions of pre- and post-tax income became less fair in Norway. Checchi and Peragine (2005) used data from Italy and decomposed the inequality in income and skills into two components: the first due to a single exogenous circumstance, parents' education, and the second, a residual component attributed to the effort. In their later work, they provide a methodology for measuring inequality of opportunity and its breakdown into “ethically acceptable” and “ethically unacceptable” components. The authors find results that indicate that approximately 20% of income inequalities in Italy stem from inequalities of opportunity (CHECCHI & PERAGINE, 2010).

In this paper, we apply Roemer's (1998) approach to build an inequality indicator in the artistic labor market in Brazil. One of the limitations of the approach and our research refers to the arbitrariness in the choice of circumstances to be considered in the analysis. In addition, the research suffers limitations due to the lack of information available in the

database. Ferreira and Gignoux (2011) point out the difficulty of obtaining a data set that contains all information about circumstances that influence income, that is, there will always be omitted circumstances.

The ex-ante indicator of inequality of opportunity

In this paper, we use the empirical strategy developed by Juárez and Soloaga (2014) for the analysis of inequality of opportunities using the software *Stata*. These authors developed the *iop command* to estimate inequality of ex-ante opportunities for different types of variables (continuous, dichotomous, and ordered), providing standard auto-initialization errors and two decomposition methods.

The literature distinguishes between two equally valid types of inequality of opportunities, the ex-ante and the ex-post approach (FLEURBAEY & PERAGINE, 2013). Ex-ante Equality of Opportunity refers to when circumstances do not matter to the outcome, and the ex-post approach is more focused on effort (JUÁREZ & SOLOAGA, 2014). The latter considers that equal opportunities exist when all individuals, regardless of their circumstances, obtain equal results when they make equal efforts.

Fleurbaey and Peragine (2013) highlight that the ex-post approach focuses on inequalities between individuals who exercise the same level of effort. Thus, the use of this approach implies the need for some measure of individual effort. Checchi and Peragine (2010) use this approach in the empirical analysis of inequality of opportunities. In turn, the ex-ante approach focuses on the differences between the expected returns for classes of individuals with identical sets of circumstances, obtaining values of inequalities between exogenously defined social groups (FLEURBAEY & PERAGINE, 2013). Among other works that use the ex-ante approach in empirical studies, we highlight Bourguignon et al. (2003) and Ferreira and Gignoux (2011).

Although both are equally valid, the ex-ante approach has an empirical advantage over its competitor: it is easier to implement since it can be estimated without a measure of effort (unobservable variable). The ex-post approach requires at least an estimate of the level of effort. This is an unobservable variable and, therefore, it is difficult to distinguish it empirically (JUÁREZ & SOLOAGA, 2014). As a result of this operational advantage, the ex-ante approach stands out among the empirical applications in the literature. Following the application of Juárez and Soloaga (2014), we focus on the ex-ante measure of inequality of opportunities.

There are several methods for assessing ex-ante inequality of opportunities, including the regression approach. This method allows us to relate a result variable to a given set of circumstances (JUÁREZ & SOLOAGA, 2014). The regression approach is based on a simple intuition: the greater the fit, the greater the inequality of opportunity. In the ideal context of equal opportunities, according to the theoretical framework used, circumstances do not matter for the return of agents, so a regression of this return in the circumstances mentioned should present a low adjustment for a scenario of greater equality of opportunities (JUÁREZ & SOLOAGA, 2014).

The strategy proposed by Juárez and Soloaga (2014) for the ex-ante estimation of inequality of opportunity also allows for the decomposition of the inequality index. Using the Shapley decomposition, the estimated inequality is decomposed according to the different circumstances variables that affect the outcome variable. This decomposition shows which circumstances generate inequality of opportunity, how much all circumstances affect inequality, and how much each circumstance contributes marginally to total inequality of opportunities (JUÁREZ & SOLOAGA, 2014). The authors also propose an Oaxaca decomposition of the difference in opportunity into two groups, allowing the analysis of the

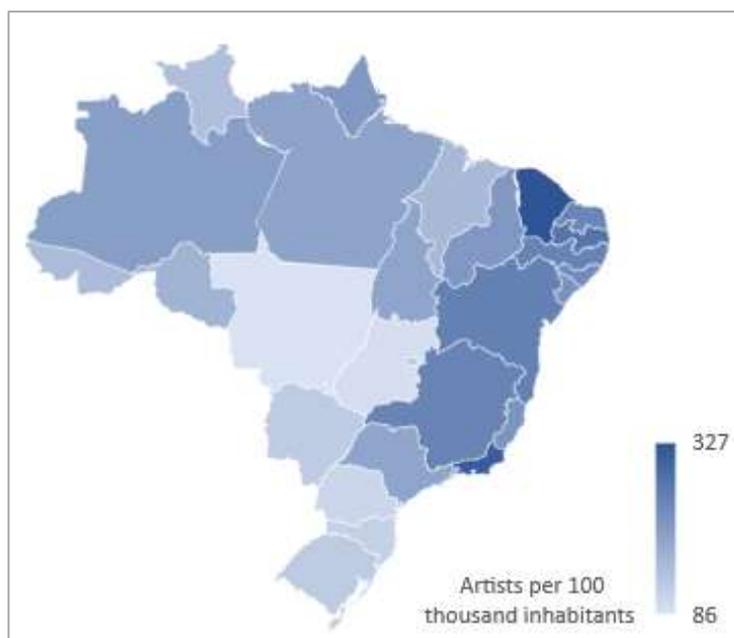
differences between two geographic units or the same unit at different times (JUÁREZ & SOLOAGA, 2014).

One of the main limitations of this method of estimating inequality of opportunities is associated with the possibility of erroneously attributing the estimated inequality to unobservable factors of effort and luck. Ramos and Van de Gaer (2012) discuss the ex-ante and ex-post opportunity inequality approach in detail. According to the authors, the biggest limitations are related to how we choose and measure circumstances, how we measure effort and luck, and the consequences of imperfect estimates for these measures (RAMOS & VAN DE GAER, 2012).

The labor market for creative and interpretive artists in Brazil

The labor market in Arts and Entertainment in Brazil comprises the group of workers employed mainly as creative and interpretive artists, as defined in the IBGE's Classification of Occupations for Home Research (COD). The geographical distribution of these workers is illustrated in Figure 1.

Figure 1. Geographic distribution of artists in Brazil (2010)



Source: Prepared by the authors using data from the IBGE Demographic Census (2010).

We can note the highest concentration of these workers in the Southeast and Northeast regions of Brazil. The Southeast is also the region with the highest concentration of cultural facilities ⁶, suggesting the existence of a better cultural environment. Based on data from the 2010 demographic census for workers identified as artists in Brazil ⁷ we found great

⁶ Cultural facilities are “the fixed stock linked to the existing culture in the municipality, open to the public, which can be maintained by the private initiative or public authority of any sphere (federal, state or municipal)” (IBGE, 2007, p. 15). The concentration of this equipment in the Southeast and South regions of the country reflects the regional socioeconomic inequalities. This can be a focus of public policies to reduce inequality through culture and art.

⁷ According to the National Classification of Economic Activities (IBGE, 2000), creative and interpretive artists are people working as Plastic artists; Musicians, singers and songwriters; Dancers and choreographers; Cinema

informality in the labor market in arts and entertainment in Brazil. The percentage of artists employed in the informal sector is around 85%, with higher averages in the North and Northeast of the country, and lower in the South. There is a predominance of men in the sector, but with a large presence of women in the Southeast and Northeast regions. We also found important regional differences both in income and in the size of the labor market in the artistic sector, which present higher values in the Southeast, Midwest, and South of the country.

Although our focus is not exclusively on the monetary dimension, we use income as a result variable in this analysis because of its importance as an “instrumental asset” to be converted into other goods and services such as education, health, leisure, food, clothing, among others. These, in turn, can be important for promoting equal opportunities. Taking into account the circumstances of sex, skin color, and formal employment, we analyzed the differences in the average monthly wages of the artists according to eight worker profiles. The results are presented in Table 1.

Table 1. Average wages of Brazilian artists according to workers' profiles (values of 2010)

State	Worker profile according to the circumstances: gender, skin color (a) and employment status (b)							
	Man – White - Formal	Man – White - Informal	Man - Nonwhite - Formal	Man – Nonwhite - Informal	Woman – White - Formal	Woman – White - Informal	Woman – Nonwhite - Formal	Woman – Nonwhite - Informal
Acre (AC)	2.428,74	915,06	1.408,38	642,91	510	789,58	473,68	467,12
Alagoas (AL)	1.563,82	968,42	1.486,96	735,4	682,87	616,72	707,68	349,45
Amapá (AP)	3.873,34	835,86	2.277,08	684,25	510	841,39	1.387,17	464,51
Amazonas (AM)	2.493,92	1.043,94	1.594,67	1.117,60	2.222,27	1.138,84	1.583,26	499,59
Bahia (BA)	2.358,68	1.231,75	1.162,25	740,75	3.065,38	588,1	1.160,00	419,05
Ceará (CE)	1.465,54	748,48	1.120,33	678,01	1.268,70	526,88	3.058,53	282,92
Distrito Federal (DF)	7.224,43	1.861,88	2.676,24	1.263,17	4.559,40	1.089,15	4.965,15	1.284,55
Espírito Santo (ES)	2.705,95	1.166,55	1.123,31	1.043,48	1.703,90	810,35	928,79	599,01
Goiás (GO)	4.425,85	1.824,75	2.532,52	1.288,31	2.297,62	1.456,40	824,74	710,06
Maranhão (MA)	2.006,12	709,24	1.525,56	594,42	3.009,25	590,71	1.578,64	306,9
Mato Grosso (MT)	2.040,66	1.421,68	1.364,57	988,49	990,27	1.189,02	1.801,37	818,96
Mato Grosso do Sul (MS)	1.208,65	1.556,24	1.179,90	1.162,81	733,38	1.132,96	635,2	557,54
Minas Gerais (MG)	1.630,91	1.105,76	1.143,16	1.046,79	1.062,51	703,96	727,75	561,12
Pará (PA)	1.838,90	916,9	1.134,00	717,68	1.828,23	607,82	924,86	475,86
Paraíba (PB)	1.779,02	788,67	1.170,69	651,64	1.265,07	593,62	940,44	384,19
Paraná (PR)	2.227,41	1.457,59	1.156,39	926,62	1.645,92	1.395,51	1.191,11	286,27
Pernambuco (PE)	1.141,17	882,78	1.339,63	749,5	1.361,80	631,04	722,11	416,7
Piauí (PI)	957,62	634,97	1.278,17	539,33	590,87	364,37	500,65	302,82

directors, theater directors; Actors; Radio, television and other media announcers; Other creative and interpretive artists not previously classified.

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	Man – White - Formal	Man – White - Informal	Man - Nonwhite - Formal	Man – Nonwhite - Informal	Woman – White - Formal	Woman – White - Informal	Woman – Nonwhite - Formal	Woman – Nonwhite - Informal
Rio de Janeiro (RJ)	5.075,68	2.130,27	2.731,36	1.262,65	4.330,13	1.201,14	2.137,29	648,02
Rio Grande do Norte (RN)	841,61	855,17	1.505,53	730,17	1.148,79	618,74	1.200,62	406,19
Rio Grande do Sul (RS)	1.674,68	1.334,38	1.231,38	878,27	1.026,68	1.216,28	1.016,96	397,95
Rondônia (RO)	1.119,83	1.717,44	1.156,67	743,18	785,17	779,36	1.199,13	467,34
Roraima (RR)	1.733,94	1.214,91	2.381,83	758,81	700	463,99	1.215,51	365,15
Santa Catarina (SC)	1.654,57	1.468,75	1.338,87	986,51	1.346,69	1.250,79	1.000,01	405,13
São Paulo* (SP)	1.775,90	1.444,65	1.483,11	998,9	1.311,25	720,35	1.193,34	674,33
SPMA**	3.593,06	2.852,00	1.844,62	1.465,81	2.774,64	1.753,87	1.033,27	774,21
Sergipe (SE)	1.004,25	1.052,95	1.037,04	774,08	5.448,42	601,96	769,97	563,15
Tocantins (TO)	2.069,20	2.053,56	859,68	1.197,88	724,29	571,51	1.150,71	388,72

Source: prepared by the authors using data from the IBGE Demographic Census (2010).

Notes: (a) “white” category groups self-declared white and yellow; “nonwhite” groups self-declared black, mixed-race and indigenous people; (b) “formal” refers to employees with a formal contract, military, and statutory civil servants; “informal” refers to employees with no formal contract and on their own account.

* The figures for São Paulo consider the municipalities of this state without the Metropolitan Area; ** São Paulo Metropolitan Area.

By comparing the average wages of workers according to their profiles, we find evidence of the importance of circumstances (sex, skin color, and formal employment) for the differences between wages of artists in the labor market. We consider these circumstances as factors that generate unjust inequalities in opportunities in the labor market and seek to identify the contribution of each circumstance to the total inequality of opportunities.

Data and Methodology

In this paper, we use a model to measure inequality of opportunities, following Roemer's (1998) distinction of the factors that can compose the total inequality between variables of circumstances and efforts. The main idea is that there are ethically acceptable components and unacceptable components in inequalities. Wages are determined by a set of circumstances that are beyond individual control (gender, color, formal employment) as well as individual efforts (for example, the decision to migrate, education level, hours worked per week, and the number of jobs she has). All individuals who apply the same level of personal effort should earn similar income, regardless of their circumstantial characteristics. The unacceptable part of inequality is that generated by circumstances that cannot be controlled by the individual, that is, factors that affect results, but that do not depend on individual effort.

We use the parametric estimation methodology proposed by Ferreira and Gignoux (2011), which is the most appropriate for the case of continuous variables with inherent scale (JUÁREZ & SOLOAGA, 2014). The estimated model is an Ordinary Least Squares (OLS)

that considers the continuous dependent variable (in this paper, average wages), conditional on a set of binary circumstances (dummies for sex, skin color, and formal employment).

To estimate Ferreira and Gignoux’s (2011) model following the methodology defined by Juárez and Soloaga (2014), it is necessary to use dummy variables for each circumstance. We use the variable “sex” from the Brazilian demographic census (2010) to generate a dummy taking the value 1 for women. Using skin color, self-reported information, we grouped white and yellow in the “white” group and black, mixed-race and indigenous in the “nonwhite” group. The “skin color” dummy in the model takes the value 1 for nonwhite individuals. The same grouping strategy was used to create the variable “Formalization”, which refers to the type of employment: “formal” refers to employees with a formal contract, military, and statutory civil servants, while “informal” refers to employees without a formal contract and on their own account.

There are two variables among these that are, in fact, circumstantial - sex and color - while formalization of employment could be interpreted as a conditional choice. The option to include this information on formalization among the circumstances reflects worker’s usual inability to change the employment situation in which they find themselves, a situation imposed by their employers, and which can be a hallmark of the sector in which these workers are employed (as is the case with the highly informal arts and entertainment market).

To create the Opportunity Index, we selected the circumstance variables interpreted as possible sources of exogenous wage discrimination: sex, skin color, and formalization of employment. The effort variables are not considered as possible sources of ethically unacceptable inequalities. Measurement methods for inequality of opportunity indices can be divided into two different approaches, one ex-ante and the other ex-post. In this paper, we use an ex-ante approach, which does not consider individual effort (unobservable) and suggests that equal opportunities are obtained when circumstances do not interfere with the results (ADAMCZYK, 2017).

Model Specification

The model we use follows Juárez and Soloaga’s (2014) “iop package” for Stata. We estimate the relationship between economic results (in this article, average earnings) and individual circumstances (sex, skin color, and formal employment) according to the regression method for estimating ex-ante inequality of opportunity. Let y be the result variable and C be a matrix of individual circumstances. The regression approach relates the return to circumstances by conditional expectation:

$$\hat{y} = E[y|C] \quad (1)$$

Taking into account the variables selected for this paper, (1) takes the form

$$\widehat{w_{artists,s}} = E[w_{artists,s} | (women_s, color_s, informal_s)] \quad (2)$$

where $w_{artists,s}$ represents the average earnings obtained by artistic workers in Brazil in 2010. The index s indicates the State, $women_s$ is a *dummy* that takes the value 1 for female workers, $color_s$ is a *dummy* that takes the value 1 for nonwhite workers and $informal_s$ is a *dummy* that takes the value 1 for informal workers.

After estimating the regression of circumstances on income using ordinary least squares (OLS) (FERREIRA & GIGNOUX, 2011), we calculate the inequality of opportunities using an inequality measure $I(\cdot)$ applied to the estimate of y (\hat{y}):

$$\theta_a = I(\hat{y}) \quad (3)$$

The interpretation of (3) is that all variation in the vector is due exclusively to circumstances and therefore refers to inequality of opportunities (JUÁREZ & SOLOAGA, 2014). In addition to this measure of absolute inequality, the method allows us to obtain a measure of relative inequality:

$$\theta_r = \frac{I(\hat{y})}{I(y)} \quad (4)$$

To analyze how each circumstance contributes to the total inequality of opportunities we do the Shapley decomposition. This technique decomposes the estimation result according to the groups of circumstances, generating plots that can be interpreted as the contribution of each regressor (type of circumstance) to the estimated inequality. To calculate this Shapley's decomposition using Stata's *iop* package (JUÁREZ & SOLOAGA, 2014), we first estimate the inequality for all possible permutations of the circumstance variables and then calculate the average marginal effect of each circumstance variable on the total inequality of opportunity.

Results and Analysis

We present the results of the estimation of (2) in Table 2.

Table 2. Partial correlations of circumstances with average wages of artists in Brazil (2010).

W_artists	North							Midwest					South	
	AC	AM	AP	PA	RO	RR	TO	DF	GO	MS	MT	PR	RS	SC
Sex_feminine	-362.5*** (117.1)	-605.4*** (201.6)	-305.6** (135.5)	-264.4*** (48.39)	-685.9*** (145.6)	-484.5*** (121.3)	-395.7** (195.8)	-302.0** (130.3)	-447.9** (182.5)	-432.4 (294.4)	-423.8 (506.1)	-375.2*** (81.32)	-312.8*** (67.57)	-274.7*** (92.33)
Color_nonwhite	-248.1* (144.7)	-121.1 (243.7)	-148.7 (151.4)	-229.2*** (56.81)	-535.7*** (173.9)	-426.5*** (121.6)	-413.9* (218.0)	-343.4*** (116.4)	-416.7** (162.0)	-638.7*** (234.8)	-866.6** (431.7)	-680.5*** (78.51)	-471.3*** (71.59)	-475.3*** (104.0)
Emp_informal	-831.3*** (183.7)	-1,092*** (285.6)	-1,426*** (218.0)	-608.8*** (100.9)	-268.3 (308.7)	-177.0 (170.0)	-671.8** (258.9)	-406.2*** (134.9)	158.8 (205.3)	-1,293*** (284.6)	-3,699*** (540.2)	-499.7*** (98.95)	-264.0*** (68.45)	-151.9* (88.47)
Constant	1,960*** (208.1)	2,126*** (313.4)	2,324*** (227.2)	1,490*** (105.8)	1,752*** (321.7)	1,473*** (170.9)	1,795*** (266.1)	1,751*** (143.6)	1,289*** (201.7)	2,954*** (285.0)	5,653*** (524.9)	1,868*** (92.00)	1,478*** (61.38)	1,542*** (78.24)
Observations	1.113	7.040	1.415	14.669	2.603	655	2.649	3.322	5.618	3.050	2.624	11.275	13.591	7.357
R ²	0.69	0.30	0.29	0.76	0.72	0.10	0.52	0.72	0.44	0.55	0.28	0.10	0.57	0.38
W_artists	Northeast							Southeast						
	AL	BA	CE	MA	PB	PE	PI	RN	SE	ES	MG	RJ	SP1	SPMA
Sex_feminine	-233.5*** (46.53)	-210.2*** (32.13)	-298.1*** (37.14)	-256.5*** (54.10)	-217.4*** (41.92)	-227.1*** (35.02)	-155.3 (101.8)	-321.9*** (56.96)	-321.9*** (56.96)	-421.1*** (72.02)	-398.1*** (27.74)	-668.5*** (103.9)	-963.5*** (129.8)	-612.4*** (41.22)
Color_nonwhite	-170.7*** (52.93)	-31.34 (36.27)	-123.3*** (38.33)	-93.90* (53.83)	-117.2*** (41.99)	-117.4*** (34.89)	-307.7*** (112.0)	-197.4*** (60.06)	-197.4*** (60.06)	-250.6*** (70.24)	-138.7*** (27.13)	-692.9*** (104.8)	-1,247*** (142.1)	-305.9*** (46.40)
Emp_informal	-999.8*** (102.1)	-471.7*** (77.09)	-658.8*** (76.18)	-525.8*** (101.1)	-642.7*** (76.09)	-495.9*** (69.39)	-662.2*** (184.5)	-531.9*** (123.0)	-531.9*** (123.0)	-623.2*** (125.1)	-315.1*** (41.92)	-2,053*** (156.3)	-706.9*** (171.0)	-367.8*** (58.73)
Constant	1,694*** (106.6)	968.5*** (80.13)	1,316*** (77.41)	1,246*** (100.8)	1,252*** (75.11)	1,255*** (69.78)	1,518*** (190.8)	1,345*** (121.9)	1,345*** (121.9)	1,830*** (125.9)	1,289*** (41.16)	3,890*** (154.5)	3,431*** (163.4)	1,701*** (56.32)
Observations	7.242	35.098	27.638	10.241	10.271	21.740	6.635	7.706	4.593	7.745	48.042	49.945	35.897	42.836
R ²	0.29	0.10	0.63	0.68	0.94	0.52	0.52	0.11	0.11	0.87	0.60	0.81	0.60	0.85

Source: Prepared by the authors based on data from the IBGE Demographic Census (2010).

Note: Standard deviations in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

The regression of circumstances on income in the artistic labor market has a good fit for most Brazilian states. Also, there is a statistical significance of the coefficients associated with the circumstances in the vast majority of cases. Analyzing the sign of the estimated coefficients for the dummies of circumstances, we find that there is a negative correlation between sex, color, and informality with the average income. In the ideal context of equal opportunities, circumstances should not matter for the economic result obtained by individuals. After obtaining the results for the regressions, we estimated the index of opportunities for artists in Brazil. We obtained the values of absolute and relative inequalities, respectively θ_a and θ_r , estimating (3) and (4). We present our results in Table 3.

Table 3. Inequality of opportunity in the Arts and Entertainment labor market in Brazil (2010).

State (a)	Absolute inequality (θ_a)	Standard Deviation	Relative inequalities (θ_r)	Standard Deviation
RR	0.213063	(0.106624)	0.523087	(0.106624)
DF	0.222668	(0.109792)	0.375404	(0.109792)
AP	0.128872	(0.063357)	0.359326	(0.063357)
RJ	0.213854	(0.031443)	0.337740	(0.031443)
AC	0.160425	(0.149068)	0.337196	(0.149068)
TO	0.233441	(0.182608)	0.328792	(0.182608)
PR	0.133006	(0.024227)	0.238270	(0.024227)
RO	0.096743	(0.038886)	0.232775	(0.038886)
SP ^(b)	0.097140	(0.014284)	0.212906	(0.014284)
SPMA	0.113723	(0.011920)	0.195331	(0.011920)
GO	0.086606	(0.054333)	0.187526	(0.054333)
MA	0.101918	(0.023753)	0.177836	(0.023753)
AL	0.095846	(0.021040)	0.173637	(0.021040)
BA	0.108803	(0.018770)	0.154442	(0.018770)
MG	0.080664	(0.008681)	0.154339	(0.008681)
CE	0.123490	(0.015545)	0.142322	(0.015545)
PB	0.092370	(0.026131)	0.140549	(0.026131)
ES	0.061285	(0.016607)	0.134966	(0.016607)
PA	0.064422	(0.019230)	0.123888	(0.019230)
SE	0.069361	(0.040163)	0.121821	(0.040163)
PI	0.063697	(0.014109)	0.121182	(0.014109)
AM	0.066122	(0.023264)	0.119265	(0.023264)
RS	0.041965	(0.008270)	0.113818	(0.008270)
MT	0.028429	(0.013482)	0.101275	(0.013482)
RN	0.055791	(0.014724)	0.097190	(0.014724)
MS	0.035268	(0.024937)	0.096720	(0.024937)
PE	0.038207	(0.006835)	0.078676	(0.006835)
SC	0.021086	(0.007010)	0.069113	(0.007010)

Source: Prepared by the authors based on data from the IBGE Demographic Census (2010).

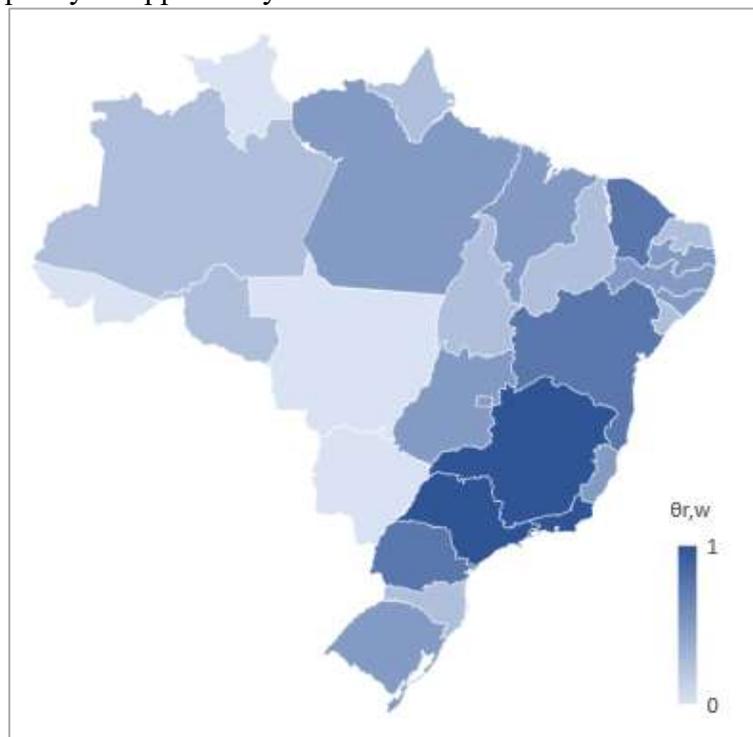
Notes: (a) States are listed in decreasing order of estimated inequality (θ_r); (b) The estimated values for SP1 refer to the State of São Paulo, without considering the Metropolitan Area (SPMA); (c) Standard error in parentheses.

Bootstrap replications: 100

We can read the values in the fourth column, θ_r , as the percentage of observed inequalities that can be considered as ethically unacceptable (ALMÁS et Al, 2011) within the Art market in each Brazilian state in 2010.

The estimated unacceptable inequalities are around 20% for the Brazilian territory. These inequalities are ethically unacceptable because they stem from factors that are not associated with individual effort, but rather with circumstances or characteristics intrinsic to individuals. The greatest inequality of opportunities was found in Roraima (in the North of the country), exceeding 50%, while the lowest, of approximately 7%, in Santa Catarina (in the South). Weighting these results by the size of the market in each of these states, we obtain the results illustrated in Figure 2. We note the concentration of the highest levels of inequality in the states of the Southeast and Northeast regions.

Figure 2. Inequality of opportunity in Arts and Entertainment in Brazilian states (2010)



Source: Prepared by the authors based on data from the IBGE Demographic Census (2010).

We can decompose the total inequality estimated according to different circumstances through Shapley's decomposition. This decomposition aims to identify which are the circumstances that cause inequalities of opportunity and how much each of these circumstances affects the total inequality. We present the results of this Shapley decomposition in the following Table 4. Results of Shapley's decomposition of inequality of opportunities for Brazilian artists (2010). Table 4 and

Figure 3. In general, we find that the type of work is a relevant factor, given the high informality that is characteristic among artist workers.

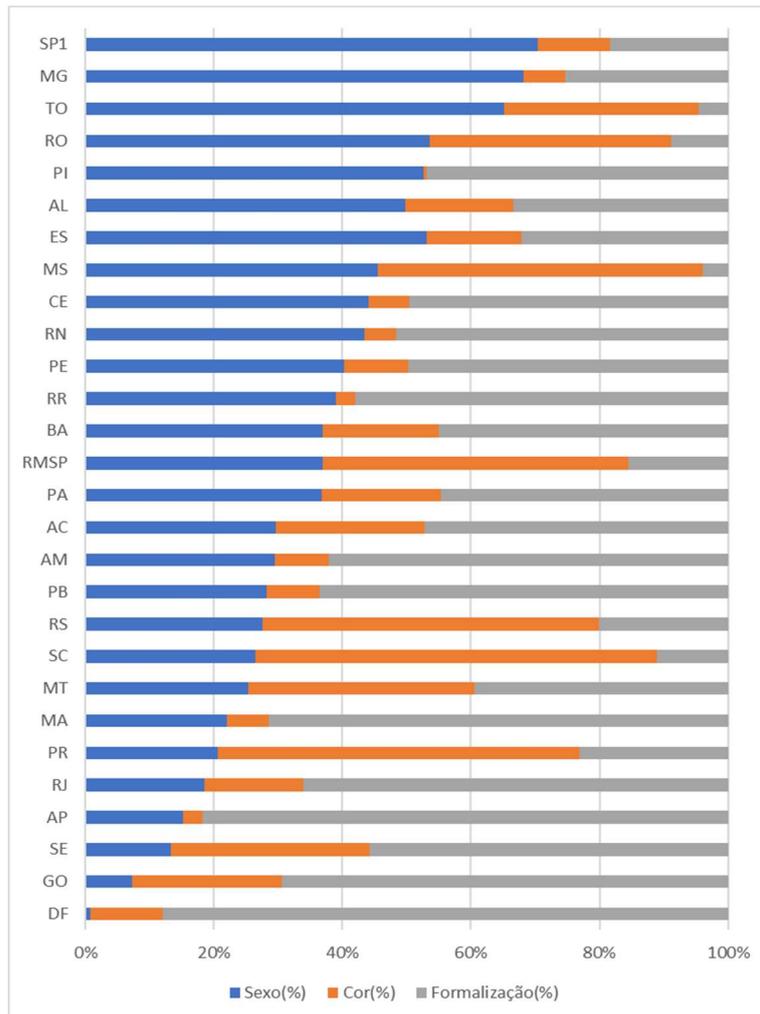
Table 4. Results of Shapley's decomposition of inequality of opportunities for Brazilian artists (2010).

State	Sex (%)	Skin Color (%)	Formalization of employment (%)
SP _i *	70,43%	11,26%	18,31%
MG	68,16%	6,47%	25,37%
TO	65,19%	30,22%	4,58%
RO	53,64%	37,52%	8,84%
PI	52,57%	0,54%	46,89%
AL	49,74%	16,87%	33,39%
ES	47,85%	13,16%	28,99%
MS	45,49%	50,64%	3,87%
CE	44,12%	6,35%	49,53%
RN	43,40%	4,94%	51,66%
PE	40,19%	10,14%	49,66%
RR	38,96%	2,98%	58,05%
BA	37,00%	17,96%	45,04%
SPMA**	36,95%	47,55%	15,50%
PA	36,73%	18,57%	44,70%
AC	29,58%	23,28%	47,14%
AM	29,48%	8,42%	62,10%
PB	28,25%	8,25%	63,50%
RS	27,55%	52,29%	20,16%
SC	26,50%	62,45%	11,05%
MT	25,29%	35,31%	39,40%
MA	21,98%	6,52%	71,50%
PR	20,54%	56,35%	23,11%
RJ	18,62%	15,35%	66,04%
AP	15,28%	3,00%	81,72%
SE	13,34%	30,83%	55,83%
GO	7,26%	23,34%	69,39%
DF	0,86%	11,11%	88,03%

Source: Prepared by the authors based on data from the IBGE Demographic Census (2010).

Notes: * SP_i refers to the State of São Paulo without considering the Metropolitan Area (SPMA); ** São Paulo Metropolitan Area.

Figure 3. Results of Shapley's decomposition of inequality of opportunities.



Source: Prepared by the authors based on data from the IBGE Demographic Census (2010).

Figure 4 indicates the circumstance with the greatest relative contribution to the estimated inequality of opportunities in the Arts and Entertainment job market in each state of Brazil.

Figure 4. The relatively most important circumstances for the inequality of opportunity in Arts and Entertainment in Brazil by state (2010).



Source: Prepared by the authors based on data from the IBGE Demographic Census (2010).

We note the importance of informality's contribution to the estimated inequalities in the North, Northeast, and Midwest states of the country. In the Southeast the circumstance that contributes the most to the estimated inequality is sex, while in the South it is the skin color.

Final remarks

Artistic and cultural activities allow artistic and identity expression, and are accessible to professionals with different levels of education, without specific training, or with training in other areas. In terms of the economic sector in which it operates, Art can be classified in the segment of leisure and entertainment as well as in activities of recreation and human development, contributing to several dimensions of quality of life. However, this does not diminish its economic relevance, since Art is a sector that demands work from different types of professionals.

The artistic and cultural sector can be an instrument of sustainable and inclusive local and regional development. Its activities, in addition to being marked by diversity, are important generators of income, employment, and well-being, and are capable of promoting social inclusion and cohesion. Consequently, the analysis of the characteristics of this labor market can be relevant and interesting for the formulation of public policies aimed at promoting socio-economic development and inclusion.

In this paper, we provide an overview of the main socio-economic characteristics of workers in the artistic sector in Brazil based on data from the 2010 demographic census. We highlight one of the specificities of the artistic sector and the labor market for creative and interpretive artists: the high informality. There is a great diversity of occupations in the

sector, and a predominance of men specifically in artistic occupations, but with a large presence of women in the Southeast, and Northeast regions of Brazil. The data also show important regional differences in both income and the size of the labor market in the artistic sector, maintaining the common trend of high informality regardless of the region analyzed. We have identified inequalities in opportunities for women, non-white, and informal workers in the Brazilian labor market in the arts and entertainment sector. Descriptive statistics show that groups of non-white women receive lower average monthly earnings, although there are no physical limitations to exercise such activities that favor men.

In addition to profiling these workers based on data from the 2010 IBGE demographic census, we estimate the inequality of opportunities using the regression methodology, which allows us to relate average wages to the circumstances of workers (sex, skin color, and type of job) through the estimation by ordinary least squares of linear regression. As we find significant correlations between circumstances and income, consequently we have evidence of the existence of inequalities of opportunity. In the ideal context of equal opportunities, circumstances should not matter for the outcome.

The estimation results indicate the percentage of observed inequalities that can be considered ethically unacceptable. The estimated value of the inequality of opportunity among Brazilian artists is around 20%. These inequalities are considered unfair because they stem from factors associated with circumstances that individuals do not control, and that are not the result of different levels of effort. According to the capabilities approach, these inequalities are deprivations related to the insufficiency of capability achievements. The society must is to expand opportunities. Reducing inequalities is an important and necessary step for this.

We decompose the inequality of opportunity using Shapley's methodology. This decomposition seeks to identify the circumstances that contribute relatively more to the estimated inequalities of opportunity. Our results indicate that the formalization of work is the circumstance with the greatest relative weight in inequality. Considering the size of the job market in arts and entertainment in Brazilian states, there is a greater contribution of (a) informality to inequalities in the North, Northeast, and Midwest; (b) sex for the Southeast; and (c) skin color for the South of the country.

Our preliminary contribution lies, on identifying which specific circumstances contribute to shaping the inequalities in each state of Brazil and thru this, in future steps, to suggest different efforts to compensate for the deprivation and enhancing the capability set.

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