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DIFFERENTIALS OF LABOR INCOME AMONG HEALTH PROFESSIONALS IN BRAZIL - 2010/2017

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ABSTRACT

Brazilian wage disparities are substantially high and occur in all occupations registered in the country, even if such occupations require higher levels of education. In view of this, this article aims to analyze the wages, in a specific group of the employed differentials: health professionals, by socioeconomic and demographic characteristics of these professionals. The data are from the Annual List of Social Information of the Social Security and Employment Secretariat of the Ministry of Economy and were used in the Cross Sections of 2010 and 2017. Estimates of the Mincerian equation of income using Ordinary Least Squares. The results show that all health professionals earned less than the income of a doctor in both years. Furthermore, by controlling for the same variables, the income disparities between a doctor and other health professionals increase in 2017, compared to 2010.

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INTRODUCTION

The dynamics of the health work market in Brazil is largely a result of the transformations that have taken place in the process of professional training and in the offer of higher education courses in the various areas of health, given the expansion of education, especially private, and the increase in the training of professionals who have graduated from these areas. areas [1,2,3,4]. This context has promoted substantial reconfiguration in the health work market and this dynamic has accentuated working conditions and, consequently, income [5,6,7]. The expressive growth in the supply of health professionals annually in the Brazilian labor market is remarkable, however it is worrying from the point of view of the precariousness of work [3], since the supply of labor superior to the demand makes the salaries practiced become increasingly smaller, often leading professionals to supplement their income outside the health area [8,9] or have an overload of hours worked in more than one job. This results in an accentuation both in the differences in salary returns and in the informality of professionals in the market, especially in some areas of training, with a greater number of graduates annually placed at the disposal of the labor market. The public sector has lost its share as the main occupier of health professionals in Brazil over the years, and, as a result, professionals in this sector increasingly seek occupations in job vacancies offered by the private sector[8], with restricted absorption capacity and with practice of low wages, in addition to excessive weekly working hours [10]. This results in the compression of salaries practiced in the sector, being a guide for the offer of salaries both in the public and private sectors for these professionals. In the early 1990s, there were already important changes in the supply of jobs and in the absorption of the health workforce in Brazil. In these years, the settings in the labor market of health professionals gradually increased the participation of those employed in the lowest pay ranges and, as a result, multiple employment emerged as a way of mitigating the impacts of the reduction in the income of these professionals [11,12, 13, 14]. In this sense, except for medical courses that have a limited capacity to open higher education courses, as well as a substantial offer of jobs in primary care [7], other courses in the health area expand their vacancies, increasing the number of people available in the market, thus reducing the average remuneration of this workforce [15,2]. Faced with this problem, we seek to answer the following questions:

What is the magnitude of the diploma effect on the differentials of work earnings among professionals formally employed in the Brazilian health sector?

The importance of national scientific production is since, to date, there is no knowledge of any study that investigates income

differentials in the labor market among health professionals, thus providing an unprecedented contribution in this field of debate. In addition, it seeks to analyze the disparities in income from work in the formal sector of the economy, that is, workers with guarantees and protection of the statute of public servants in the spheres of governments, namely: Union, States, Federal District and Municipalities, as well as as well as the consolidation of the Labor Law – CLT. In addition, there is a time of health crisis that provokes reflections about the fundamental importance of all health professionals and the recognition given to these professionals, mainly through the salary remuneration they earn. In this sense, it is not intended to make a judgment on the merits regarding the salaries practiced in relation to the functions performed, but to provide subsidies for a discussion about these salary inequalities that are necessary in view of the essentiality of all health professionals in the consolidation of public health actions. across the national territory. Therefore, this article aims to analyze the income differentials in the labor market for health professionals in Brazil, comparing the year 2010 to 2017, from the perspective of wage inequalities per hour of work of these professionals. The aim is to analyze, based on a classic instrument of analysis of salary returns, the effects of the socioeconomic and demographic characteristics of those employed in health, as well as their area of activity – diploma effect – on the disparities in income/hours of work.

METHODS

Empirical econometric study of an analytical nature with a quantitative approach. The differences in earnings from work among health professionals in Brazil were analyzed based on data from the Annual Report of Social Information (RAIS) [16] of the Social Security and Employment Secretariat of the Ministry of Economy. A review of the literature is used, followed by an empirical approach through estimations in Ordinary Least Squares – OLS, based on a Mincerian equation of income. The study addresses data in *Cross Sections* from the years 2010 and 2017. Health professionals are listed according to the Brazilian Classification of Occupations - CBO[17], in the occupational categories presented in Table 01. The occupational categories concentrate the professionals, namely: doctors, dentists, nurses, pharmacists, nutritionists, speech therapists, physiotherapists, psychologists, occupational therapists, biomedical professionals, and social workers. The specialties mentioned above were included in Table 01, being grouped in the definitions.

Table 1. Classification of employed health professionals according to the Brazilian Classification of Occupations - CBO – 2002 (six-digit code and specialty)

223204:Dental Surgeon - Auditor; 223208:Dental Surgeon - General Practice; 223212:Dental Surgeon - Endodontist; 223216:Dental Surgeon - Epidemiologist; 223220:Dental Surgeon - Stomatologist; 223224:Dental Surgeon - Implantologist; 223228:Dental Surgeon - Geriatric Dentistry; 223232:Dental Surgeon - Forensic Dentist; 223236:Dental Surgeon - Pediatric Dentist; 223240:Dental Surgeon - Orthopedist and Orthodontist; 223244:Dental Surgeon - Oral Pathologist; 223260:Dental Surgeon - Radiologist; 223248:Dental Surgeon - Periodontist; 223252: Dental Surgeon - Oral and Maxillofacial Protesiologist; 223256:Dental Surgeon - Prosthodontist; 223260:Dental Surgeon - Radiologist; 223264:Dental Surgeon - Oral Rehabilitator; 223268: Dental Surgeon - Oral and Maxillofacial Traumatologist; 223272: Public Health Dental Surgeon; 223276:Dental Surgeon - Occupational Dentistry; 223280:Dental Surgeon - Dentistry; 223284:Dental Surgeon - Temporomandibular Disorders and Orofacial Pain; 223288:Dental Surgeon - Dentistry for Patients with Special Needs; 223293:Dentist of the Family Health Strategy.
223605:General Physiotherapist; 223625:Respiratory Physiotherapist; 223630:Neurofunctional Physiotherapist; 223635:Functional Trauma-Orthopedic Physiotherapist; 223640: Osteopathic Physiotherapist; 223645:Chiropractor Physiotherapist; 223650:Physiotherapist Acupuncturist; 223655:Sports Physiotherapist; 223660:Occupational Physiotherapist.
251505:Educational Psychologist; 251510:Clinical Psychologist; 251515:Sports Psychologist; 251520:Hospital Psychologist; 251525:Legal Psychologist; 251530:Social Psychologist; 251535:Transit Psychologist; 251540:Occupational Psychologist; 251545:Neuropsychologist.
223405:Pharmaceutical; 223410:Biochemical Pharmacist; 223420:Food Pharmacist.
223505:Nurse; 223510:Nurse Auditor; 223515:Flight Nurse; 223520:Surgical Center Nurse; 223525:Intensive Care Nurse; 223530:Occupational Nurse; 223535:Nephrologist Nurse; 223540:Nurse Neonatologist; 223545:Obstetric Nurse; 223550:Psychiatric Nurse; 223555:Childcare and Pediatric Nurse; 223560: Health Nurse; 223565:Nurse of the Family Health Strategy.
223610: Speech therapist; 223810: Phonoaudiol; 223815: Educational Speech Therapist; 223825: Speech Therapist in Dysphagia; 223830: Speech Therapist in Language; 223845: Speech Therapist in Voice.
221205: Biomedical
223620: Occupational Therapist
251605: Social Worker
223710: Nutritionist
225103: Physician Infectious Diseases; 225105: Acupuncturist Physician; 225106:Coroner; 225109:Nephrologist Physician; 225110:Allergist and Immunologist; 225112: Neurologist Physician; 225115: Physician Angiologist; 225118: Physician Nutrologist; 225120: Cardiologist Physician; 225121:Clinical Oncologist Physician; 225122: Pediatric Cancerologist Physician; 225124: Pediatrician Physician; 225125:Clinical Physician; 225127:Pneumologist Physician; 225130:Family and Community Physician; 225133: Psychiatrist Physician; 225133: Psychiatrist Physician; 225135: Dermatologist Physician; 225136: Rheumatologist Physician; 225139: Sanitary Physician; 225140:Occupational Physician; 225142:Physician of the Family Health Strategy; 225145:Doctor in Traffic Medicine; 225148: Anatomopathologist Physician; 225150: Physician in Intensive Care; 225151: Anesthesiologist Physician; 225155: Physician Endocrinologist and Metabologist; 225160:Physiatrist; 225165: Physician Gastroenterologist; 225170: General Physician; 225175: Geneticist Physician; 225180:Geriatrician; 225185: Physician Hematologist; 225195:Homeopathic Doctor; 225203: Physician in Vascular Surgery; 225210: Physician Cardiovascular Surgeon; 225215:Head and Neck Surgeon; 225220:Digestive Surgeon Physician; 225225: Physician General Surgeon; 225230: Pediatric Surgeon Physician; 225235:Physician Plastic Surgeon; 225240:Physician Thoracic Surgeon; 225250: Gynecologist and Obstetrician; 225255:Mastologist Physician; 225260: Neurosurgeon Physician; 225265: Ophthalmologist Physician; 225270:Orthopedist and Traumatologist; 225275: Otolaryngologist Physician; 225280: Coloproctologist Physician; 225285: Urologist Physician; 225290: Physician Surgical Cancerologist; 225295:Hand Surgeon Physician; 225305: Cytopathologist Physician; 225310:Doctor in Endoscopy; 225315: Physician in Nuclear Medicine; 225320:Doctor in Radiology and Diagnostic Imaging; 225325: Physician Pathologist; 225330:Radiotherapist Physician; 225335:Clinical Pathologist Physician / Laboratory Medicine; 225340: Hemotherapist Physician; 225345:Hyperbarista Physician; 225350: Clinical Neurophysiologist Physician;
Source: Brazilian Classification of Occupations - CBO [17] (own elaboration)

All professionals employed in this study were required to have a higher education course in their respective area (hereinafter, health professionals). Therefore, for example, a pharmacist who works as a commercial representative, even for health-related products, is not covered here. Therefore, only professionals who work in their area of graduation were included in the sample of this study, according to the classification of the CBO [17] and the annual report of RAIS [16]. To obtain a reliability of 99%, with a margin of error of 1%, the necessary sample would be 739 individuals in the first year and 909 in the second year. Thus, the final sample generated by a random process was composed of 308,206 professionals, out of a total of 773,042, corresponding to 39.9% of the population in 2010 and 179,447 professionals, out of a total of 960,781, representing 18.7% in the year 2010. Year 2017[16]. The sample data were reduced due to the lack of information regarding some variables used here (*missing values*), such as those not declared by any employing agency, thus being excluded from the population, in order not to cause any specification bias and not to compromise the results. It should be noted that the *missing values* excluded from the population do not compromise the estimates of the parameters of this study as a result of the sample size much larger than that initially estimated. For the extraction and modeling of microdata, *Software* R and its statistical packages specific to the use of data and each method were used.

Empirical model: To estimate the effects of the area of training and the socioeconomic and demographic characteristics of health professionals on income from work, multiple linear regression was

used, which is an empirical instrument substantially used in studies that aim to analyze the effects of regressors (independent) on the regressing (dependent) variable estimated to explain the behavior of a variable as a function of variations in the variables that explain it [18]. The Ordinary Least Squares method – OLS is commonly used in this type of estimation. The multiple linear regression model has become predominant in studies that aim to estimate robust data, since its conception in 1908, by Karl Pearson [19].

The multiple regression model, in its theoretical name, can be presented as follows:

$$Y_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_n X_{ni} + \epsilon_i \quad (1)$$

Here $Y_i$is the variable to be explained (regressing) by the set of explanatories (regressive) variables that are plotted in a data matrix that assumes the format X_i, from the explanatory coefficients defined $\beta_{1i} \ldots \beta_{ni}$plus the stochastic component of the estimationϵ_i. In the case of sample data from a population, commonly used in studies of this nature, the specification of the mathematical method can be based on the following mathematical function, for a sample of $n$professionals in a universe [18]:

$$\hat{y_i} = \hat{\alpha} + \widehat{\beta_1} X_{1i} + \widehat{\beta_2} X_{2i} + \cdots + \widehat{\beta_n} X_{ni} + \hat{\varepsilon_i} \quad (2)$$

In which $\hat{\alpha}$and $\hat{\beta}$assume the functions of sample estimators for the coefficients of the multiple linear regression model, with o being the $\hat{\varepsilon}$sample residual arising from the estimations from a data sample. In this article, the Ordinary Least Squares estimations will be carried out through a Mincerian equation of income [20]. From it, it is possible to estimate the wage income of the employed in a region at a given time, using a set of socioeconomic and demographic characteristics of the employed individuals, as well as their professional area. Thus, the Mincer equation [20] can be expressed as follows:

$$Ln_w = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + \varepsilon \quad (3)$$

Where Ln_wcorresponds to the natural logarithm of wages (returning variable) explained by the area of professional activity (in this case, also the area of professional training in the workplace) and a set of socioeconomic and demographic characteristics (regressive variables). With such definitions, the equation estimated in this article has the Ln_w(Natural Logarithm of Salaries) of health professionals explained by a set of socioeconomic and demographic characteristics. The set of characteristics, among them, the area of health training and the socioeconomic and demographic characteristics of the employed individuals, as regression variables, assume the following definitions:

- ✓ $Ln_w$is the natural logarithm of the salary of health professionals – training area effect – (physician = reference category; dentists, nurses, pharmacists, nutritionists, speech therapists, physiotherapists, psychologists, occupational therapists, biomedical workers and social workers);
- ✓ Race/color of health professionals (white = reference category; black, yellow and brown);
- ✓ Commuting migrant – is a control variable and refers to professionals who work in a different municipality from the one where they live – (non-migrant = reference category);
- ✓ Age and age² assume the experience component which, according to Mincer [20], is given as the individual's age and age² as a *proxy* that shows the growth of income with age (experience), but in a decreasing way;
- ✓ Disabled is a control variable in the estimations that captures whether the individual has a disability, having non-disabled individuals as the control variable (therefore, omitted variable);
- ✓ Size of the employing establishment captures the effects of the size of the establishment on the differentials of earnings from work of the employed, with the reference category being a person employed in a micro-sized establishment, that is, that employs up to 9 health professionals (size of establishment: up to 9 employed = micro-sized; from 10 to 49 = small; from 50 to 99 = medium-sized; 100 or more employed health professionals = large);
- ✓ Length of stay in employment is the length of time an individual has been in the same job, and this variable captures the effect of length of occupation as an increase in income from work (up to one year = reference category; more than one to two years; more two to three years; more than three to five years; more than five to ten years; more than ten years);
- ✓ Education is the education of the health professional at the *strictu senso postgraduate level* (undergraduate = reference category, master's and doctorate);

In view of the above, the definition of the variables used as regressors in the model, in addition to following the classic definition by Mincer [20], is also used in other studies to capture their effect on income (returning variable).

RESULTS AND DISCUSSIONS

Descriptive analysis of sample data: Income disparities in the labor market are substantially high and do not leave professionals in any field unscathed. Whether the socioeconomic characteristics, such as professional training, schooling, employment in the formal or informal sector, as well as the demographic characteristics – race/color, sex, region of occupation; migration condition, age, among others – greatly affect the insertion in the labor market as well as the income differentials earned by the employed in Brazil and in the world [21,22,23,24,25,26,27]. The socioeconomic and demographic description of health professionals in Brazil is shown in table 01. Regarding migratory commuting, that is, living in one municipality and working in another, this was higher for men in 2010 and relatively equal between the sexes in 2017. The average age of employed persons also did not show a substantial difference, being 33 years old in the first year and 35 years old in the second year under observation, demonstrating that the Brazilian population formally employed in health is young, the which may suggest entering the job market as a way of acquiring professional experience at the same time as completing higher education.

There is a greater relative participation of formally employed nurses, pharmacists, social workers, and nutritionists of both sexes in the two years under analysis. Furthermore, 38.20% of women employed in health are nurses and 24.87% are pharmacists, which are the largest areas of formal occupations among health professionals. The highest relative participation for men is working as pharmacists, nurses, and physical therapists in both years. About the race/color of health professionals, most were declared white, in both years, despite a reduction in their relative participation in 2017, compared to 2010; showing a growing share of blacks and browns and a markedly small relative share of people declared to be yellow. The increase in self-declaration of race/color in Brazilian census surveys is expressive, whether due to greater personal acceptance, or greater awareness of ethnic acceptance, as well as the reach of social policies. Regarding the establishments that health professionals occupy in Brazil, micro-sized ones occupied, in 2010, 27.85% of women and 43.46% of men. In 2017, 33.78% of women and 37.07% of men were employed in these establishments. When considering the civil service, micro-port has a growing participation in the occupation of health professionals, given that with the municipalization of health, through changes in the health reform [5,2] , municipalities have become important contractors of health professionals in recent decades when across the entire national territory. In addition, large establishments also increase the relative participation of employed persons, both women and men, when comparing the year 2017 to 2010, to the detriment of a relative loss of small and medium-sized establishments in both years and for both sexes. The increase in hiring of health professionals in university hospitals in recent years may justify the increase in the participation of large establishments as potential employers.

Table 1. Statistics of the sample of socioeconomic and demographic characteristics of health professionals in Brazil - 2010/2017

Variables	2010		2017	
	Feminine	Male	Feminine	Male
commuting migrant	0.37	0.40	36.76	36.46
Age	33.26	33.32	35.17	35.61
doctors	0.10	0.43	0.08	0.24
nurses	38.20	29.19	41.91	33.74
dentists	0.13	0.27	0.17	0.29
pharmacists	24.87	50.15	25.21	45.58
physical therapists	8.01	10.54	8.29	10.50
speech therapists	3.14	0.75	2.58	0.69
Nutritionists	10.35	2.75	8.82	2.03
psychologists	2.12	0.98	1.40	0.80
social workers	11.30	3.60	8.02	2.45
occupational therapists	1.25	0.50	1.26	0.45
biomedical	0.53	0.85	2.26	3.22
White	75.04	71.93	65.07	60.62
Black	2.10	2.33	3.35	3.92
Yellow	1.05	0.95	0.91	0.78
Brown	21.82	24.80	30.67	34.68
Disabled	0.30	0.20	0.45	0.50
micro	27.85	43.46	27.34	39.26
Small	18.03	16.30	16.58	15.77
Medium	20.69	16.05	18.95	16.13
Great	33.43	24.19	37.13	28.84
up to 1 year	39.93	44.45	33.78	37.07
More than 1 to 2 years	19.40	19.76	16.02	16.64
More than 2 to 3 years	10.93	10.79	11.71	11.50
More than 2 to 3 years	11.01	10.46	15.78	14.87
More than 5 to 10 years	11.29	9.60	14.32	13.58
More than 3 to 5 years	7.42	4.93	8.40	6.33
North	2.94	3.63	3.60	4.73
Northeast	16.10	18.12	17.30	20.32
Southeast	57.52	55.79	54.60	52.08
South	17.64	15.09	16.61	13.88
Midwest	5.80	7.37	7.90	8.98
Graduated	99.20	99.27	98.58	98.82
Master's degree	0.55	0.47	1.18	0.96
Doctorate degree	0.16	0.16	0.24	0.22
average income from work	3,288.12	3,210.90	4,131.51	4,213.19

Note: Average income is deflated by the National Consumer Price Index – INPC, from the Brazilian Institute of Geography and Statistics – IBGE [28], in 2019 Reais.
Source: elaboration of the authors from the microdata of RAIS-ME [16]

As for the length of stay in the job, there is a greater relative participation of employed people who stay up to one year in their jobs, showing that there is a high turnover in jobs for health professionals. This turnover can be since professionals are constantly seeking salary improvements and working conditions and given a market with precarious working conditions, in most cases, the turnover is justified by the search for a job offer with better conditions for the development of activities. as well as better wages practiced by employers. In this sense, despite being high and obtaining a relative reduction for both sexes, turnover is higher for men in the two years studied. Regarding the vertical qualification of professionals, the vast majority, in 2010, had only undergraduate degrees and specific specialties, with no record of considerable percentages of professionals with a master's or doctorate occupied in the country. In 2017, despite being low, an increase in these percentages was observed. In addition, there is a strong concentration of health professionals employed in the Southeast [9], with 57.52% of women and 55.79% of men, in 2010, being employed in this region, as it is one of the most economically dynamic centers, consequently, making it the largest dynamic center in health employability [29]. In addition, the North and Midwest regions recorded the lowest percentages, being responsible for concentrating 2.94% of women and 3.63% of men, and the latter 5.80% of women and 7.37% of men, occupied in the health area, in Brazil, in 2010. In 2017, the participation of the North and Midwest rose, albeit slightly, and the former concentrated 3.60% of women and 4.73% of men, unlike of this one that registered 7.90% of the women and 8.98% of the men employed. The Southeast and South regions lose a slight relative share at the expense of a slight gain for the Northeast (see table 01).

Analysis of income disparities among the formally employed in health through Ordinary Least Squares Estimates – OLS: The high disparities in labor income in the Brazilian economy have been the object of studies in various perspectives of analysis by social scientists from different areas of training. In terms of income disparities, a series of studies developed by Brazilian economists have shown the effects of individuals' socioeconomic and demographic characteristics on labor income differentials. For these authors [29,30,31,32,33] issues such as gender, age, race/color, region of occupation, type of employment relationship, as well as the area of professional training are important determinants of salary returns to occupation. Knowing that the disparities in income from work in Brazil are high and affect the entire employed population, even when performing activities in which higher education is required, the effects of professional choice directly influence the wage returns of employed persons. From this perspective, professional choice is a determining factor in future work earnings, even recognizing the essentiality of all professionals with higher education, in any area, for the economic development of the country. A professional career is of crucial importance, not only to the personal satisfaction of the employed, but also to guaranteeing financial returns and maintaining their existence in a market economy. In this sense, the wage devaluation of professional categories can directly impact the quality of work, as well as the need to carry out more than one remunerated activity to guarantee a minimum income for survival. In view of this, analyzing income disparities among professionals in a specific area of activity is of great importance to understand the mechanisms of precariousness of work, and from that to institute mechanisms of professional valorization of all occupational categories in the same area of activity, given the due importance of all professionals who work in defense of health. Based on the analysis of the regression coefficients estimated and plotted in table 02, it is possible to infer the existence of a high disparity in income from work among health professionals in Brazil. In 2010, all health professionals, from any area of activity, formally occupied, earned lower working income than a doctor. What draws attention is the fact that the lowest recorded coefficient indicates a still high disparity between these professionals.

Table 2. Differentials of work regulations among formally employed health professionals in Brazil - 2010/2017

Variables	Dependent variable = ln_rendatrab			
	Coefficient	Standard Error	Coefficient	Standard Error
Dentist	-0.477 ***	(0.030)	-0.862 ***	(0.041)
Nurse	-0.886 ***	(0.021)	-1.153 ***	(0.033)
Pharmaceutical	-0.882 ***	(0.021)	-1.061 ***	(0.033)
Nutritionist	-1.180 ***	(0.021)	-1.374 ***	(0.033)
speech therapist	-1.006 ***	(0.022)	-1.220 ***	(0.034)
Physiotherapist	-1.038 ***	(0.021)	-1.200 ***	(0.033)
Psychologist	-1.047 ***	(0.022)	-1.246 ***	(0.034)
Occupational Therapist	-0.974 ***	(0.023)	-1.167 ***	(0.034)
Biomedic	-0.980 ***	(0.024)	-1.229 ***	(0.034)
Social Worker	-1,038 ***	(0.021)	-1.245 ***	(0.033)
Black	-0.033 ***	(0.006)	0.032 ***	(0.006)
Yellow	0.086 ***	(0.009)	0.045 ***	(0.011)
Brown	-0.007 ***	(0.002)	-0.005 *	(0.003)
pendular migrant	-0.007 ***	(0.002)	-0.023 ***	(0.002)
Age	0.026 ***	(0.001)	0.020 ***	(0.001)
age²	-0.0003 ***	(0.00001)	-0.0002 ***	(0.00001)
Port of Disability	0.041 ***	(0.016)	0.038 **	(0.016)
Small	0.167 ***	(0.003)	0.143 ***	(0.003)
Medium	0.324 ***	(0.003)	0.249 ***	(0.003)
Great	0.549 ***	(0.003)	0.447 ***	(0.003)
More than 1 to 2 years	0.054 ***	(0.002)	0.040 ***	(0.003)
More than 2 to 3 years	0.094 ***	(0.003)	0.092 ***	(0.004)
More than 3 to 5 years	0.113 ***	(0.003)	0.114 ***	(0.003)
More than 5 to 10 years	0.170 ***	(0.003)	0.165 ***	(0.003)
more than 10 years	0.330 ***	(0.004)	0.327 ***	(0.004)
Master's degree	0.144 ***	(0.012)	0.221 ***	(0.010)
Doctorate degree	0.237 ***	(0.021)	0.358 ***	(0.022)
North	0.112 ***	(0.005)	0.061 ***	(0.006)

Southeast	0.173 ***	(0.003)	0.158 ***	(0.003)
South	0.132 ***	(0.003)	0.152 ***	(0.004)
Midwest	0.196 ***	(0.004)	0.275 ***	(0.004)
Constant	4,292 ***	(0.024)	4,884 ***	(0.037)
Comments	308,206		179,447	
R^2	0.272		0.244	
Adjusted R^2	0.272		0.244	
Residual Std. error	0.475 (df = 308174)		0.437 (df = 179468)	
F Statistic	3,713,036 *** (df = 31; 308174)		1,865,795 *** (df = 31; 179468)	

Source: elaboration of the authors based on the results of the estimations.
Note:*** p<0.001; ** p<0.01; * p<0.05 – standard error in parentheses.

This year, a dentist was paid, on average, 48% less than the average salary of a doctor, in addition to nurses (89% less); pharmacists (88% less); biomedical (98% less); occupational therapists (97%). The other professionals showed even higher disparities, the highest being registered for a nutritionist who earned, on average, 118% less than the average salary of a doctor in the same year. The psychologist received on average 105% less; the speech therapist was paid 101% less; the physical therapist 104% less; and, finally, the social worker registers an income disparity of 104% less than the average income of a doctor. Attention is drawn to the fact that the vastly high differences in salary/hours of work can cause the need to supplement income and reduce the quality of work provided by professionals who seek such salary compensation measures, given the increase in working hours. job. Regarding the socioeconomic and demographic characteristics of the population used here as controls, race/color had little influence on income inequality, and for the yellow and brown categories, they presented positive coefficients, showing that, on average, yellow people earn more. than whites working in health, in addition, those of black race/color registered an average income lower by 3% than the average income of a white professional and those of mixed race/color, approximately 1% less, registered by the coefficient of the estimates. Despite the results presented by the coefficients, the low values indicate the little effect of race/color on the differences in earnings from work for health professionals. In other words, it is not possible to verify racial/color discrimination in the income of health workers with higher education in Brazil.

Furthermore, the average income increases slightly with age (2.4%), but in a decreasing way, which means, for example, that one more year increases by 2.6%, but the next year by 2.2% % and so on. It is important to highlight the importance of being employed in larger establishments, as a condition for earning a comparatively higher income than those employed in smaller establishments. Based on the coefficients, it is possible to infer that, in 2010, those employed in small, medium, and large establishments earned an average income of 17%, 32% and 55%, respectively, more than those employed in a micro-sized establishment (category of reference). These results may point to the fact that large hospitals, as well as larger municipalities pay better wages to their employees, in addition, the difference in remuneration increases with the size of the establishments. In addition, length of employment was relevant to wage returns. Those employed for more than 10 years in the same job had earnings, on average, 33% higher than those who stayed in the same job for less than one year. In the others, income grew, on average, with the time spent in the same job, showing that the time spent in the same job is important for the increment in the increase in income, compared to those who are joining. As for titles, those employed with a master's degree received 14% more than those employed only with a degree. Regarding returns related to the doctoral degree, the coefficient of the variable shows that a doctor earned an average income of 24% more than a graduate in 2010. Being employed in any region of the country implied higher salary returns than being employed in the Northeast region (reference category). The greatest disparity in average income was recorded among a employed health professional in the Midwest, with an average income 20% higher than that of an employed person in the Northeast, and the smallest disparity was recorded in relation to an employed person in the North, with average differences of 11 % in relation to an employed person in the Northeast. In 2017, controlling for the same variables as in 2010, it is possible to notice variations in some of the coefficients. Income disparities grow among all health professional categories. This year, the biggest disparity in relation to the average income of a doctor was registered in the salary of a nutritionist (137% less), while the smallest disparity was in the income of a dentist (86% less). The average salary/hour of a nurse was 115% less than that of a doctor, and that of a pharmacist was 106% less in the same year. For all other professionals, the disparities were even higher. See: a psychologist started to earn 125% lower average earnings, compared to a doctor's salary; a speech-language pathologist reported a lower average income of 122%; the physical therapist in 120%; occupational therapist 117%; biomedical 123%; and, social worker 125%. With this, it is possible to perceive that the salary disparities are accentuated among health professionals formally employed in Brazil.

About the other control variables, the coefficients for race/color are practically maintained and all professionals who declared themselves to be of a race/color other than white earned, on average, more than those this year, despite having presented statistical significance at 5% for the differences between a white and a pardo, the value assumed by the coefficient was only 0.005. Furthermore, the coefficients did not reach 5%, which allows us to infer that there is low-income disparity by this control criterion. In addition, the age coefficient, despite being lower, was positive, showing that income grows with age, but in a decreasing way, according to the squared age coefficient (coefficient that represents experience, using the traditional Mincer equation). For the control variable to be occupied in micro, small, medium and large establishments, having the first as a reference category, the coefficients show that, in 2017, in small size (14% more), in medium (25% more) and large companies (45% more) represented income disparities compared to those employed in a micro-sized establishment. Although the disparities by size of establishment are still high, the coefficients of all of them are reduced in 2017 compared to 2010. However, large establishments continue to practice higher wages and increasingly, compared to the size of establishments. Thus, both micro-sized municipalities and hospitals end up attracting professionals with lower salaries than those practiced by larger establishments. In relation to the length of permanence in the job, the coefficients show that for all categories referring to the length of permanence, in addition to raising the average remuneration compared to those who remain for less than one year occupied (reference category), they practically remain the coefficients in 2017, when analyzed considering the coefficients of the same variables in 2010. For those who stayed in the same job for more than 10 years, the average income was 32% higher than the income of those who stayed for less than one year. About the region of occupation, being employed in any region of the country conferred an average income higher than one employed in the Northeast region in 2017. In addition, disparities increased in two regions: Midwest (27% to more) and South (15% more); remained constant for the Southeast (16% more); and they were reduced towards the North (6% more). In other words, health professionals employed in the Northeast earn an average income lower than those employed health professionals in other regions of the country in both years in question, reducing this disparity only for the North and Southeast regions.

Final Considerations

From the results, very discrepant earnings are observed when comparing the salaries of medical professionals to other health professionals in the years 2010 and 2017. These disparities in salary/hour between professionals from the same economic activity sector and all of them with higher education course draws attention, even if one considers the performance performed in each of these activities. The higher salary/hour by more than 100% ends up having the effect of undervaluing the other professional categories and directly impacting the amount/hour of work offered by these professionals, leading them to exhaustion, as a way of supplementing their income. In addition, it is possible to infer an increase in income disparities among health professionals in Brazil. The average income of a physician rises in comparison to that of other health professionals in 2017, compared to 2010, suggesting that it may have an effect of expanding the supply of professionals in other areas in relation to their demand. Such effects may result from the increase in the supply

of higher education, proportionately higher in health schools in other areas, in relation to medicine courses in the country. Furthermore, it is possible that the increase in the supply of work proportionally lower than the demand for these professionals is distancing the balance in the market. Thus, the trend is towards a reduction in remuneration or a more than proportional increase in the income of physicians in relation to that of other professionals, which can boost the already existing disparity, increasing the gap between the average income of a physician and other professionals in the area. of health in the country. In addition, income disparities may not result from an increase in the income of physicians, but from a reduction in the income of other professionals, due to the increase in the supply of the workforce in other areas of health, which is not proportional to their demand.

Discussing issues inherent to the differences in earnings from work among health professionals becomes relevant, since the importance of all professionals from all areas of this sector of economic activity is crucial to health care in the country. In the current moment of crisis in public health and in the face of the problems faced in times of pandemic around the world, we see the essentiality of all areas of health and the need for professional appreciation in general. Furthermore, smaller disparities in income from work among professionals in the same sector can positively affect professional performance, as they reflect the appreciation and importance of each professional in the context of health in the country. As a research suggestion, it is possible, using other methods, such as Quantile Regressions, for example, to analyze the effects of these characteristics on the conditional distribution of labor income, thus reducing the possible effects of *Outliers* in the sample and having more robust estimates at various points in the distribution of income from work of health professionals in the country. Furthermore, the database used in this article captures only professionals who are formally employed, in addition to having these professionals' income only in the employment activity. That is, only the salary paid by the employer is computed in the database. Extra income of these professionals is not included in the calculation of income differentials presented here, which is a limitation of this study, since the disparities of the diploma effect on income can be even greater.

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