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Covid-19: Public Policies and Society's Responses

P2S Políticas Públicas & Sociedade

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Policy Briefing Note 16
Coronavirus crisis brings changes to to home-based work and telework. Digital divide leads to drop in income and reduces economic activity

Main Results

- Before the pandemic, the percentage of home-based workers in Brazil (4.9%) was not substantially different from, for example, the countries of the European Union (5.4%).
- With the pandemic, home work has changed both in volume and quality. The percentage of people working at their homes increased from 4.9% in 2019 to 10.3% in May 2020. If in 2019 self-employed persons comprised 88.3% of the total number of people working at home, today they represent less than 15% of the total.
- Before the crisis, working at home mostly meant informal, low-skilled, and poorly paid jobs. Now, people who work at home are more educated and make use of information and communication technologies (ICT).
- Traditional informal home-based workers can no longer work during the pandemic given the nature of their activities. As a result, their income has persistently dropped. These new teleworkers mostly consist of professionals with higher education, teachers, managers, administrators, office workers.
- The so-called "teleworking" in Brazil, during this time of crisis, is significantly inferior to most of the countries hereby compared, which further reduces economic activity and signals a low adaptive capacity.

- Digital divide and poor access to ICT in low-income households are arduous limitations for the progress of telework.
- The use of the Internet for work-related activities is limited, even among Brazilians who have overcome the access barrier, which indicates that the lack of digital skills restricts telework during and possibly after the pandemic.

Introduction

Covid-19 has brought profound transformations to the labor market. One of the main changes occurred in the work done at/from home by self-employed people or even those with a formal employment contract. Historically, this group has been associated with informality, absence of rights, and lower wages; moreover, it was predominantly female and more frequent in poor countries, according to the International Labor Organization (ILO).

The pandemic brought the notion of "telework" to the center of public debate, a generic reference to workers who perform their activities from their homes. Strictly speaking, however, **this concept refers only to people who work from home, for a remote employer, with whom they communicate digitally via ICT**. In other words, they comprise a "modern" subset among employees who work from a distance.

This bulletin focuses on home-based work and telework and their main transformations, emphasizing its particularities before and during the pandemic. At the end, we discuss how digital divides remain an obstacle for the dissemination of telework in Brazil as we underline, more specifically, the challenges of working from home and telework.

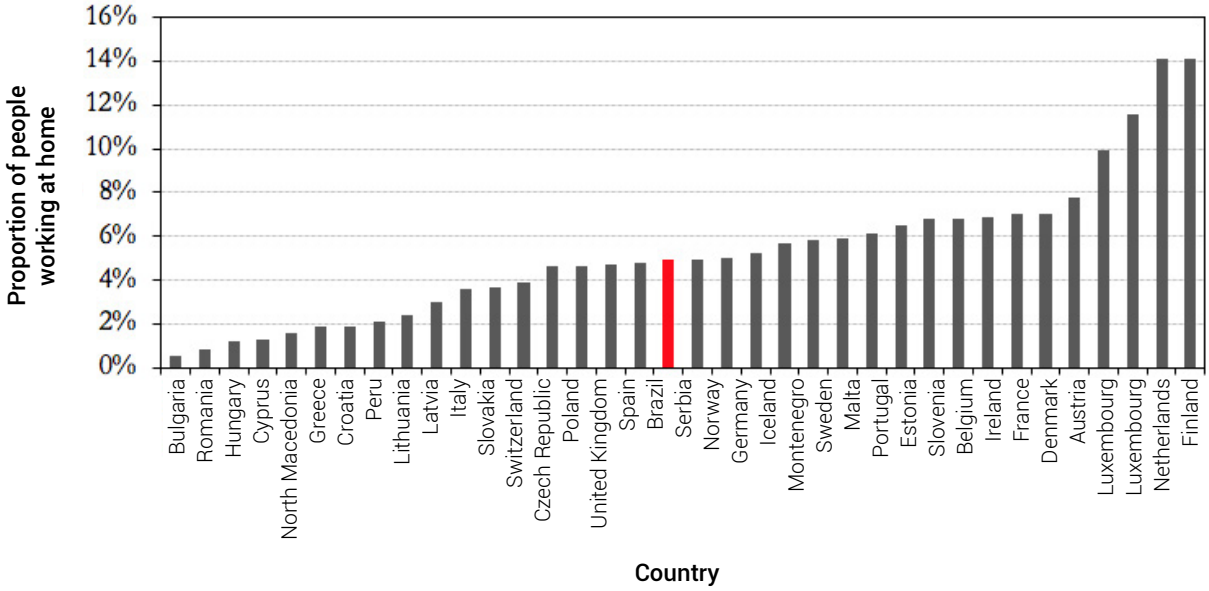
Trends in home-based work in Brazil and in the World

Before the pandemic, many believed that home-based work would expand, especially in countries with a more advanced digitization process. The image of the software developer or designer, even if bound to an organization, with the flexibility to work at home or in a coffee shop was commonly presented as the arrival point of a flexible occupational structure and representative of a new era. However, even before the pandemic, data on home-based work trends suggested that this process was much slower and less widespread than originally thought.

According to Eurostat[1] the percentage of people who worked at home (regardless of the type of employment bond) in 2019 was only 5.4% in European Union countries[2]. This number was not substantially different from the Brazilian average for the same period: 4.9%, according to the 2019 Annual Continuous PNAD. The data reveals a significant variation between countries (Graph 1), whereas the percentage in Brazil reached even higher levels than in countries such as Italy (3.6%), the UK (4.8%), and Spain (4.7%).

1 Statistical office of the European Union.
2 https://ec.europa.eu/eurostat/web/lfs/data/database.

Graph 1 - Percentage of workers working at home – Comparison between Brazil and European Union countries, 2019

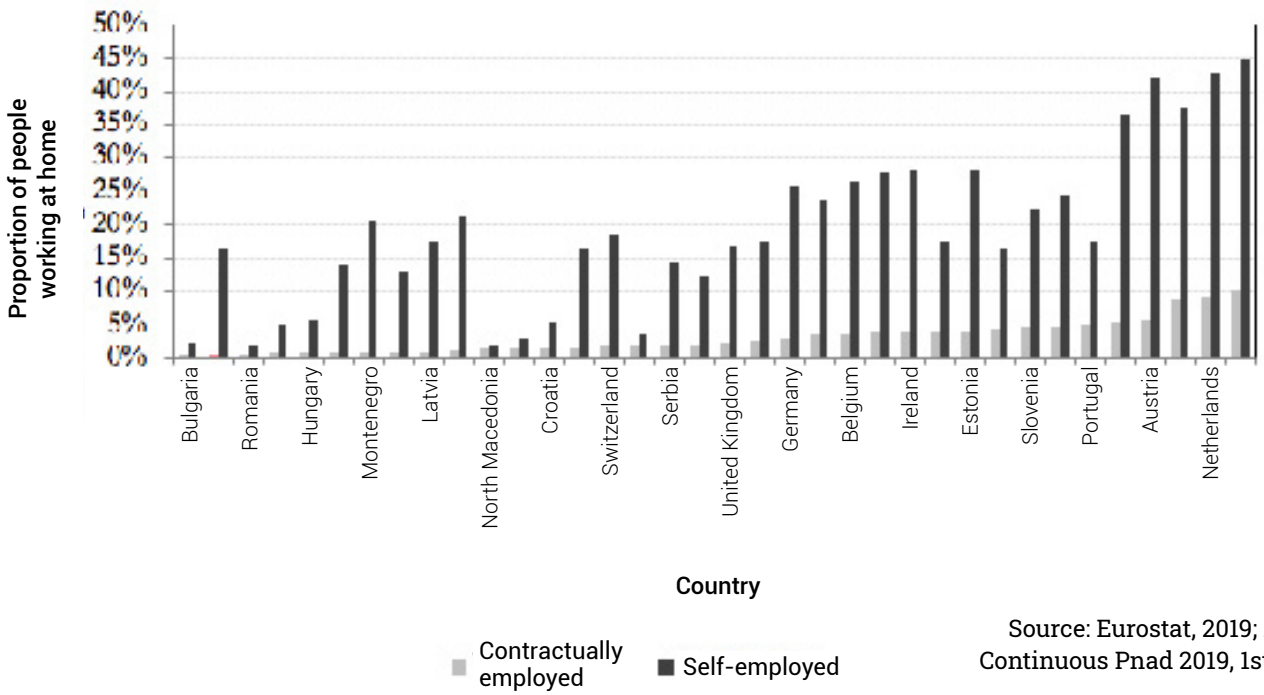


Source: Eurostat, 2019; Annual Continuous Pnad 2019, 1st Visits.

For the most part, working at home has always been a typical prerogative of self-employed workers. In Europe, an average of 19.0% of self-employed individuals worked from home. In Brazil, this figure was 16.6%.

Differences are more striking, however, among those with an employment relationship, i.e., those who are not self-employed. Graph 2 presents data from a set of selected countries, wherein Brazil is just ahead of Bulgaria (0.4%, against 0.2%). At any rate, the figures are considerably low in most countries. The only countries above 5% were Denmark (5.4%), Austria (5.8%), Luxembourg (8.9%), Holland (9%), and Finland (10%).

Graph 2 - Brazil and the European Union:
Workers working at home (%), by type of employment contract (self-employed and contractually employed)



Source: Eurostat, 2019; Annual Continuous Pnad 2019, 1st Visits.

Working at home in Brazil: before and during the pandemic

In 2019, the contingent of workers who performed work-related activities from their homes in Brazil was mostly comprised of freelance salespeople, confectioners, cooks, dressmakers, shoemakers, and leather artisans, in addition to personal service providers, such as hairdressers and manicurists, for example.

The pandemic has drastically affected this situation, at least temporarily.

According to data from the PNAD-Covid (an emergency survey conducted by the IBGE) the percentage of people with an occupation and working at home was 10.3% in May 2020. This value refers to the number of people who usually worked away from home, but had to move their activities to their residencies due to the pandemic. The PNAD-Covid, however, does not ask the "usual" or "routine" place of work – thus it fails to observe the traditional category of people working at home. We have strong reasons to believe, however, that those 4.9% of workers who traditionally worked from their own homes (typically informal) have declined – for reasons detailed below. Thus, the new configuration of home work during the pandemic mostly consists of a "modern" sector, unlike the previous situation.

In 2019, self-employed individuals made up 88.3% of the total amount of people working at home. Currently, in the new segment, they represent less than 15% of the total. In other words, people who work for an employer are now predominant, which represents an inversion of the situation prior to the pandemic. The occupational profile has also changed significantly: now it mostly consists of professionals with higher education, teachers, managers and administrators, and office workers. Thus, in May 2020, the predominant occupations working at home were more on par with the internationally accepted definition of telework: activities performed by high-skilled employees who communicate with their employers through the internet or other ICT modalities.

Table 1: Occupational structure of home-based work: comparison between data from 2019 and May 2020[3]

2019 (Annual average)		May 2020	
Main Occupations	**%**		**%**
Tailors, dressmakers, hatters, furriers, artisans of fabrics, leather, and related materials	10,8	Higher education professions (lawyers, engineers, accountants etc.)	23,4
Door to door salespersons	8,7	Teachers	19,0
Bakers, confectioners, and related	7,2	Directors, Managers, Politicians	8,1
Salespersons in general	6,5	Office assistants	6,9
Cooks	5,6	Mid-level professionals and technicians	6,9
Specialists in beauty treatment and related	4,9	Door to door salespersons	3,5
Subtotal	48,1		67,8
Other Occupations	51,9		32,2
Total	100,0		100,0

Source: Annual Continuous PNAD 2019, 1st Visits; PNAD-Covid, May 2020.

3 In the PNAD-Covid questionnaire, the query for measuring home-based work explicitly asks about "telework" - whereas the Continuous PNAD does not ask this question. Thus, the difference between the results may also be partially explained due to changes in the collection strategy.

This change reflects the potential that different occupations have for adapting to changes in routine and job opportunities in the current context. For traditional self-employed workers, low-skilled and informal, social distancing policies had a negative effect as it meant the impossibility of serving customers directly. Many found themselves forced to discontinue their activities and suffered a drop in their income. For informal or manual workers, the nature of their professional activities simply precludes social distancing. Furthermore, on rare occasions when working at home is possible, they often lack technological infrastructure at home – such as quality internet access (see further below). These are some of the reasons why job losses and unemployment have particularly affected informal and least skilled workers, reducing the traditional category of home-based workers during the pandemic. The PNAD-Covid indicates that the number of people in low-skilled occupations who started working at home was very small. Thus, that low percentage of 4.9% would have remained constant or – very likely – declined.

This means that the current trend does not only convey the growth of the home office or telework phenomenon, performed by high-skilled workers, more privileged from a socioeconomic standpoint, and with more resources for access to technology. It also represents typical home-based occupations which have since been interrupted. The pandemic has sparked drastic changes in the labor profile.

The table below shows the percentage of workers who worked from home, before and during the pandemic.

Table 2: Percentage of people who routinely worked at home (in 2019) and who started working at/from home (in May 2020), by occupational groups

Occupational groups	Routinely worked at home	Started working at/from home	Difference
Armed forces	0,3%	(May/2020)	3,8%
Managers and Directors	2,0%	26,0%	24,0%
Science professionals and intellectuals	4,6%	37,9%	33,3%
Mid-level professionals and technicians	3,8%	13,6%	9,8%
Administrative support workers	,6%	16,5%	15,9%
Commerce and service workers	8,1%	3,0%	-5,1%
Skilled agricultural workers	0,3%	0,4%	0,1%
Construction workers and traditional industry workers	11,9%	1,1%	-10,8%
Machine operators, drivers, and modern industry workers	3,4%	0,7%	-2,7%
Elementary occupations	1,0%	0,6%	-0,5%
Other	.	13,5%	-
Total	**4,9%**	**10,3%**	**5,5%**

Source: Annual Continuous PNAD, 1st Visits; PNAD-Covid, May 2020.

Commerce, service, and industry workers were the most affected as they were unable to continue their activities from a distance. In turn, leadership positions (managers and directors), science professionals, teachers, and mid-level administrative workers were the most successful in adapting to telework.

Income and home-based work

Up until the moment before the pandemic, the income of home-based workers was low. In Brazil, those who worked from home had an income 34% lower than those who worked outside their homes in 2019.

Workers who switched to remote work on account of the pandemic, however, tend to have higher incomes. During the month of May 2020, people who started working from home earned 2.7 times more than those who worked in-person. *We found this same trend across all occupational groups.*

Table 3: Average income of occupational groups according to home-based or in-person work, before and during the pandemic

	2019			May 2020		
Occupational Groups	In-person work	Usually at home	Ratio	In-person work	Started to work at/from home	Ratio
Armed Forces	4.997	6.947	1,39	4.427	7.293	1,65
Managers and Directors	6.419	4.508	0,70	4.164	7.744	1,86
Science professionals and intellectuals	4.991	3.611	0,72	3.592	4.684	1,30
Mid-level professionals and technicians	2.930	3.215	1,10	1.972	3.532	1,79
Administrative support workers	1.845	1.547	0,84	1.523	2.079	1,37
Commerce and service workers	1.665	1.091	0,66	1.259	2.257	1,79
Skilled agricultural workers	1.448	4.931	3,41	987	3.037	3,08
Construction workers and traditional industry workers	1.760	935	0,53	1.095	1.515	1,38
Machine operators, drivers, and modern industry workers	1.892	1.195	0,63	1.518	2.182	1,44
Elementary occupations	1.042	896	0,86	848	1.763	2,08
Total	**2.324**	**1.527**	**0,66**	**1.593**	**4.289**	**2,69**

Source: Annual Continuous PNAD 2019, 1st Visits; PNAD-Covid, May 2020.

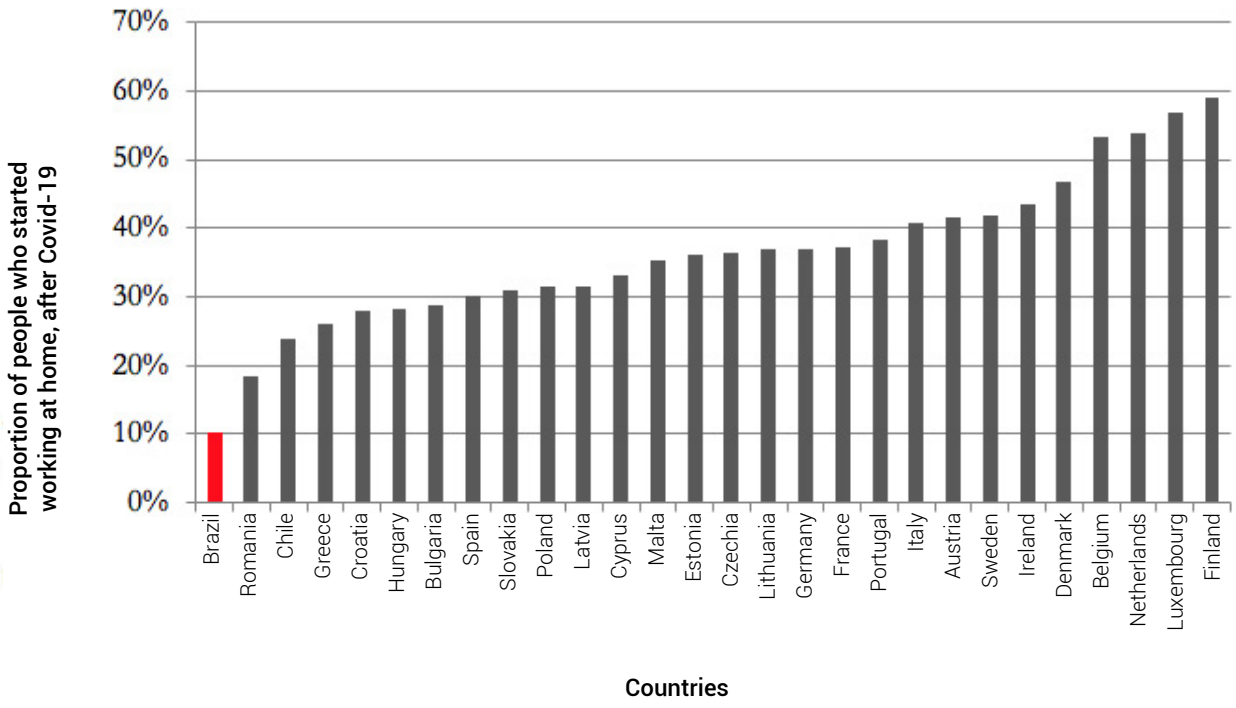
In part, this result reflects the exclusivity and selectivity of remote work during the pandemic: those who could opt for and/or perform this modality were individuals already in better paid positions and occupations. From this perspective, telework is not the cause for better remuneration, but its symptom. On the other hand, telework allows for the continuation of an economic activity and for a greater number of hours. From this angle, it also operates as a contributing factor for higher remunerations, in a two-way street.

In certain cases, the difference in hours worked is stark. Teachers who continued in-person activities worked 8 hours a week on average in May. Among those able to shift to telework, that number was 30 hours, almost four times higher.

The capacity of the labor market to cope with the pandemic

Data about the European Union shows that home-based work has grown substantially in all countries within the bloc. Circa 37% of workers started to perform their activities from home during the pandemic, a stark contrast to Brazil, where only 10.4% of workers began to work from home. In Greece and Romania, European countries with the lowest incidence of this type of work, those figures were 26% and 18.4%, respectively. In Chile, 23.7% workers have since shifted to remote work. Thus, Brazil went from being a typical average case to a discrepant one.

Graph 3: Working at home during the pandemic: Brazil, Chile, and the European Union

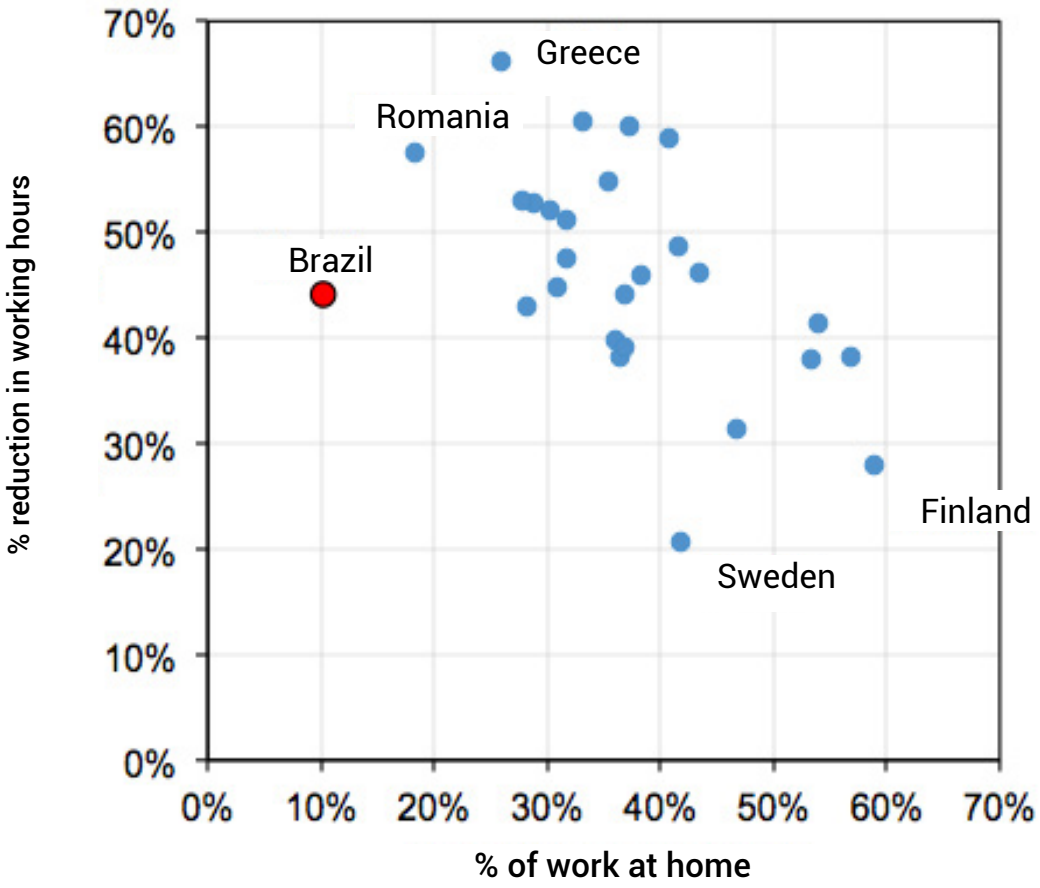


Source: Pnad Covid, Estudio Longitudinal Empleo-Covid19 (Chile), and Eurofound (European Union)

The European experience also shows that working hours can be maintained even with the increase of telework: countries with a higher incidence of home-based work have suffered smaller losses in working hours, in aggregate. The loss of working hours serves as an indicator for the general

decrease in economic activity, and therefore in product and aggregate growth. The composition of the Brazilian workforce, without the means for telework amidst the pandemic, has possibly led to a greater reduction in economic activity, thus further aggravating economic and social impacts. In other words, the brutal inequality in Internet access became an aggravating factor for the reduction of working hours from home and, consequently, for the reduction of the economic activity, thus contributing to a more significant GDP drop when compared to other countries, such as Chile and the European Union.

Graph 4: Percentage of people working at home and percentage of workers with reduced working hours – Comparison between Brazil and European Union countries

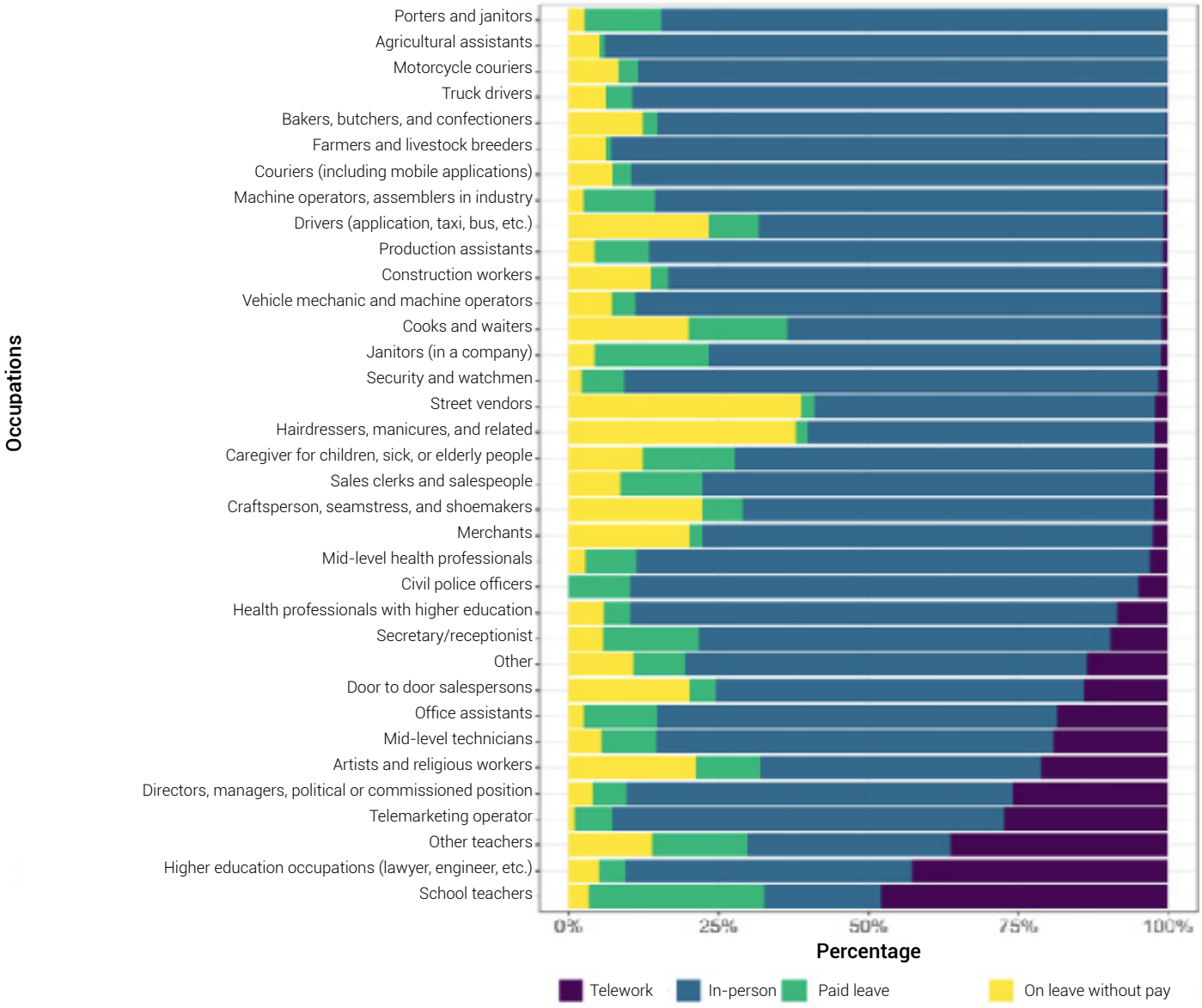


Source: Pnad-Covid, May 2020; Eurofound, 2019.

The loss in working hours in Brazil was not only greater because the poorest and least skilled workers continued to work in-person, albeit on a part-time basis, rather than ceasing all work-related activities. This reveals the difficulties faced by social distancing policies for the labor market and the increase in virus infection and spread. As shown in Bulletin 15 of the Solidarity Research Network, the Emergency Basic Income program did not have a significant effect on reducing the flow of people in urban spaces.

It is worth noting that working at home/telework, on the one hand, and in-person work, on the other, are not the only alternatives amid the crisis. Several workers have, in fact, gone on leave from their jobs – many without pay. The graph below details the condition of workers in each occupational group, according to four possibilities: telework/working at home, working in person, leave from work with pay, leave from work without pay.

Graph 5: Percentage of people working at home, working in-person, on paid leave, and on leave without pay across occupational groups. Brazil, May 2020



Source: Pnad-Covid, May 2020

The graph shows that professionals in the field of education concentrate the two most propitious work modalities within the current situation: they either work from home or are on paid leave. Among higher education professionals, on the other hand, paid leave is an uncommon strategy: they are either working at home or working in-person.

Paid leaves may result from agreements with employers given the possibility provided by Provisional Measure (PM) 936. Non-paid leave, however, reflects the poor economic performance of the sector and the inability of companies to uphold their commitments to payroll. Among workers on leave, we find a wide predominance of unpaid workers across all occupations, albeit especially in lower income occupations. Thus, these no longer receive income from work altogether. As shown in Bulletin 14 of the Solidary Research Network, the loss of workers' income has caused a significant impoverishment of the middle strata.

The ability to implement telework depends on the company's sector of activity, regardless of the occupation. According to data from the IBGE's *Pesquisa Pulso Empresa*, published on 16/07/20, only 38.4% of companies in Brazil adopted measures for remote work during the pandemic. This percentage is considerably higher in the Information & Communication (75.2%) and Professional Services (64.8%) sectors. In the vast majority of sectors, however, and therein included the Industry sector (44.7%), less than half of companies adopted such measures. Small companies (up to 50 employees) faced significant difficulties in implementing remote work: only 37.7%, against 70.4% and 86.2% of companies with 50 to 500 and more than 500 employees, respectively.

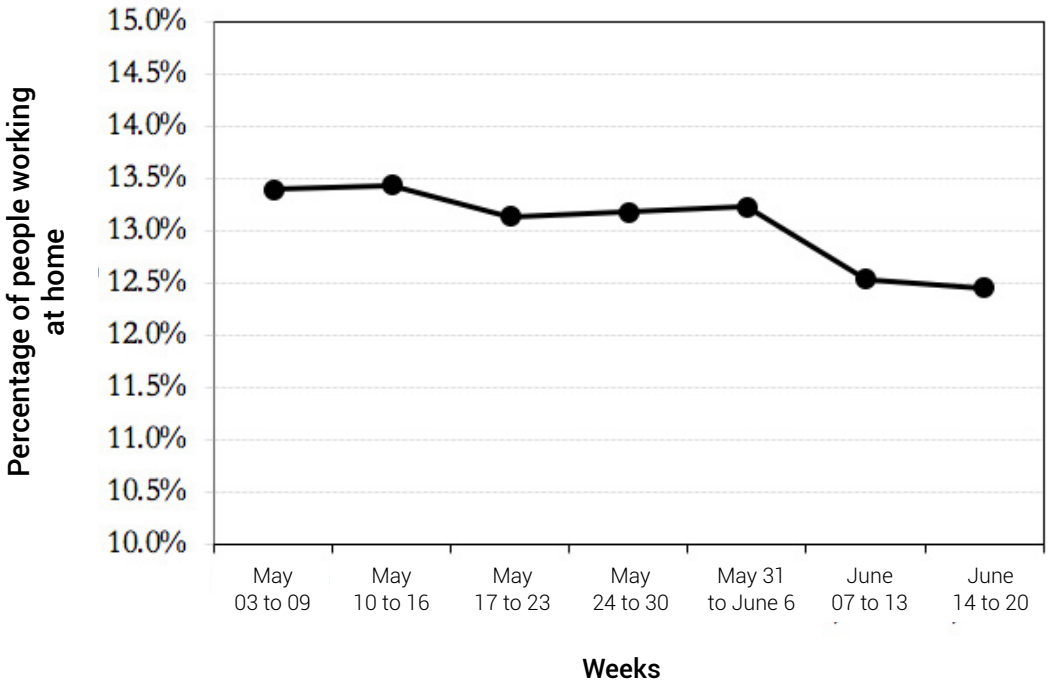
Table 4: Percentage of Companies that adopted remote work during the pandemic, by size and sector of activity.

Total	38,4
Company size	
Up to 49	37,7
50 to 499	70,4
500 or more	86,2
Sector of Activity	
Industry	44,7
Construction	58,4
Commerce	23,5
Retail Trade	17,7
Wholesale Trade	53,1
Sale of vehicles, parts, and motorcycles	27,1
Services	**51,3**
Services provided to families	38,0
Information and communication services	75,2
Professional, administrative, and complementary services	64,8
Transportation, auxiliary transportation services, and mail	35,4
Other services	44,0

Source: Pesquisa Pulso Empresa – IBGE, second half of June 2020

The difficulty, however, lies not only in implementing, but also in sustaining remote work. The modality showed a downward trend over the months of May and June, according to data from PNAD-Covid (IBGE). This suggests a resumption of in-person activities (albeit with typically shorter working hours than in remote work in this context of crisis) and the easing of social distancing measures.

Graph 6: Percentage of people working at home among the total employed population not on leave from their jobs – Brazil, May and June 2020.



Source: Pnad-Covid, May and June 2020.

Digital divides deter the expansion of telework

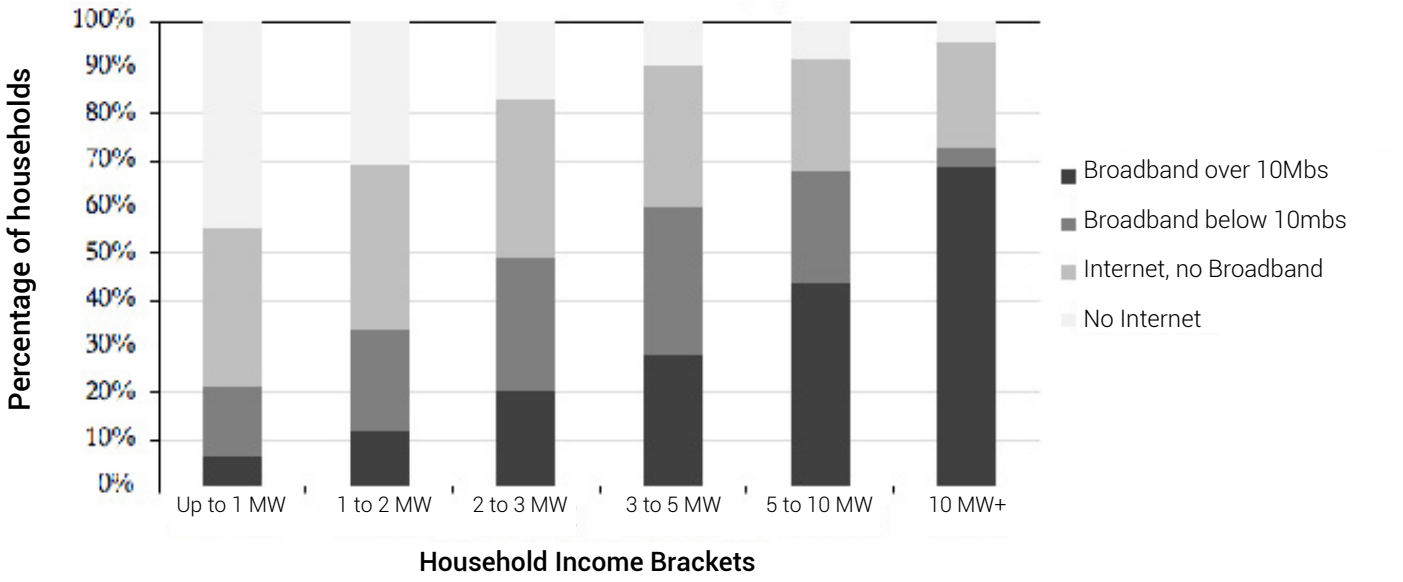
We can also partially explain the limited dissemination of telework in Brazil in some sectors and occupations during the pandemic due to the prevailing digital divide in the country. In addition to organizational and regulatory challenges, the cost of adopting telework in countries with uneven digitalization processes is higher.

Data from the ICT in Households 2019 (Brazilian Internet Steering Committee, CGI, 2020), gathered between October 2019 and March 2020, indicate that the presence of computers (desktop computers, portable computers, or tablets) is decreasing in Brazilian households: 50% in 2015 to 39% in 2019. Furthermore, less than half of households with a family income of up to 3 minimum wages have computers in their homes[4]. Thus, for most low-income households, remote work is limited to cellphones, present in 87% of households with income of up to 1 minimum wage. An alternative scenario in which employers become responsible for supplying technological devices is less plausible amidst an economic crisis. In many countries, the distribution of devices by the government has been an emergency initiative to enable the continuation of educational and administrative activities[5].

A vital condition for telework is the availability and quality of the Internet connection. Both depend on the family income, the infrastructure available in each location, the price structure, and the existence of providers (CGI.br, 2019). Despite progress in the last decade, broadband is scarce among the poorest households, with the prevalence of mobile connections (3G and 4G). In households with a higher family income, we find a larger presence of download speeds over 10 Mbps – which allow greater stability and the use of video conferencing and streaming applications. Access to faster connections is a crucial factor for more efficient data exchange, facilitating communication and expanding the use of digital resources, and thus decisively affecting telework performance.

4 In the ICT in Households survey, the monthly family income is the sum of the income of all residents in the household, including the respondent, according to the value of the minimum wage.
5 OECD. Cities policy responses. Policy Responses to Coronavirus (COVID-19), 2020.

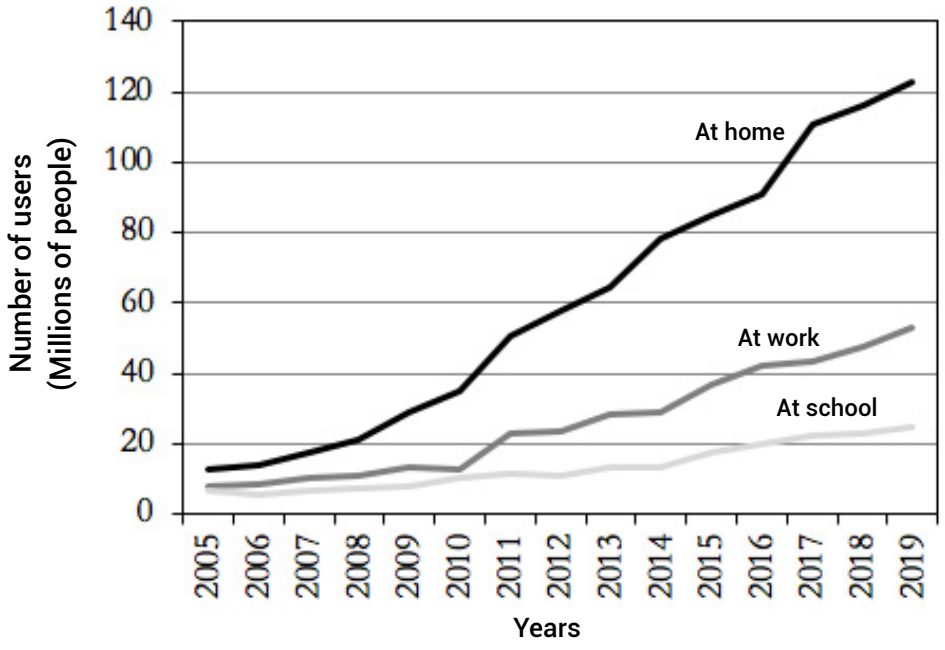
Graph 7: Households without Internet and households with Internet access, by household income – Total households (%)



Source: ICT in Households 2019 (CGI.br, 2020). Note: The tabulated data does not consider households that did not inform connection speed and/or did not report family income.

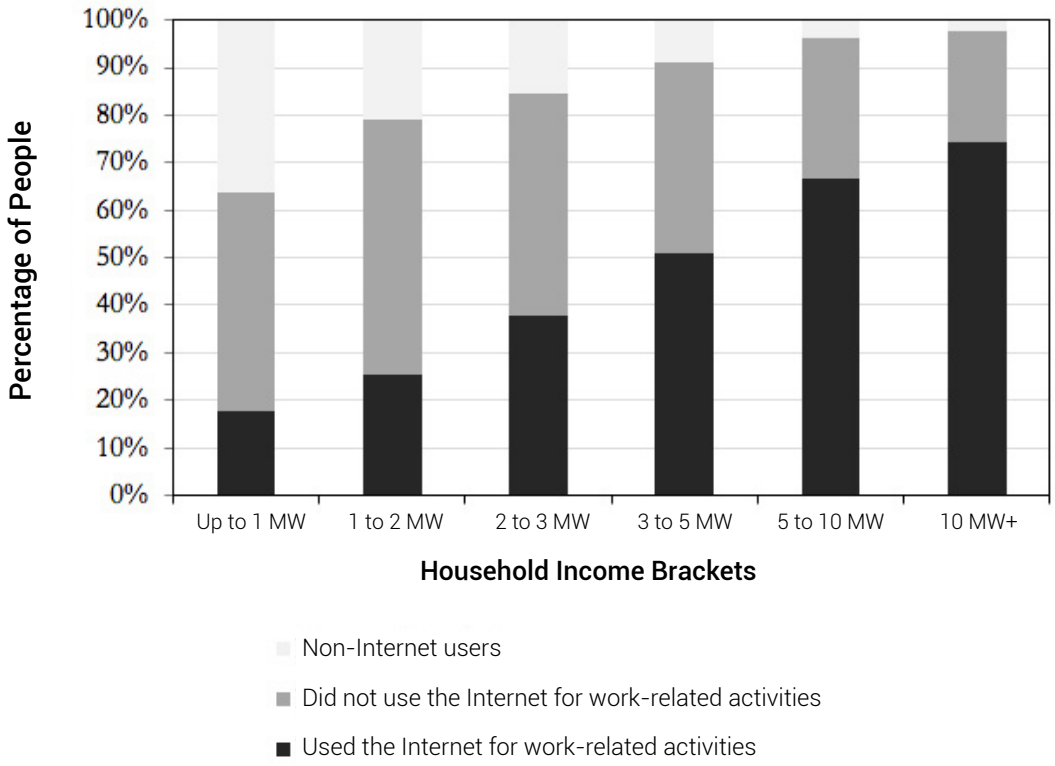
Internet use at home has grown more sharply than at work, reflecting how Internet access continues to have limited impacts on the production process. Less than 20% of individuals with family income in the workforce and with a family income of up to 1 minimum wage use the Internet for work-related activities – a percentage that grows alongside income. In the higher income brackets, the percentage of internet use for work becomes more widespread.

Graph 8: Total Internet users in urban areas, by location of access (2005-2019)



Source: ICT in Households, 2005 to 2019 (CGI.br, 2020)

Graph 9: Internet users in the workforce, by Internet use for work-related activities (2019) – Total Internet users (%)



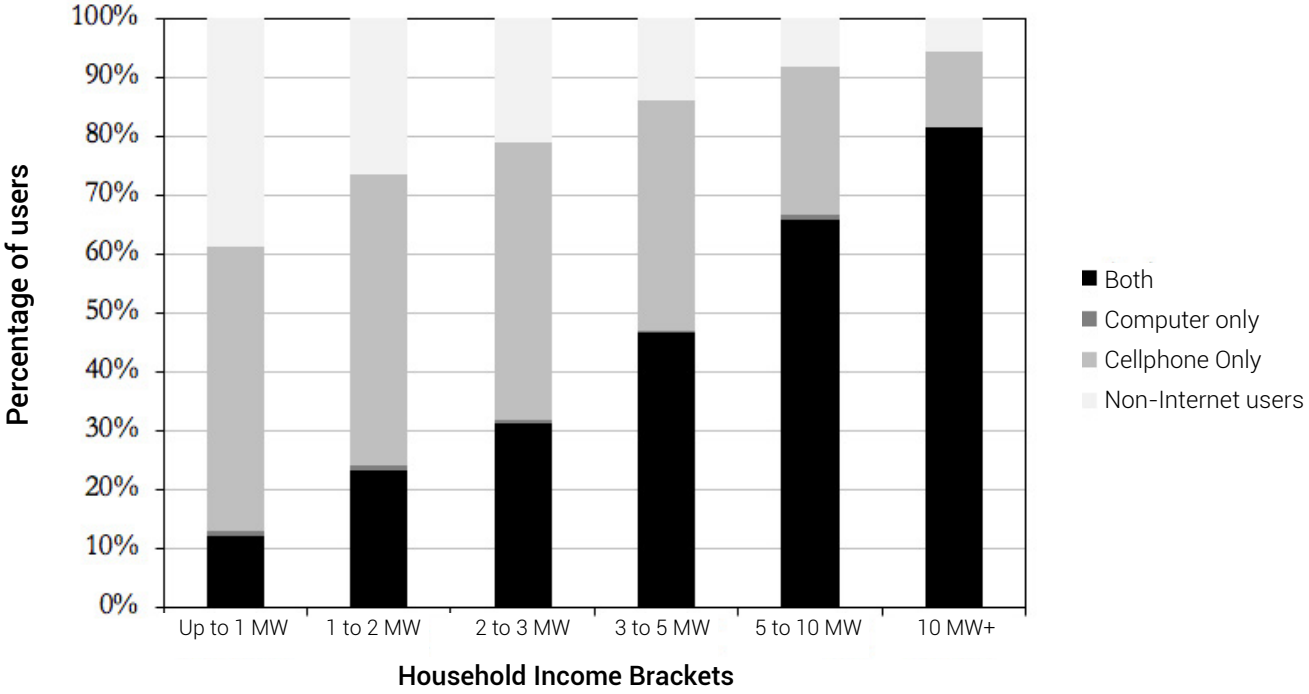
Source: ICT in Households 2019 (CGI.br, 2020)[6].

Within the context of a digital economy, characterized by data-based production processes and the advance of the Internet of Things (IoT), one would expect multiple connected devices and sensors equally present in homes and in the daily lives of workers. Among Internet users, access to multiple connected devices has been associated with more sophisticated use of the network, while exclusive access by cellphone is a limiting factor for some activities[7].

In Brazil, the use of multiple connected devices is only a reality for the wealthiest population. Those living in families with up to 3 minimum wages are less likely to use computers. The device used to connect to the Internet should be of special concern for companies that adopt telework, since the provision of computers becomes a necessary action to provide the employee with the minimum means to work as well as to mitigate potential digital security risks.

6 CGI.br. Research about the use of information and communication technologies – ICT in Households 2019. São Paulo: Internet Steering Committee in Brazil, 2020 (in press).
7 Pearce, E., & Rice, E. Digital divides from access to activities. Journal of Communication 63, 721-744, 2013.

Graph 10: Internet users by device used to access the Internet (2019) – Total Internet users (%)



Source: ICT in Households 2019 (CGI.br, 2020)

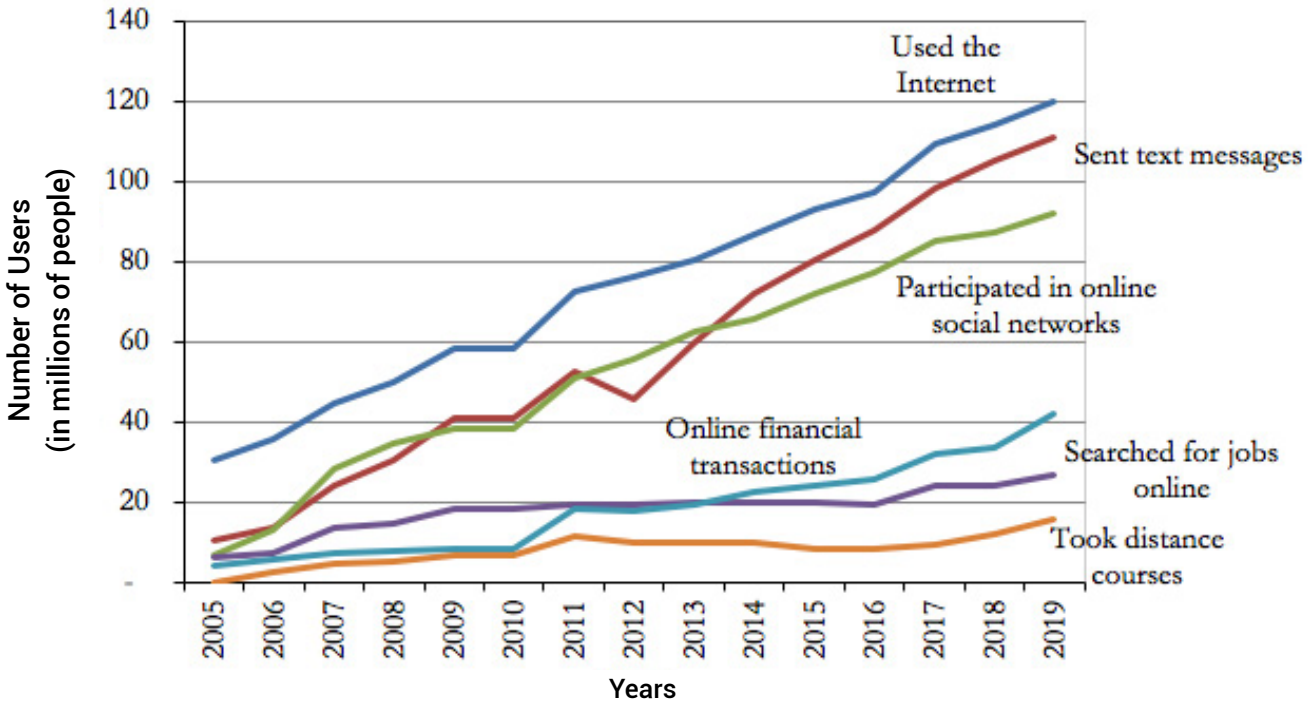
While Internet use has progressed rapidly in Brazil over the past decade (having reached 74% of the population), the second-level digital divide persists among those who have overcome the access barrier. Therefore, it becomes increasingly important to debate the skills or aptitudes for the use of ICT to allow individuals to foster the benefits of its use and reduce the possible damaging/negative results associated with engaging with the digital world[8]. With regards to digital skills, we must consider both the necessary operational skills to use the Internet as well as the necessary communication skills to understand and use online content[9].

Graph 11 shows how communication activities, such as messaging applications or participation in social networks, have progressed more intensively in Brazil. Activities which entail further skills or provide training for the labor market, such as of online courses, have advanced in smaller proportions, and remain mostly restricted to a "digital elite".

In summary, the available evidence allows us to assert that the challenges for the advancement of telework also encompass the training of people and the presence of skills not acquired solely by popularizing Internet use. As in other countries, policies to expand Internet access are not sufficient to advance digitalization in some wellbeing dimensions.

8 ITU. Measuring the Information Society. International Telecommunication Union. Geneva. 2018.
9 Van Deursen, A. J.; Van Dijk, J. A. Internet skill levels increase, but gaps widen: A longitudinal cross-section analysis (2010–2013) among the Dutch population. Information, Communication &Society, v. 18, n. 7, p. 782-797, 2015.

Graph 11: Total Internet users in urban areas by activities on the Internet (2005 – 2019)



Source: ICT in Households 2005-2019 (CGI.br, 2020).

Recommendations

- We find a reduced use of computers among those living in families with up to 3 minimum wages in Brazil. The device used to connect to the Internet should be of special attention for public authorities and companies that have adopted or plan to adopt telework, since the provision of computers becomes a necessary action so employees may have the minimum means to work and mitigate digital security risks.

- To deal with the particularities of the pandemic, we must review PM 927/2020, particularly the requirements for changing between in-person and remote work, as well as the rules for employers to provide equipment and infrastructure, which transfer the costs to the worker. This PM also does not include the time spent using applications or communication programs outside the work shift as working time, which increases working hours in an unregulated and unpaid manner.

- In addition to PM 927/2020, clear and permanent boundaries must be set between working time, breaks, and rest time. This regulatory limbo results in increased workloads, reduced rest periods, and lack of compensation for overtime. This was already an issue before the pandemic – and was not addressed by the 2017 Labor Reform.

- Even though telework gained traction during the pandemic, the most critical situation afflicts groups that traditionally work at home: informal, low-skilled individuals who do not use telematic means. Not only are they more vulnerable, they comprise a significant portion of the employed population, and will probably continue to be in the post-pandemic scenario. In addition to the lack of formal

contractual work and low income, they usually lack support services, specific legal rights, and social protection. Furthermore, they rarely join collective organizations and have less bargaining power or political pressure. ILO recommendations and actions for this group include, among others, encouraging the formation of cooperatives or other local organizations, in addition to a bill of rights.

- The pandemic has continually laid bare Brazil's social protection shortcomings. The regulation of telework is a recent demand emerging from the new work modalities propelled by technological development. On the other hand, the reduction in traditional home-based work lies at the basis of a massive income drop during the crisis, which urgently calls for alternatives to the current social protection model.

ABOUT

We are over 70 researchers, actively engaged in the task of improving the quality of public policies within federal, state, and municipal governments as they seek to act amidst the Covid-19 crisis to save lives. We dedicate our energies towards rigorous data collection, devising substantial information, formulating indicators, and elaborating models and analyses to monitor and identify pathways for public policies and review the responses presented by the population.

The Solidary Research Network has researchers from all scientific fields (Humanities as well as Exact and Biological Sciences) in Brazil and overseas. For us, the combination of skills and techniques is vital as we face the current pandemic. The challenge ahead is enormous, but it is particularly invigorating. And it would never have come to fruition if it weren't for the generous contribution of private institutions and donors who swiftly answered our calls. We are profoundly grateful to all those who support us.

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WHO WE ARE

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