Public Finance Notebooks, Brasília, v. 20, n. 3, p. 1-24, jan. 2021

The impact of the pandemic on the way of working in the public and private sectors

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Resume

With the onset of the health crisis caused by Covid-19, measures of social distance were taken on a large scale and globally. An immediate consequence of this was the decrease in economic activity worldwide. Invariably the work began to suffer the consequences of these measures. For a portion of the population, engaged in specific tasks, it was possible to continue exercising their work activities remotely, others were removed, some continued to work as before and a last group was disconnected. This work proposes to investigate the impact of Pandemic on the public and private sector work. To this end, it sought to assess how many busy people were away from their activities and how many have been doing their jobs remotely. With data from work during the pandemic, it can be seen that people employed in the public sector find themselves more intensely in remote work or even on leave due to social distance than workers in the private sector. Even separating the private sector according to economic activity, the public sector continues to have significantly different percentages than that observed in the services (which are closest), trade, industry or agriculture. Observing people in remote work, it is noted that they are whiter than the total employed, have a higher percentage of women than the total, and are considerably concentrated in people with complete higher education. In addition, a considerable percentage is in the public sector. This same sector showed a gain when it comes to distance due to social distance.

Keyword: Covid-19; Public and private sector; remote work; work leave.

1- INTRODUCTION

With the onset of the health crisis caused by Covid-19, measures of social distance were taken on a large scale and globally. An immediate consequence of this was the decrease in economic activity worldwide. Invariably the work began to suffer the consequences of these measures. For a portion of the population, engaged in specific tasks, it was possible to continue exercising their work activities remotely, others were removed, some continued to work as before and a last group was disconnected.

In Brazil, social distance was one of the first measures adopted to reduce the spread of Covid-19. If, on the one hand, this measure reduces the circulation of people and, consequently, the likelihood of contagion, on the other hand, reduces economic activity and increases, unemployment, temporary leave, collective vacations and, when possible, work remotely.

Countries where the participation of telework is higher, are able to minimize such losses inherent to social distance. In addition, they are able to gradually reduce confinement since home office workers can maintain their activities without adhering to the flexibility of the distance at first.

In this sense, Brazil is one of the first countries to provide a national survey accompanied by the effects of the pandemic on the work and health of its population, the PNAD[1] Covid-19 prepared monthly by IBGE[2], starting in May and expected to be carried out initially until August. Such research is extremely important for a better understanding of the recent transformations that the Brazilian population has been forced to adopt due to the pandemic of the corona virus.

Based on this research, it is possible to monitor the evolution of cases and leave on a monthly basis due to social distance and the number of employed persons performing their activities remotely, among other information. Thus, the present work proposes to carry out an evaluation of the effects of the pandemic on the way of working in the country, segmented between the public and private sectors. This division is justified due

[1] Pesquisa Nacional por amostra de domicílios - National Household Sample Survey
[2] Instituto Brasileiro de Geografia e Estatística - Brazilian Institute of Geography and Statistics

to the differences in forms of contract between the two sectors. It is noteworthy that, given the plurality of occupations, the analysis will divide the private sector into economic activity.

For this, the work is divided into five other sections in addition to this introduction. Section two presents a brief contextualization on the theme, mainly focused on working remotely. The third section records the research methodology. Then there are the sections with the descriptive data and the result of the econometric model. Finally, brief comments are made as a conclusion.

Briefly anticipating the results, it appears that the percentage of people on leave or in remote work in the public sector is greater than their share in the total number of occupations, indicating that changes in the way of work was more intense in this sector. In addition, among the economic activities of the private sector, services had the highest percentage of people in remote work and on leave due to social distance.

2- CONTEXTUALIZATION

Recently, some studies have been published assessing the potential for remote work around the world (Dingel and Neiman (2020); ILO (2020), Albieu (2020); Foschiatti and Gasparini (2020); Delaporte and Peña (2020); Santiel (2020); Guntin (2020); Boeri, Caiumi and Paccagnella (2020); Martins (2020); Góes, Martins and Nascimento (2020)). Dingel and Neiman (2020) carry out a mapping of telework in the world. Based on a survey in the Occupational Information Network (O * NET) survey for the United States, the authors classified occupations as likely or not to be carried out via the home office. Then, they applied these segmentations in the database of the International Labor Organization (ILO) on employment by occupations for 86 countries. In doing so, they found a high correlation between per capita income and the potential for distance work activities. Brazil was the 45th country on the list, with a potential of 25.65% of occupations that could be carried out via teleworking.

ILO (2020) also carried out an analysis of the potential of workers with the potential to carry out their activities remotely. The research consisted of classifying occupations that could be carried out from home using a Delphi methodology with 23 estimates for 19 countries, grouped two by two. The result of this work indicates that the potential for

telecommuting from countries of Latin America is between 16% and 23%. The work also identified a high correlation between income and remote work.

Furthermore, Albieu (2020), Foschiatti and Gasparini (2020) applied the methodology of the first study for Argentina, Guntin (2020) did it for Uruguay, Boeri, Caiumi and Paccagnella (2020) did a similar methodology for European countries, Martins (2020) applied a methodology specific to Portugal. Delaporte and Penã (2020) adapted the methodology of Dingel and Neiman (2020) and the methodology of Santiel (2020) for 23 countries in Latin America, for Brazil, the potential telework was between 13% and 27% of the employed persons. Santiel (2020) developed his own methodology based on data from 10 developing countries to identify the potential for teleworking in them. Finally, Góes, Martins and Nascimento (2020) adapted the methodology of Dingel and Neiman (2020) for the PNAD Continuous data[3] and found a telecommuting potential for Brazil of 22.7% (20.7 million people). The authors highlight that this potential is heterogeneous by state and also has a high correlation with GDP[4] per state per capita.

Graph 1 shows the correlation between potential telework and the countries' per capita GDP, extracted from Dingel and Neiman (2020). It is evident that richer countries are more likely to have a larger share of the employed population performing their work activities remotely. The same is true for Brazilian states, as shown in Graph 2, taken from the work of Góes, Martins and Nascimento (2020). The authors pointed to the federal district as the unit of the federation with the greatest potential for workers to carry out their activities at home office, while Piauí had the lowest potential for teleworking, which was highly correlated with GDP per capita.

[3] National Household Sample Survey carried out continuously since 2012 by IBGE
[4] Gross Domestic Produc

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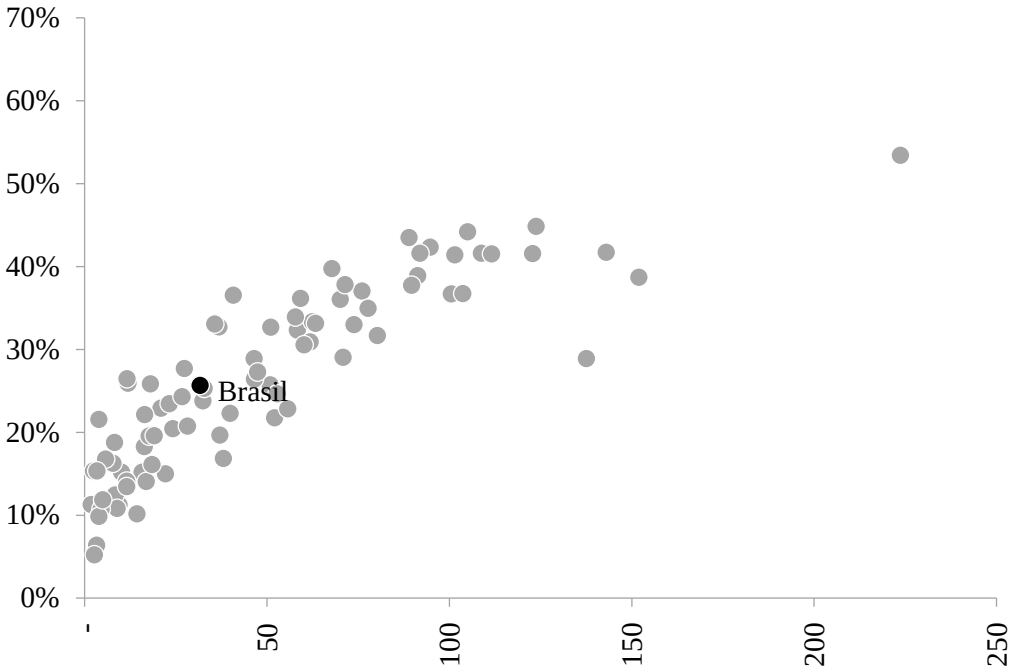
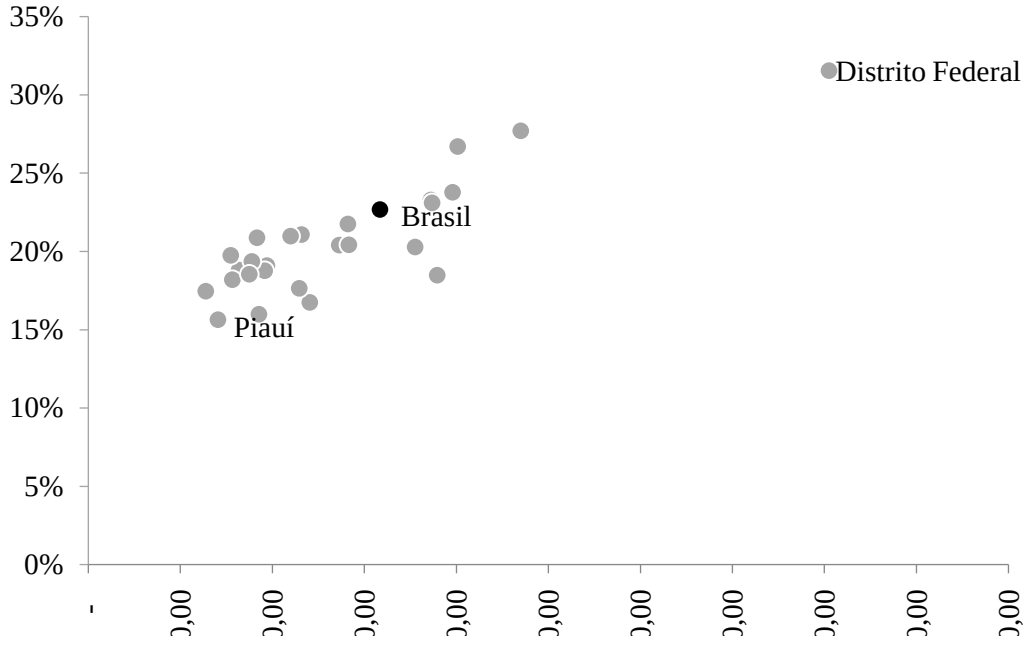
Graph 1 - Relationship of potential telework and GDP per capita in the world.



Source: Dingel e Neiman (2020).

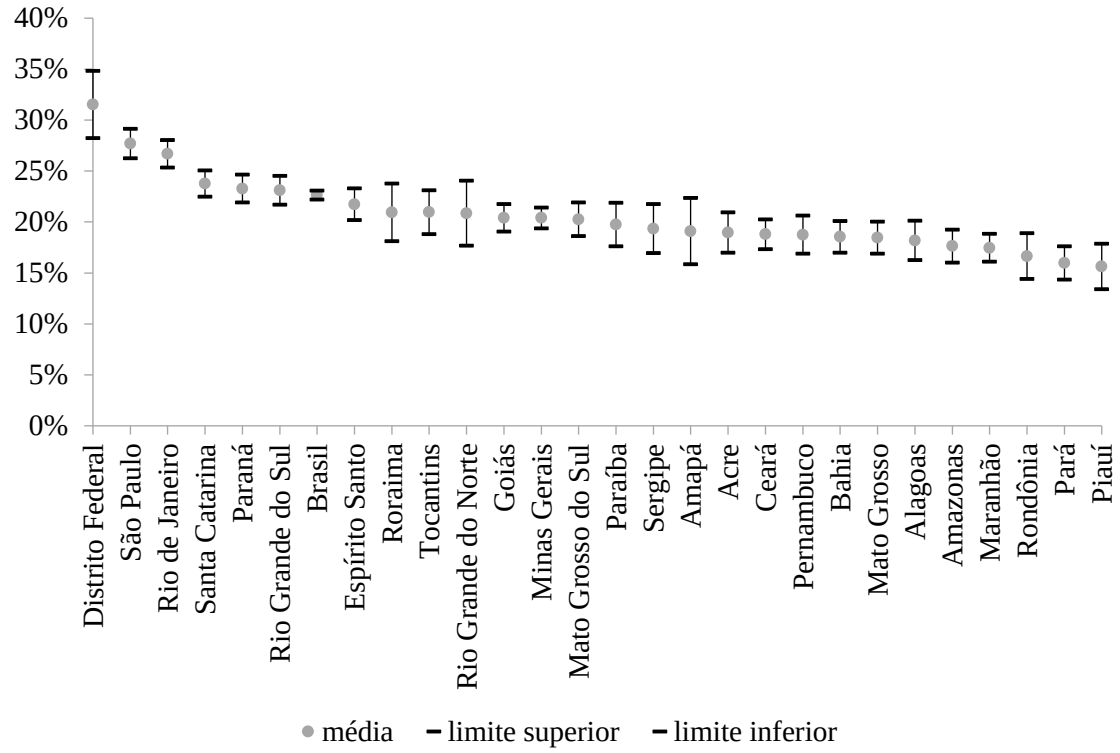
Graph 2 - Relationship of potential telework and GDP per capita in Brazilian states.



Source: Góes, Martins e Nascimento (2020).

The authors also make the reservation that this is an estimate of the telework potential for the country. Therefore, the results have confidence intervals, as shown in graph 3. In it, it is possible to monitor the telework potential for each federative unit in Brazil.

Graph 3 - Result of the estimate of potential telework for Brazilian states



Source: Góes, Martins e Nascimento (2020).

The present work wishes to contribute to this literature, however, with the availability to use PNAD Covid-19 data for Brazil, it is possible to monitor the number of employed people, people removed due to the pandemic and people who are exercising their work activities remotely, among other measures. Thus, the present work can produce a portrait of the current employment situation in the country, without the need to adopt hypotheses as in the aforementioned works.

3- METODOLOGY

This work was based on data from the PNAD Covid-19 survey for the month of June, the most recent available. As its name indicates, it is a survey composed of a sample of

households. Like all surveys carried out by IBGE at the moment, it was carried out by telephone. It had 193.6 thousand households distributed in 3364 municipalities. It was built based on a sample of the base of the 211 thousand households that participated in the Continuous PNAD in the first quarter of 2019, which had a registered phone. As we know, the sample of PNAD Contínua is extracted from the master sample of census sectors at IBGE. Its adopted sampling plan is a conglomerate in two stages of selection, with stratification of the primary sampling units. In the first stage, primary sampling units are selected, with probability proportional to the number of households in each stratum. In the second stage, 14 households are randomly selected within each primary sampling unit selected in the first stage. In this way, in a way, it can be said that PNAD Covid-19 is a survey by probabilistic sample of households built in two stages.

Before entering the methodology of the work, it is worth mentioning that the results for the month of May are reported in the appendix. That said, based on the research data, it was possible to identify individual characteristics of the interviewees, of which gender, race / color, age, education, occupation sector, employment relationship and the way the occupation is performing stand out.

Gender was identified based on variable *a003*, classifying individuals between men and women. Then, based on the variable *a004*, white people were identified, those who answered that they were white or yellow, and black, groups composed of browns, blacks and indigenous people.

Subsequently, age groups and educational levels were built. For the first, people were classified from 1 to 9, being 1 for people under 20 years old[5], 2 for people between 20 and 29, 3 for people between 30 and 39, 4 for people between 40 and 49, 5 for the group between 50 and 59, 6 for the group between 60 and 69, 7 for the group aged 70 to 79 and 8 for people aged 80 or over. Age information was obtained from variable *a002*. In turn, schooling was built based on variable *a005*, being classified as 0 people with no education or incomplete elementary school, 1 for individuals with complete elementary school or incomplete high school, 2 for people with complete high school or incomplete high school, and 3 for Graduated.

[5] It is worth noting that the IBGE only considers people over 14 years old for questions regarding their work in the labor market.

To control possible regional differences, a variable was constructed identifying the person's region of residence, based on the *uf* variable. A value of 1 was assigned to residents in the North, 2 to residents of the Northeast, a number 3 to people living in the Southeast, 4 to people living in the South and 5 to people living in the Midwest.

PNAD Covid-19 respondents were then classified according to their performance in the labor market. Firstly, people who were employed and not on leave were identified, based on variable *c001*. Then, by means of variable *c002*, people who were away from work were measured and those who responded in variable *c003* were classified as away due to social distance. Subsequently, combining variables *c001* and *c013*, persons employed exercising their activities remotely were recorded.

Still regarding the variables related to work, people were classified according to their relationship, public or private, and in this second case, they were segmented according to economic activity. For this, public employees, considering employees in public and military companies, were identified based on variable *c007*. People working in the private sector were determined by exclusion. The classification by activity of these was obtained via variable *c007d*, with the agricultural sector identified by the value 1, the industrial sector determined by activities 2 to 5, the commercial sector by activity 6 and the service sector was determined by activity 7 to 24. The individuals, who were classified in "other activities" or did not answer the question, were discarded from the analysis. This led to a loss of 8.85% of the observations.

Finally, the cash income variables usually received (c010112) and actually received (c011a112) were used. As these variables also presented non-responses, 2.22% of the observations were lost with the non-response of the usual income and 0.04% with the non-response of the income usually received.

After working with the data, ordinary least squares regression models were estimated to identify the factors that contributed to remote work, in the light of Delaporte and Peña (2020) and, in addition, to the absence from work due to distance measures Social. Equation (1) summarizes the estimated models.

$$Y_i = \alpha + \beta_1 H + \beta_2 B + \beta_3 I + \beta_4 E + \beta_5 R + \beta_6 S + \beta_7 A + \varepsilon \quad (1)$$

Where Yi represents the dependent variable, being remote work or withdrawal due to social distance, α represents the intercept. β the parameter of interest for the control and interest variables, namely: (i) H identifies whether the individual is from male; (ii) B is a dummy that indicates whether the person is white; (iii) I represents the worker's age group; (iv) And records the educational level of the employed person; (v) S is our variable of interest, a dummy that determines whether the individual is employed in the public sector or not; and (vi) A represents a variable that identifies the economic activity that the person is employed, if he is in the private sector. The independent variables were constituted as mentioned above. It is worth mentioning that in order to carry out the estimates below; the sample design of the research was taken into account.

4- A PORTRAIT OF THE LABOR MARKET IN BRAZIL

For the month of June 2020, official data registered 83.4 million employed persons. Of these, 17.7% were on leave, and 85.5% of the leave was due to social distance. Of the employed and not on leave, 12.7% were performing their activities remotely, which totaled 8.7 million people, as summarized in Table 1.

Table 1 - Distribution of employed persons in Brazil.

Groups	Amount of people	Percent
Workers	83.449	
People away	14.756	17.7
People removed due to social distance	11.814	80.1
People removed for other reasons	2.942	19.9
Busy people and not on leave	68.693	82.3
Occupied and not on-the-job persons exercising their activity remotely	8.694	12.7

Source: IBGEb (2020).

As some people did not answer all the questions relevant to the study, these were removed from the analysis of the present study. Thus, Table 2 presents the same results as Table 1, however, disregarding the problematic observations for the purpose of this work. As can be seen, the number of employed persons goes from 83.4 million to 73.6 million, however, the distribution of these people is quite similar.

Table 2 - Distribution of employed persons in Brazil - scope of the analysis.

Groups	**Amount of people**	**Percent**
Workers	73 . 681	
People away	13 . 318	18 . 1
People removed due to social distance	10 . 703	80 . 4
People removed for other reasons	2 . 615	19 . 6
Busy people and not on leave	60 . 364	81 . 9
Occupied and not on-the-job persons exercising their activity remotely	7 . 729	12 . 8

Authors' elaboration based on IBGEd (2020).

Separating by the public versus private sectors, 14.7% of the people analyzed are in the public sector, while 85.3 are in the private sector. However, the distribution of these according to the occupation situation is completely different. While 17.3% of employed people are, on leave in the private sector, this percentage rises to 22.8% in the public sector. In both cases, about 80% is due to social distance. However, the most striking difference between the cases refers to people in remote work, which in the private sector are 9.4% of employed persons not on leave while in the public sector they are 33.9%, as shown in Table 3.

Table 3 - Distribution of employed persons by public and private sector.

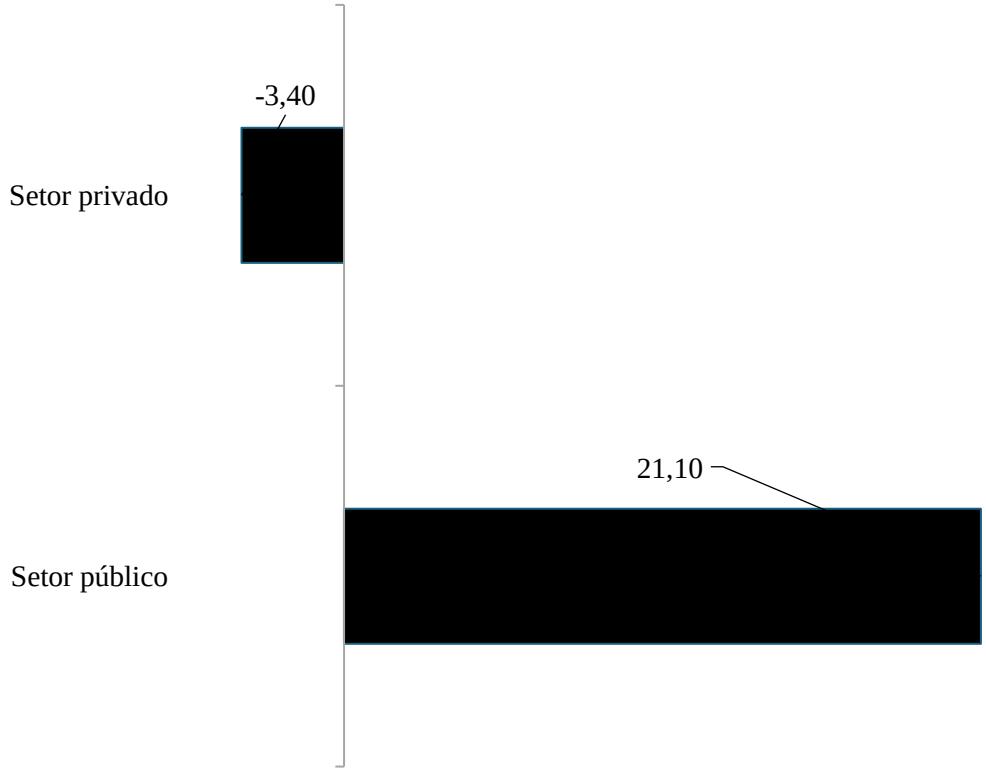
Public sector		
Groups	**Amount of people**	**Percent**
Workers	10 . 826	
People away	2 . 468	22 . 8
People removed due to social distance	1 . 975	80 . 0
People removed for other reasons	0 . 493	20 . 0
Workers and not on leave	8 . 358	77 . 2
Occupied and not on-the-job persons exercising their activity remotely	2 . 833	33 . 9
Private sector		
Groups	**Amount of people**	**Percent**
Workers	62 . 856	
People away	10 . 850	17 . 3
People removed due to social distance	8 . 728	80 . 4
People removed for other reasons	2 . 121	19 . 6

Workers and not on leave	52 . 006	82 . 7
Occupied and not on-the-job persons exercising their activity remotely	4 . 896	9 . 4

Authors' elaboration based on IBGEd (2020).

Comparing the percentages of employed and non-employed people remotely exercising their activities in each sector with the national average, the discrepancy remains latent. Graph 4 illustrates this, the private sector has a percentage of people 3.4 percentage points below the national average, while the public sector is 21.1 percentage points above the national average.

Graph 4 - Distance of the percentage of people in remote work in each sector to the national average.

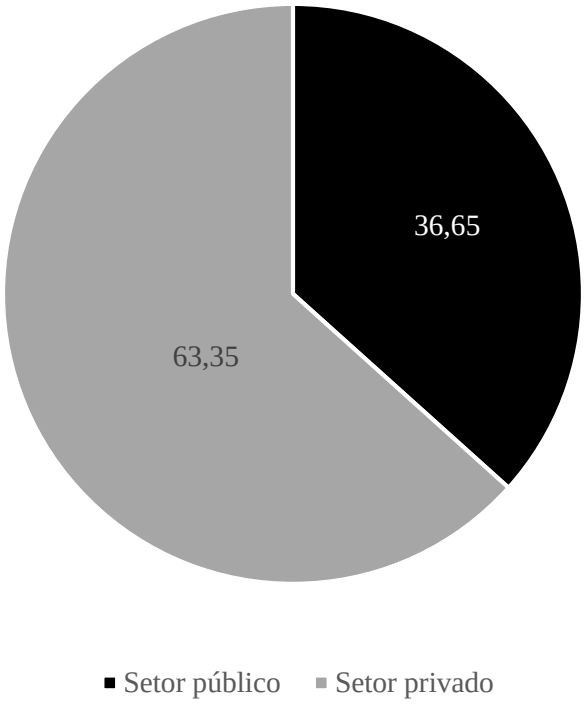


Authors' elaboration based on IBGEd (2020).

Segregating only the employed persons working remotely by the labor sector, 63.35% of these persons are employed in the private sector, while 36.65% are employed in the public sector, as shown in Graph 5. That is, despite accounting for approximately 14% of the

workforce employed in the country, the public sector gains participation when it comes to people working remotely.

Graph 5 - Percentage of people in remote work distributed by public and private sectors.



Authors' elaboration based on IBGEd (2020).

However, the private sector is an extremely heterogeneous group, thus, the people employed in this sector were distributed according to their activity. Of the persons employed in agricultural activity, 91.1% are not on leave, with only 0.9% in remote work. It was the lowest percentage observed in both metrics, as reported in table 4.

Table 4 - Distribution of employed persons in the private sector.

Agriculture		
Groups	**Amount of people**	**Percent**
Workers	6 . 742	
People away	0 . 601	8 . 9
People removed due to social distance	0 . 370	61 . 5
People removed for other reasons	0 . 232	38 . 5
Workers and not on leave	6 . 141	91 . 1
Occupied and not on-the-job persons exercising their activity remotely	0 . 056	0 . 9

Trade		
Groups	**Amount of people**	**Percent**
Workers	10 . 922	
People away	1 . 827	16 . 7
People removed due to social distance	1 . 477	80 . 9
People removed for other reasons	0 . 349	19 . 1
Busy people and not on leave	9 . 095	83 . 3
Occupied and not on-the-job persons exercising their activity remotely	0 . 475	5 . 2
Industry		
Groups	**Amount of people**	**Percent**
Workers	13 . 900	
People away	2 . 118	15 . 2
People removed due to social distance	1 . 604	75 . 7
People removed for other reasons	0 . 515	24 . 3
Workers and not on leave	11 . 782	84 . 8
Occupied and not on-the-job persons exercising their activity remotely	0 . 601	5 . 1
services		
Groups	**Amount of people**	**Percent**
People o cupadas	31 . 292	
People away	6 . 303	20 . 1
People removed due to social distance	5 . 278	83 . 7
People removed for other reasons	1 . 026	16 . 3
Workers and not on leave	24 . 988	79 . 9
Occupied and not on-the-job persons exercising their activity remotely	3 . 764	15 . 1

Authors' elaboration based on IBGEd (2020).

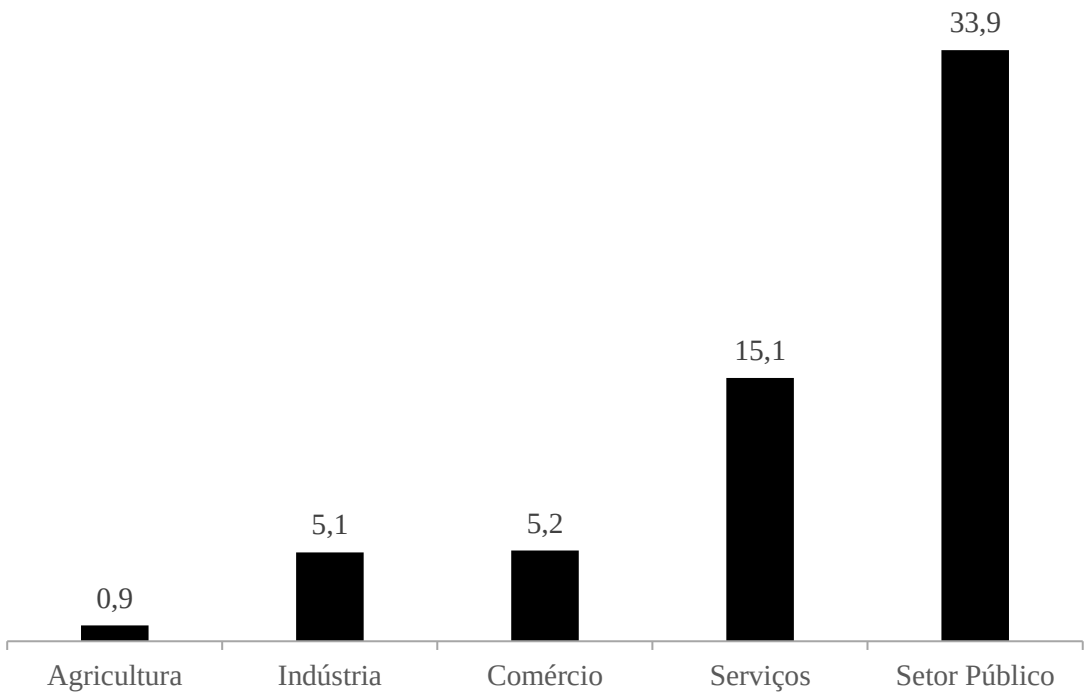
In turn, of the persons employed in the commercial activity, 83.3% were employed and not on leave, 5.2% of them exercising their activities remotely. Of the people on leave in this activity, 80.9% reported that it was due to social distance. Such percentages were similar for people employed in the industrial area. There were 84.8% employed and not on leave, 5.1% of whom worked remotely. Meanwhile, 75.7% of people on leave in industrial activity reported that the cause of this leave was due to the pandemic.

The service activity showed the results timidly closer to that of the public sector, despite considerable differences. Of the 31 million people employed in the service area, 20.1%

were on leave, of which 83.7% were due to social distance. Of the 79.9% employed and not on leave, 15.1% exercised their activities remotely, as shown in table 4.

Graph 6 sheds light on this contrast of people working remotely by activity area, in the case of the private sector, compared to the remote work observed in the public sector. It is noted that the activity of commerce and industry has a percentage of remote work almost six times higher than agriculture. At the same time, service activity records almost three times as much remote work as commerce and industry. However, the public sector has a percentage of people in remote work that is, proportionally to its size, more than double that observed in the service activity.

Graph 6 - Percentage of people in remote work by area of activity and in the public sector.

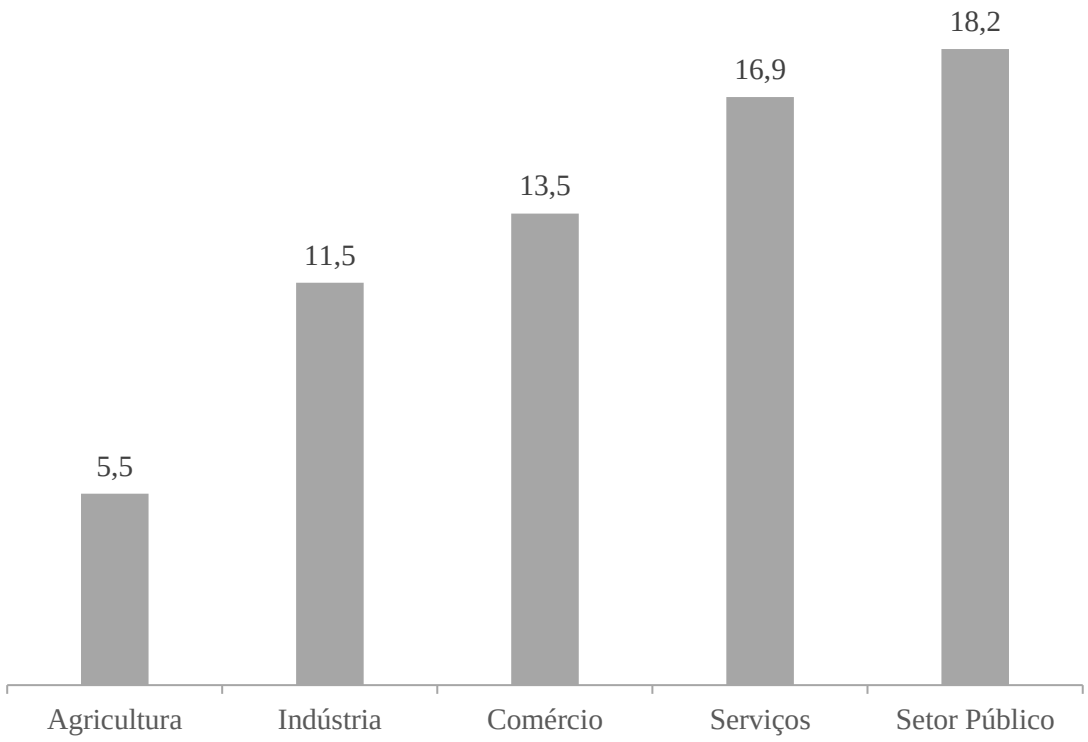


Authors' elaboration based on IBGEd (2020).

In the case of remote people, the contrast is not so absurd. However, the public sector has the largest number of people on leave due to social distance, taking into account the contingent employed in the sector. In the service activity, 16.9% of the employed persons in the sector were on leave due to social distance, from activities in the private sector, this was the one with the highest percentage, as shown in Graph 7. On the other hand,

agricultural activity registered the smallest contingent of those on leave due to distance, with 5.5% of employed persons.

Graph 7 - Percentage of people on leave due to social distance by area of activity and in the public sector.



Authors' elaboration based on IBGEd (2020).

Thus, table 5 summarizes the descriptive data for each occupation group. For the total employed population, 56.5% are men, when observing people in remote work, it is noted that this percentage is reduced to 43.5%, that is, the majority of people in remote work are women. The same is true for the group of remote workers and is slightly more intense in the group of remote workers due to social distance.

When analyzing employed persons according to color / race, 46.9% of the total employed persons were classified as white. This percentage rises to 64.8% in the group of people working in remote work and is reduced to 40.9% and 40.1% when observing people on leave and away due to social distance, respectively. That is, there is a considerable color / race difference between individuals in remote rework and the other occupational groups investigated.

As for the age group, there are no major variations between the groups in the analysis. The age group with the highest concentration of people in the labor market is 30 to 39 years old in all cases. On the other hand, when observing the distribution of people employed by education, there is again a striking asymmetry in the group of people in remote work. While for the group of employed persons, 18.4% had less than complete elementary schooling, 15.4% had complete elementary school but did not complete high school, 42.0% completed high school but not higher and 24, 2% completed higher education, these percentages are, respectively, 0.5%, 1.7%, 23.7% and 74.1% for the group of employed persons not on leave exercising their activities remotely. That is, there is a latent dominance of people with higher education.

Table 5 - Descriptive data regarding the estimates

Variables	Busy	Remote Work	Away	Away due to social distance
Men	56.5	43.5	44.7	43.7
Whites	46.9	64.8	40.9	40.1
Age range				
14-19	2.8	1.0	3.5	3.9
20-29	22.2	21.2	20.9	21.1
30-39	28.0	31.3	24.8	23.6
40-49	24.2	25.3	23.0	22.8
50-59	16.3	14.9	18.2	18.2
60-69	5.5	5.4	8.2	8.9
70-79	0.9	0.9	1.3	1.4
80 or more	0.1	0.0	0.2	0.2
Education				
Without instruction	18.4	0.5	19.3	19.2
Complete elementary school	15.4	1.7	16.9	17.2
Complete high school	42.0	23.7	43.5	43.7
Graduated	24.2	74.1	20.3	19.9
Region				
North	7.2	3.4	8.9	9.0
Northeast	22.4	17.1	30.9	32.4
Southeast	44.8	56.7	42.2	42.5
South	16.7	14.4	10.7	9.2
Midwest	8.9	8.4	7.3	6.9
Sector / Activity				

Agriculture	9.2	0.7	4.5	3.5
Trade	14.8	6.2	13.7	13.8
Industry	18.9	7.8	15.9	15.0
services	42.5	48.7	47.3	49.3
Public	14.7	36.7	18.5	18.5
Remuneration				
Habitual	2174.16	4533.39	1721.09	1667.92
Effective	1820.38	4088.57	1115.72	1007.96

Authors' elaboration based on IBGEd (2020).

As for the geographic region, 44.8% of the employed people live in the Southeast, 22.4% live in the Northeast, 16.7% in the South, 8.9% in the Midwest and 7.2% in the North. However, when observing the busy people working remotely, there is a greater participation of the Southeast compared to the other regions, with lower percentages in the North and Northeast regions. As for people on leave, there is a smaller amount in the Southeast, South and Center-West regions, compared to a strong concentration in the Northeast.

As for the sector / activity, as shown in tables 3 and 4, employed persons in the public sector, who represent 14.7% of the total employed persons, represent 36.7% of individuals in remote work. At the same time, as expected, the agricultural sector, which accounts for 9% of employed people, contributes only 0.7% of people in remote work and 3.5% of people on leave due to social distance. As for remote work, workers in commercial and industrial activities also have low participation, while services gain space.

Finally, we have that the employed persons in the country usually receive an average of 2174 reais, however, in June they received only 83.7% of that amount. The occupational group with the lowest drop was the one in remote work, which was receiving 90.2% of the usual income. On the other hand, those on leave due to social distance received only 60.4% of the income usually received. It is worth noting that the group with the highest average remuneration is the one in remote work, which is also the most educated, receiving more than 4000 reais per month on average.

Public Finance Notebooks, Brasília, v. 20, n. 3, p. 1-24, jan. 2021

5- RESULTS

That said, the work sought to investigate the factors that influence the chance of people working remotely and being away from their usual occupations, recent impacts of the pandemic on the ways of working. In this sense, three estimates were made, the first with the form of remote work as a dependent variable, the second with the leave and the third with the leave due to social distance. For the sake of robustness, the same exercise was carried out with the survey data for the month of May and are reported in a table in the appendix to this text.

The estimate (1) shows and effect of the observable variables on the chance of the worker being in exercising his work activity remotely. The variable of interest in our analysis is whether the person is in the public sector, which contributes a probability of 15 points more than the private sector worker in agriculture is in remote work. In other words, a result superior to any other activity in the private sector.

In addition, being a man decreases the chances of the person being in remote work, while being white increases. As for the location, it is in the Southeast, the chances of remote work increase, compared to the person in the North, the model's reference region. Only the South region did not show any significant difference in relation to the reference region, records table 6.

The person's age influences the chances of teleworking. Only workers in the age group of 70 to 79 years are more likely to be in remote work than the reference group, age group of 14 to 19 years. The ranges from 30 to 59 are less likely to work remotely. Anyway, education is the factor that most contributes to a person is in the home office , having a college degree implies 30 more points of being in remote work than the reference group, a person without a complete fundamental level.

Thus, it is concluded that a woman, white, in the southeastern region with a college degree and working in the public sector has 53 points more to be in remote work than a man, black, in the south, without complete elementary school and working in agricultural activities. This result is consistent with the descriptive data presented in the previous section.

Table 6 - Factors that influence the probability of remote work, removal and removal due to social distance.

Variables	(1) **Remote work**	(2) **Away**	(3) **Away due to social distance**
Man	-0.0164 ***	-0.0829 ***	-0.0708 ***
	(0.00303)	(0.00298)	(0.00269)
White	0.0302 ***	-0.0134 ***	-0.0114 ***
	(0.00303)	(0.00334)	(0.00309)
Regions			
Northeast	0.0293 ***	0.0205 ***	0.0224 ***
	(0.00414)	(0.00715)	(0.00652)
Southeast	0.0527 ***	-0.0579 ***	-0.0507 ***
	(0.00412)	(0.00689)	(0.00621)
South	-0.00177	-0,103 ***	-0.0997 ***
	(0.00441)	(0.00712)	(0.00633)
Midwest	0.0152 ***	-0.0770 ***	-0.0727 ***
	(0.00469)	(0.00750)	(0.00664)
Age range			
20-29	-0.00495	-0.0492 ***	-0.0589 ***
	(0.00680)	(0.00924)	(0.00894)
30-39	-0.0233 ***	-0.0581 ***	-0.0736 ***
	(0.00665)	(0.00925)	(0.00882)
40-49	-0.0153 **	-0.0518 ***	-0.0631 ***
	(0.00675)	(0.00916)	(0.00879)
50-59	-0.0143 **	-0.0203 **	-0.0361 ***
	(0.00701)	(0.00944)	(0.00904)
60-69	0.0132	0.0625 ***	0.0495 ***
	(0.00832)	(0.0109)	(0.0105)
70-79	0.0254 *	0.0658 ***	0.0612 ***
	(0.0143)	(0.0171)	(0.0167)
80 or more	-0.0446	0.0951 **	0.113 **
	(0.0281)	(0.0468)	(0.0466)
Education			
Complete elementary school	0.00372 **	0.00524	0.00551
	(0.00162)	(0.00507)	(0.00468)
Complete high school	0.0488 ***	-0.0168 ***	-0.0146 ***
	(0.00227)	(0.00440)	(0.00418)
Graduated	0.311 ***	-0.0747 ***	-0.0637 ***
	(0.00519)	(0.00487)	(0.00456)
Sector / Activity			
Trade	0.00258	0.0872 ***	0.0830 ***
	(0.00252)	(0.00496)	(0.00428)
Industry	-0.0143 ***	0.0793 ***	0.0823 ***
	(0.00348)	(0.00556)	(0.00492)
services	0.0486 ***	0.118 ***	0.120 ***
	(0.00279)	(0.00472)	(0.00413)
Public sector	0.150 ***	0.149 ***	0.138 ***
	(0.00564)	(0.00598)	(0.00526)

Constant	-0.0330 *** (0.00797)	0.242 *** (0.0115)	0.205 *** (0.0106)
Observations	105,303	128,643	128,643
R^2	0.222	0.045	0.047

Note: * significant values at 10%; ** significant values at 5%; *** significant values at 1%; standard deviation in parentheses.

Authors' elaboration based on IBGEd (2020).

Table 6 also records that it is in the public sector, which implies greater chances of being away, regardless of whether or not it is due to social distance[6]. It is noted that being a worker in the activity classified as services implies a greater chance of being removed, regardless of the reason, among the activities of the private sector, even though all private activities have presented greater chances than the reference activity, agriculture.

Similar to the result for remote work, estimate (1), being a man implies less chance of being away. However, being white presents the opposite result of the estimate (1), indicating less chances of being away from work. Regarding the regions of the country, it is in the Northeast region which implies greater chances of being away than the reference region, in the North, while it is in any other region it indicates less probability of being away from work.

At the same time, being up to 59 years old implies less chance of being removed than the reference group, people aged 14 to 19 years old. At the same time, being 60 or older means that you are more likely to be away from work. Finally, in the case of education, for the analysis of leave, the opposite is observed in the case of remote work, the more educated the less likely the worker will be removed.

6- CONCLUSIONS

This work proposes to investigate the impact of P andemia on the public and private sector work. To this end, it sought to assess how many busy people were away from their activities and how many have been doing their jobs remotely.

As for this second group, a series of studies were carried out at the beginning of the Pandemic attempt to measure the potential of teleworking for several countries, including

[6] As estimates (2) and (3) presented similar results, by parsimony, it was decided to present the results of both estimates simultaneously. First of all, the expected is confirmed, since 80% of those on leave are due to measures of social distance.

Brazil. In the Brazilian case, four studies were highlighted in the context of this work. The first, Dingel and Neiman (2020) expected up to 25.65% of employed people in Brazil to be able to work at home office. ILO (2020) estimated that for Latin American countries this potential would be between 16% and 23%. When Delaporte and Peña (2020) is used two different methods and found 13% via methodology Santiel (2020) applied to Brazil and 27% via the methodology Dingel and Neiman (2020). Góes, Martins and Nascimento (2020), based on PNAD Continuous data for the first quarter of 2020, concluded 22.7% of Brazilian workers could be in telework .

As the Pandemic progressed, IBGE began to conduct household surveys measuring its effects on the health and work of the national population. With PNAD Covid-19 data, it was possible to measure the number of people actually working remotely in the country. This was 12.7% for the month of June, a percentage similar to that found by Delaporte and Peña (2020) for the country, indicating that the methodology developed by Santiel (2020) may be more adherent to the technology reality of the labor market of Brazil. And more in line with the results found by Góes, Martins and Nascimento (2020) than the potential telework estimated by Dingel and Neiman (2020).

With data from work during the pandemic, it can be seen that people employed in the public sector find themselves more intensely in remote work or even on leave due to social distance than workers in the private sector. Even separating the private sector according to economic activity, the public sector continues to have significantly different percentages than that observed in the services (which are closest), trade, industry or agriculture.

Observing people in remote work, it is noted that they are whiter than the total employed, have a higher percentage of women than the total, and are considerably concentrated in people with complete higher education. In addition, a considerable percentage is in the public sector. This same sector showed a gain when it comes to distance due to social distance. However, in contrast to what was observed in remote work, the group of retired people is characterized by having low education and having percentages of whites close to the total number of employed people in the country, while the percentage of men was closer to that observed in remote work.

As for the income effectively received by people, it is noted that the group with the smallest difference to the income usually received is precisely that in remote work. The group removed due to social distance recorded losses of 40% of income in relation to usual income.

Finally, the estimates confirmed the points observed in the data collected by the survey. Being employed in the public sector, it gives greater chances for the worker to be in remote work or away from their duties, regardless of the reason. In addition, the estimates showed that, with regard to working remotely, the individual characteristic with the greatest influence on the probability of suffering changes in the way of exercising work activity is having a college degree.

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8- APPENDAGE

Table A1 - Factors that influence the probability of remote work, removal and removal due to social distance. Estimated for the month of May.

Variables	(1) **Remote work**	(2) **Away**	(3) **Away due to social distance**
Man	-0.0113***	-0.0943***	-0.0842***
	(0.00314)	(0.00322)	(0.00300)
White	0.0310***	-0.0132***	-0.0104***
	(0.00337)	(0.00379)	(0.00359)
Regions			
Northeast	0.0172***	0.0146*	0.0224***
	(0.00466)	(0.00842)	(0.00793)
Southeast	0.0455***	-0.0817***	-0.0751***
	(0.00466)	(0.00804)	(0.00751)
South	-0.0136***	-0.146***	-0.140***
	(0.00496)	(0.00823)	(0.00759)
Midwest	-0.000494	-0.121***	-0.110***
	(0.00555)	(0.00853)	(0.00793)
Age range			

20-29	-0.00661	-0.0632***	-0.0756***
	(0.00706)	(0.0110)	(0.0107)
30-39	-0.0224***	-0.0682***	-0.0843***
	(0.00696)	(0.0110)	(0.0106)
40-49	-0.0158**	-0.0685***	-0.0790***
	(0.00697)	(0.0108)	(0.0105)
50-59	-0.0137*	-0.0356***	-0.0500***
	(0.00726)	(0.0112)	(0.0109)
60-69	0.0142	0.0508***	0.0404***
	(0.00871)	(0.0126)	(0.0124)
70-79	0.0197	0.0723***	0.0612***
	(0.0148)	(0.0195)	(0.0192)
80 or more	-0.0764***	0.127**	0.139***
	(0.0254)	(0.0508)	(0.0507)
Education			
Complete elementary school	0.00294	0.00302	0.00305
	(0.00190)	(0.00565)	(0.00539)
Complete high school	0.0516***	-0.0221***	-0.0219***
	(0.00254)	(0.00505)	(0.00480)
Graduated	0.322***	-0.0852***	-0.0777***
	(0.00552)	(0.00557)	(0.00531)
Sector / Activity			
Trade	0.00694**	0.125***	0.117***
	(0.00285)	(0.00596)	(0.00534)
Industry	-0.00707*	0.142***	0.137***
	(0.00384)	(0.00675)	(0.00616)
services	0.0539***	0.155***	0.151***
	(0.00285)	(0.00545)	(0.00486)
Public sector	0.135***	0.175***	0.161***
	(0.00589)	(0.00679)	(0.00609)
Constant	-0.0283***	0.302***	0.267***
	(0.00806)	(0.0138)	(0.0131)
Observations	92,536	119,145	119,145
R^2	0.217	0.053	0.056

Note: * significant values at 10%; ** significant values at 5%; *** significant values at 1%; standard deviation in parentheses.

Authors' elaboration based on IBGEc (2020).