



Article

# COVID-19 and Changes in Social Habits. Restaurant Terraces, a Booming Space in Cities. The Case of Madrid

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**Abstract:** The COVID-19 pandemic and the fear experienced by some of the population, along with the lack of mobility due to the restrictions imposed, has modified the social behaviour of Spaniards. This has had a significant effect on the hospitality sector, viewed as being an economic and social driver in Spain. From the analysis of data collected in two of our own non-probabilistic surveys ( $N \sim 8400$  and  $N \sim 2000$ ), we show how, during the first six months of the pandemic, Spaniards notably reduced their consumption in bars and restaurants, also preferring outdoor spaces to spaces inside. The restaurant sector has needed to adapt to this situation and, with the support of the authorities (regional and local governments), new terraces have been allowed on pavements and public parking spaces, modifying the appearance of the streets of main towns and cities. This study, focused on the city of Madrid, analyses the singular causes that have prompted this significant impact on this particular city, albeit with an uneven spatial distribution. It seems likely that the new measures will leave their mark and some of the changes will remain. The positive response to these changes from the residents of Madrid has ensured the issue is being widely debated in the public arena.

Keywords: COVID-19; lockdown; restaurant sector; web survey; snowball survey



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# 1. Introduction

On 11 March 2020, COVID-19 was officially declared a pandemic by the World Health Organisation (WHO). Two days later, the Government of Spain, through a Royal Decree, declared a state of alarm for the entire country, which came into force the following day [1]. In order to curb the transmission and spread of the virus, Spain decreed mandatory home confinement for residents throughout the country, excluding essential workers (in the food, health or safety sectors). The confinement was extended on successive occasions, finally ending on 21 June 2020, 103 days later. Spain implemented one of the strictest confinements worldwide. Specifically, from the analysis of 23 indicators, Spain scored between 80 and 90 points on a scale of 100 [2]. During the first 52 days of confinement, people were only allowed to leave their homes to buy food or essential supplies and, in the 50 days of confinement that followed, they were allowed to go out for a couple of hours a day to exercise, or to go to work if given the appropriate permission.

In a matter of months, a new terminology became part of the daily vocabulary of all Spaniards. Wording such as state of alarm, curfew, lockdown, perimeter closures or capacity restrictions are increasingly used, in Spain and abroad [3–7]. At the same time, new habits appeared—use of disinfectant gel and masks, increased interpersonal distancing, care of the immune system, attention to physical exercise and diet and so on. All this increased the general fear of the population, with a latent "fear" in the lives of many Spaniards—the fear of getting sick, of infecting, of the unknown.

This fear has caused changes in the use of public space worldwide [8–12] and leisure activities for Spaniards, especially with regard to their relationship with the restaurant

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sector, in which Spain holds a unique position at a European and global level [13]. As discussed later, in Section 3.1, Spaniards have changed their habits related to spending time out of the house as well as the frequency with which they go to bars and restaurants, demonstrating a clear preference for open spaces over closed spaces.

The restaurant sector has not remained oblivious to these changes and has tried to adapt the offer to the new reality. This has caused a change in the appearance of some cities, where more bars and restaurants have opened new terraces which occupy pavements and public parking spaces [14,15]. Added to the new social and psychological reality is the impact of not being able to move freely between regions as a consequence of mobility restrictions. This has meant local restaurants of big cities have gained new local clients, helping to compensate for the additional costs of upgrading outside spaces. Such is the case of Madrid, the capital of Spain. In this study, we focus on the specific case of the city of Madrid because, in addition to presenting particular characteristics, as discussed in Section 2.3 of the paper, the local government has implemented a set of extraordinary fiscal measures to support the restaurant sector, so hard hit during the pandemic. The increase in terraces in public spaces raises the question of whether this policy initiative, introduced to help restaurants recuperate costs and losses caused by the total closure during confinement and subsequent capacity restrictions, is a short-term measure or here to stay, and whether it can serve as an example of economic recovery to other cities, in Spain and abroad.

From a methodological perspective, this paper exploits, using a statistical approach, both data available in official sources and our own collected data. On the one hand, official sources include data attained using traditional tools (such as probabilistic samples and administrative records) as well as data coming from pilot studies on mobility based on mobile phone positioning. On the other hand, we also rely on data collected using non-probabilistic surveys and on the use of ecological correlations. In particular, the research presented in this article is supported by data from official bodies such as the National Institute of Statistics (INE), the Statistical Office of the European Union (Eurostat) or the open data portal of the Madrid City Council in addition to other bibliographic sources, duly cited and referenced, as well as data about the impact of the COVID-19 pandemic collected using snowball sampling through web questionnaires. With all this, the uniqueness of the city of Madrid is revealed, whose special characteristics have led, together with government support and fostered by the human consequences of the pandemic (fear of accessing closed spaces without ventilation, limitations in movement, teleworking and resentful social relations), to an important increase, in number and extension, of the terraces in its streets.

The rest of the paper is structured as follows: Section 2, composed of four subsections, offers relevant background, contextualizing several aspects related to the topic of the paper. Section 2.1 presents a brief revision of the literature, emphasizing the relevance of the research, as this paper focuses on a topic not addressed to date. Section 2.2 provides a description of the restaurant sector in Spain, including its position in Europe. In Section 2.3 we take a detailed look at the singularities of the municipality (and Community) of Madrid, showing the reader the idiosyncrasy of the Madrilenian citizens, forced to modify their social habits in the face of such long perimeter confinement. Section 2.4 points out specific aspects of COVID-19 related to Madrid. Section 3 presents results and discusses them. Section 3.1, based on our own data collected through two specific web surveys, studies the impact that the COVID-19 pandemic has had on the social behaviour of Spaniards, and Section 3.2 discusses and shows the effects of the pandemic on the capital of Spain, focusing on the analysis of the supply of seating and terraces in the restaurant sector, answering several interesting questions. A short conclusion ends the paper.

#### 2. Background

## 2.1. A Brief Revision of the Literature

Since the coronavirus pandemic began, numerous studies have been published on the impact of COVID-19, covering a multitude of topics. Research has mainly focused on issues related to health and, to a lesser extent, the economy, but issues related to cities Mathematics 2021, 9, 2133 3 of 18

have also been addressed. We can find research that studies the impact of COVID-19 on urban air quality [16–19] or on the effects of human concentration, the consequences for public transportation or on new mobility patterns [20,21]. Noteworthy as well is the work on the need to transition to a more sustainable and resilient type of urbanization, which includes a change in the architecture of homes, creating more green spaces, with spaces that allow teleworking and the means for virtual education [22–24], or on the convenience of decongestion in urban habitats towards the surrounding rural spaces [25].

A minor line of literature has focused on the effects of COVID on restoration and on the economic impacts suffered by the sector [26]. Along these lines, a significant number of studies highlight the need for investment to improve the security of establishments (such as the use of contactless menu boards, payment systems, routine sanitization of tables, or screening of diners) and to have public support to do that [27–29]. Finally, we draw attention to the work of Alonso-Montolio [30] on the terraces of Barcelona but approached from the perspective of their energy consumption.

However, no research studies the change in the appearance of a city motivated by the boom of terraces, which in the case of Madrid is fostered by several factors, including citizens' fear of closed spaces, government support for them, with exemption from fees and the non-closure of establishments (when in other cities they were closed), and the high demand from their citizens, increased by mobility restrictions. These and other factors will be discussed throughout the article.

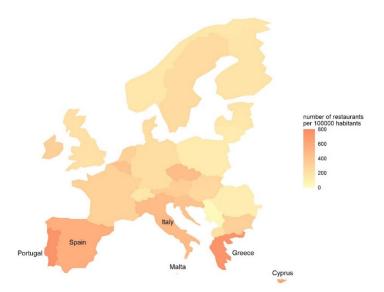
### 2.2. The Restaurant Sector in Spain

The restaurant sector is one of the drivers of Spain, both in an economic and social dimension. The hospitality industry, particularly the restaurant subsector, is one of the main references of the Spanish lifestyle [13]. In fact, this is one of the characteristics that differentiate Spain from other parts of the world and helps to put it in the top three tourist destinations in the world by number of visitors and revenue. According to the World Tourism Organisation (WTO) [31], Spain is the second most visited country in the world after France, and the second in tourist expenditures after the United States. Among the reasons given by foreign visitors are the excellent beaches, good weather and a wide range of gastronomy and nightlife [32–34].

However, according to Cabiedes and Miret-Pastor [35], it is difficult to offer exact figures of what the restaurant sector represents in Spain since, due to the diversity of the offer and a lack of regular and consistent data, the sources of information do not give a clear picture. Nevertheless, it is clearly a fundamental component of the Spanish tourism sector, the latter being of major economic importance. The tourism sector generates more than 2.6 million jobs, represents 12.8% of total employment and contributes 12.3% to the GDP. The contribution to the national GDP of the restaurant sector in particular is estimated to be 4.7%, employing 1,715,400 people in 2019, and representing 8.7% of the total employed in Spain [36] and more than 65% of the total employed in tourism.

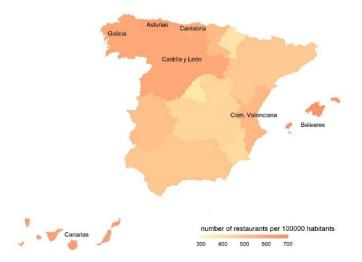
Despite the fact that, every year, bars have been slowly decreasing in number, Spain still has approximately 280,000 establishments including bars, restaurants, cafes and community and catering companies [37], serving a population of just under 50 million people. In fact, since 2014 and coinciding with the end of the financial crisis which began in 2008, restaurants have shown a certain growth trend. In absolute terms, Spain is one of the countries in the European Union with the most bars and restaurants. The latest information collected by the Statistical Office of the European Union (Eurostat) in 2018 shows that Spain has 260,306 establishments, surpassed only by Italy, with 283,517 [38]. Considering the population of each country, Spain has a ratio of 557.90 establishments per 100,000 inhabitants, exceeded only by Portugal, Greece and Cyprus (see Figure 1), all of them Mediterranean countries.

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**Figure 1.** Number of restaurants in Europe per 100,000 habitants. Compiled by the authors using data from Eurostat [38]. The countries with the highest ratios are (i) Portugal (736.40), (ii) Greece (735.32), (iii) Cyprus (601.69), (iv) Spain (557.90), (v) Malta (470.46) and (vi) Italy (468.75).

Looking in more detail at the situation in Spain, Figure 2 shows that the region with the highest ratio of establishments per 100,000 inhabitants is the Illes Balears with 668.09, followed by the Islas Canarias with 627.96, Asturias 612.49 and Castilla y León with 603.99, all of them exceeding the ratio in Cyprus. The Community of Madrid ranks third from the bottom, with a ratio of 377.45 [39]. This fact, that of a lower relative offer in the Community of Madrid, together with the mobility restrictions and the significant demand characteristic of the people of Madrid for leisure and restaurants, is one of the factors that explain the boom in the increase in the number of restaurant terraces in Madrid.



**Figure 2.** Number of restaurants in Spain per 100,000 habitants. Compiled by the authors using data from INE [39]. The regions with the highest ratio are Illes Balears (668.09), Islas Canarias (627.96), Asturias (613.49), Galicia (604.59), Castilla y León (603.99), Cantabria (568.87) and Comunitat Valenciana (545.42).

The COVID-19 outbreak has led to an unprecedented crisis in Spain [40] and particularly in the restaurant sector [41]. All the restrictions imposed to deal with COVID-19 have severely affected the economic activity of this sector, modifying the consumption behaviour of the population, both in bars and restaurants. Our study, focused on Madrid with its multiple singularities, looks at the response from this sector and its effects on the urban landscape.

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#### 2.3. Singularities of Madrid

Although the response of the restaurant sector (mainly a significant increase in the number and size of outside seating areas) has spread to a greater or lesser extent throughout the Spanish urban geography [42], we focus our analysis on Madrid, the capital city of Spain. This is because Madrid has specific characteristics different from other Spanish towns and cities. These characteristics, together with a different way of managing the health crisis by its authorities [43], means that bars and restaurants had more confidence in taking on the additional but necessary investment costs called for [44]. The economic and social dimension of the issue transcended to the political dimension, with the debate on the right to enjoy leisure time in bars or restaurants becoming the focus of the electoral campaign in the last Assembly of Madrid regional elections, held in May 2021.

What is it that makes Madrid so different? There are several characteristics, such as its population size, its relative wealth or its geolocation and demographic composition, which explain why the leisure behaviour of Madrid residents presents different characteristics from that of Spaniards as a whole.

Madrid has a high population. The state capital has more than 3.3 million inhabitants, a figure that exceeds 5 million if its metropolitan area is added, and almost 6.8 million if the region as a whole is taken into account [45]. This fact, together with its relatively small surface area, means it has the highest population density of all the Spanish regions, at 844.53 inhabitants/km², followed by the Basque Country, with a much lower density of 306.95 inhabitants/km² [45,46].

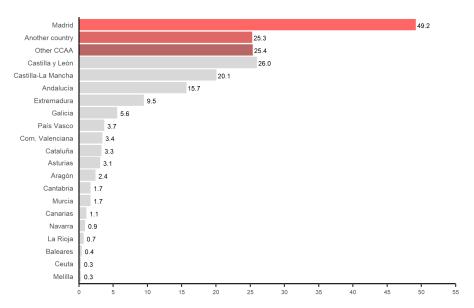
From an economic point of view, Madrid is also the richest region in Spain. Its gross domestic product per inhabitant is the highest in Spain at almost 36,000€, followed by the Basque Country with just over 34,000€, Navarra with 32,000€ and Cataluña with 31,000€ [47]. This higher population concentration and its greater relative wealth constitute, without a doubt, vectors that help to explain the greater mobility for leisure purposes of the people of Madrid—a mobility that is favoured by its geographical location, its transport infrastructures and its demographic composition.

Madrid is located in the geographical centre of the Iberian Peninsula, an ideal situation that favours travel. From Madrid it is possible to travel, with relative ease, to any part of the Spanish territory, not only because of the shorter distances but also because of an outstanding network of infrastructure. Madrid's airport has the highest number of flights and passengers in the whole country, and its air traffic (which accounts for 27% of that of the whole country) surpasses that of the Islas Canarias and the Islas Baleares [48]. However, its greatest strength is in its land transport network. As stated on the official website of the Community, "Madrid is the epicentre of the national road and rail network, being the best connected node in the country's transport network." From the capital it is possible to travel by high-speed train to tourist spots such as Toledo, Ciudad Real or Cuenca in less than an hour or to Valencia in just over an hour and a half. By road, six motorways (from A1 to A6) connect Madrid with other large Spanish cities (Bilbao, Barcelona, Valencia, Sevilla, Badajoz and La Coruña, respectively). Residents of Madrid can travel, through these routes, to any part of the country, in just a few hours.

In addition to the above data, we should consider the high percentage of "Madrileños not born in Madrid". The INE indicates, based on the continuous register, updated as of 1 January 2021 [45], that those born in other autonomous regions and registered as living in Madrid make up 25.4% of the total. Figure 3 shows how a significant percentage of the population are born in neighbouring autonomous communities such as Castilla y León and Castilla-La Mancha, followed by Andalucía and Extremadura. The excellent transport network of Madrid makes it easier for many residents in Madrid to travel regularly to their places of origin to visit their relatives, or to second homes. In fact, a high percentage of Madrid residents have a second home outside the autonomous community of Madrid. For example, in 2019 alone, more than 30,000 Madrid residents bought a home outside their autonomous community [49]. Madrid is the autonomous community that generates the most second home buyers, their purchase destinations of choice being, from largest to

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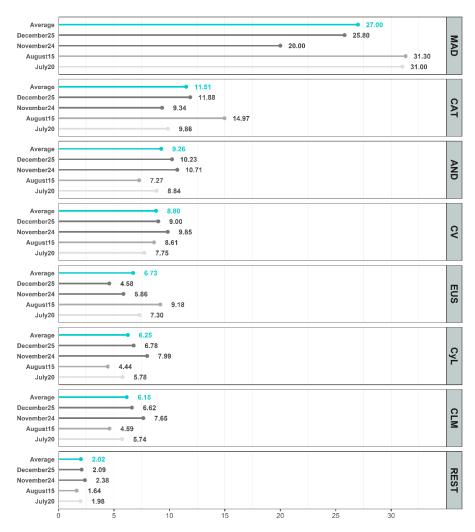
smallest number, Toledo, Alicante, Malaga, Barcelona, Valencia, Almería, Cádiz, Murcia, Castellón, Guadalajara, Ávila, Sevilla, Las Palmas, Granada, Ciudad Real, Coruña, Girona, Cuenca, Zaragoza and others.



**Figure 3.** Distribution by autonomous communities of the percentage of allochthonous residents—those registered as living in Madrid born in other autonomous communities. Compiled by the authors based on data from the Permanent Municipal Register of the National Institute of Statistics, updated as of 1 January 2021 [50].

All of the above factors mean that the level of travel of residents of Madrid is higher than that of other Spanish citizens (see Figure 4). The higher relative income of Madrid residents is undoubtedly another factor. For Madrid residents, it is quite common to travel in and around Madrid for gastronomic leisure, to neighbouring provinces such as Guadalajara, Cuenca, Toledo, Ávila, Segovia, even Burgos and, of course, to different areas and municipalities within the Community of Madrid (Alcalá de Henares, Aranjuez, Chinchón, El Escorial, La Sierra de Guadarrama, Patones, etc.). The newspaper headlines after confinement illustrate this fact, for example, "Segovia recovers its tourists from Madrid" [51], "Welcome Madrid, Guadalajara A-2 pasos (two steps away)" (this was a campaign launched by the Government of Castilla-La Mancha in 2008 and relaunched after curfew was lifted), "The people of Madrid are still very much present in Aranda del Duero" [52].

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**Figure 4.** Mobility of residents to other autonomous communities. Compiled by the authors using data from the INE corresponding to the pilot study, "Mobility studies using mobile telephones" [53]. The percentage refers to the number of travellers from the reference community to other communities with respect to the total number of travellers per day. The acronyms refer to the following autonomous communities: MAD (Madrid), CAT (Cataluña), AND (Andalucía), CV (Comunitat Valenciana), EUS (País Vasco), CyL (Castilla y León) and CLM (Castilla La Mancha). REST (the rest of the autonomous communities) aggregates the average of the remaining 12 Spanish regions. The dates chosen correspond to public holidays.

Madrid residents are the most avid travellers in Spain. In 2020 alone, they accounted for 17.2% of total journeys completed in Spain, followed by residents of Andalucía with 16.4% (being more than 1.5 million more inhabitants) and Cataluña with 16.1% (being 1 million more inhabitants). Madrid residents also lead the way in the number of overnight stays made during their trips, with 23.3% of the total, accounting for 22.5% of spending [54].

Moreover, taking into account the data provided by the INE through a pilot study, "Mobility studies using mobile telephones" [55], we were able to verify that on the four public holiday dates in 2019 on which the movement of travellers was monitored (20 July, 15 August, 24 November and 25 December), the autonomous community of Madrid was the one with the highest percentage of travellers outside its autonomous community. Figure 4 shows that, on each of the four days, the autonomous community of Madrid had the highest number of travellers, followed by Cataluña and Andalucía (both with greater populations than Madrid) and the Comunitat Valenciana, the Basque Country and both Castilla-La Mancha and Castilla y León. The remaining Spanish autonomous communities, combined, did not exceed the data for Madrid.

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According to the data of the aforementioned study carried out by the INE, 25% of the trips made by Madrid residents were destined for the autonomous community of Castilla-La Mancha, while another 20% were to Castilla y León (see Figure 5), its border regions. However, the journeys were not only to the autonomous communities that surround the Madrid region. Trips to Andalucía and the Comunitat Valenciana were also significant, adding up to 13% and 8%, respectively. The remaining 34% travelled to other parts of the Spanish peninsula, helped by the particular geographical location of the capital, as mentioned above, and the extensive infrastructure and transport networks that Madrid has to offer.

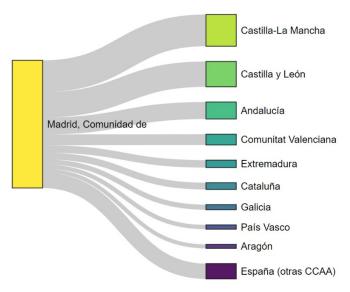


Figure 5. Mobility of Madrid residents on 24 November 2019 to other autonomous communities. Compiled by the authors using data from the INE [45] corresponding to the experimental study, "Mobility studies using mobile telephones". The figure shows the number of Madrid residents who travelled to each autonomous community with respect to the total number of travellers from Madrid that day. From highest to lowest percentage: Castilla-La Mancha (24.9%), Castilla y León (19.9%), Andalucía (13.3%), Comunitat Valenciana (8.4%), Extremadura (5.8%), Cataluña (5.2%), Galicia (4.0%), País Vasco (3.4%), Aragón (3.1%), Islas Canarias (2.7%), Murcia (1.9%), Cantabria (1.7%), Navarra (1.2%), Islas Baleares (1.2%), La Rioja (1.1%), Melilla (0.1%) and Ceuta (0.1%).

The reasons mentioned above show Madrid as an autonomous community with a population that embraces travel—Madrid residents are highly mobile due to their geographical location, their income, their easy access to the transport network and their demographic and social profile. The region is made up of many "Madrileños from outside Madrid" who tend to make frequent visits to their destinations of origin and to their second homes, located throughout the Spanish peninsula. In addition, Madrid is a city that "lives in the street", with very long business hours, including heightened activity on Sundays and bank holidays with its liberalised trading hours [55].

## 2.4. COVID-19. Restrictions and Changes in Habits

The mobility patterns outlined in the previous subsection have been drastically modified due to the long period of perimeter closure that almost all the Spanish regions (excluding Madrid) decreed for six months. On 25 October 2020, the Government of Spain approved, by Royal Decree, the third state of alarm in less than a year, which ended on 9 May 2021 [56]. This extraordinary measure gave the different Spanish regional authorities the power to close their territory to visitors from other regions. This fact meant that the Spanish population was only able to move within its territorial limits, which, for the people of Madrid, imposed a significant limitation. Added to its high population density and fondness for travel is the particularity of being a single-province autonomous community,

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a fact that increased the feeling of confinement perceived by residents. This feeling was very different from that experienced by citizens of other autonomous communities, whose inhabitants had the possibility of travelling between provinces.

The restriction of mobility beyond its borders meant the city of Madrid became the preferred focus of leisure for residents in the region. This, coupled with the limitations imposed for health reasons on using indoor space in bars and restaurants and the fear felt by a significant part of the population of sitting inside restaurants, led to a change in habits and in the appearance of the city's streets.

The limitation placed on the capacity in restaurants and hotels, together with the need of the resident population in Madrid for leisure spaces, has motivated the local government to lend support to this sector by offering financial assistance and by allowing bars and restaurants to add or extend outdoor terraces in order to meet public demand. This authorization, without additional cost to the bars and restaurants, has facilitated the occupation of public spaces. A subsidy of 100% of the usual charge has meant establishments could open terraces, at no extra cost, for at least two years, 2020 and 2021 [57,58].

All these factors led to Madrid expanding recreational spaces in order to meet an important demand for interior tourism in times of mobility restrictions.

# 3. Results and Discussion

3.1. The COVID-19 Pandemic and the Impact on the (Leisure) Behaviour of Spaniards

Between 28 April and 14 May 2020, the Research Group on Electoral Processes and Public Opinion of the University of Valencia (GIPEyOP), of which the authors of this research are members, launched (in full confinement) a survey with a view to understanding the perception and assessment by Spaniards of the situation they were experiencing [59]. The survey collected 8387 valid responses through a snowball sample design, initiated from a file of GIPEyOP collaborators. This type of sample design, which is not probabilistic but chained, allows quality information to be obtained with the right appropriate processing [60,61]. The survey was sent by email or instant messaging to collaborators, and they, in turn, forwarded it to their contacts. The individual responses obtained were weighted using post-stratification/calibration techniques to correct biases in the collected sample [62].

Given that the bulk of responses were obtained during the first few days after the survey was launched (92% before 2 May, the first day when people were allowed, by time slots, to go outside for physical exercise, and 96.8% during the first week), we can affirm that the responses obtained were drawn from a situation of home confinement. Hence, from now on we refer to this survey as the Lockdown Survey (LS).

The survey was answered mostly by women, 54.3%, a significant difference with respect to what usually happens in the surveys carried out by GIPEyOP, mostly answered by men [63]; without doubt the confinement situation help this fact. The age distribution showed the mean age to be 50.7 years with a standard deviation of 14.1, as can be calculated from the figures shown in Table 1. The bulk of respondents were aged between 45 and 64 years, while the age group with the lowest relative representation was that of those over 64 years of age, since despite the fact that their percentage in the sample is higher than that of the younger group (17.4% compared to 10.8%) the former group represents a higher percentage of the population.

**Table 1.** Age distributions (in percentages) in the GIPEyOP surveys analysed.

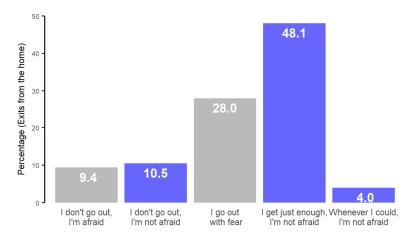
	18–30	31–44	45–64	Over 64
Lockdown Survey	10.8	21.5	50.2	17.4
Post-Lockdown Survey	11.8	22.8	46.2	19.2

Source: compiled by the authors using results from the Lockdown Survey [59] and Post-Lockdown Survey [64].

One question, which was answered by 88.1% of the sample, asked respondents whether they had been out of the house during the weeks of confinement and how they

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felt. The survey revealed that, in general, the population went out "only when necessary" and "without fear". However, it is significant that 37.4% of respondents did say they were afraid to go out. In fact, 9.4% stated that they did not go out, and 28% responded that they went out, but with fear (see Figure 6).



**Figure 6.** Fear and leaving the house. Lockdown Survey [59]. The options to choose when answering the question were the following: (i) I have not gone out during the entire period of confinement and I am afraid to do so; (ii) I have not gone out during the entire period of confinement, but I am not afraid; (iii) I go out to do errands (walking the dog, shopping, work, care ...) and I do so with fear; (iv) I have gone out only when necessary, to go shopping and/or to go to work and I am not afraid; and (v) I have gone out whenever I could and I am not afraid.

The fear of leaving home and being infected, not only of Spaniards [65–67], together with other factors, such as changes in social habits, not being able to visit friends and family, as well as the uncertainly about the national economy future or the family economy, can explain why, in line with other studies [68,69], 49% of those surveyed claimed they had suffered changes in their sleep habits during the pandemic.

A few months after carrying out the Lockdown Survey (LS), the GIPEyOP researchers conducted a second survey [64], using the same channel (social media) and procedure (snowball or chain sampling). The investigation of this second survey was framed in the period between 23 September and 14 October 2020, coinciding with the so-called new normal life and with the beginning of the second wave of the pandemic in Spain. Hereafter, we refer to this second study as the Post-Lockdown Survey (PLS). This second survey, which collected 1955 valid responses, was carried out at the end of the summer, a period during which Spain experienced a certain relaxation of most of the restrictive measures in place over the previous months.

In this case male participation, of 56.1%, was somewhat higher, although the age distribution was quite similar to that obtained in the LS survey. As can be derived from Table 1, the mean age of the respondents was 50.6 with a standard deviation of 15.7 years of age. The age variable presented a greater dispersion in the PLS.

In this second survey, which asked questions related to the attitude with which people faced the new situation and the possible changes (or not) experienced as a result of COVID-19, significant alterations were seen in various dimensions, including labour and social dimensions.

With regards to the work environment, the survey highlighted significant effects in terms of job performance and the way of working, where teleworking had a strong presence. In the PLS, 33.6% of the worker respondents answered that they performed less at work, 47.9% the same and only 18.4% more. Of those surveyed, 7.9% were teleworking, and 13.5% alternated between the two systems (face-to-face work and telework). Of those remotely working, 30.9% would choose to continue to do so, surely because the fear established in the society since the beginning of the pandemic [8,65,70]. However, 40.7% preferred to alternate both work modalities, on the one hand, due to a social need to interact or

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communicate in a more personal way, and on the other hand, to cut down on commuting to work, saving on time and money and reducing also the risk of infection [71–75].

Although in the first survey, during confinement, 37.4% said they were afraid, in this second survey, after confinement and restrictions had been lifted, this percentage increased to just over 50%. A total of 2.8% said they had hardly left the house out of fear, 13.4% said they went out to do basic errands but were afraid and 34.6% said they left the house as normal but were afraid (see Table 2).

**Table 2.** Percentage distribution of the question about leaving the house.

Talking about Leaving the House after Confinement	Percentage
I have hardly gone out, but I am not afraid	5.3
I have hardly left the house out of fear	2.8
I go out alone to do basic errands, although I am afraid	13.4
I go out to do basic errands, and I am not afraid	25.0
I go out as normal, and I am not afraid	18.8
I go out as normal, but I am afraid	34.6

Source: compiled by the authors using results from the Post-Lockdown Survey [64].

Tables 3 and 4 show that there were modifications, both in relationships and in habits, with regards to leaving the house. In the former, only 13.1% affirmed that their behaviour was the same in terms of their relationships. In the latter, that of habits, only 12.6% affirmed that they did not restrict themselves when going out, while more than half, 55.3%, stated that they tended to avoid closed spaces (bar and restaurant interiors).

**Table 3.** Distribution (in percentages) of the change in social relationships.

Change in Relationships as a Result of COVID-19	Percentage
No, same as before	13.1
Yes, I only interact with people I live with	5.5
Yes, I only interact with a close circle of contacts	37.6
Yes, I have reduced the number of people I interact with	43.8

Source: compiled by the authors using results from the Post-Lockdown Survey [64].

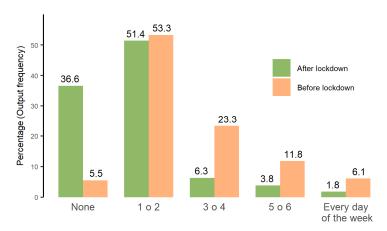
**Table 4.** Distribution (in percentages) of the change in leaving the house.

Change in Relationships as a Result of COVID-19	Percentage
Modification of habits in leaving the house	22.1
I choose closed spaces as long as there is good ventilation	10.0
I usually avoid closed spaces	55.3
I do not restrict myself in my choice of spaces	12.6

Source: compiled by the authors using results from the Post-Lockdown Survey [64].

The data in Tables 3 and 4 clearly show a reduction in the number of times people leave the house and a noticeable change in where they choose to go. The effects of these changes on restaurants and other eating places are/have been devastating. In fact, many have had to adapt their services to subsist [76,77]. Before the state of alarm, practically everyone met in a bar or restaurant; 94.5% did so at least once a week, with only 5.5% of those surveyed saying they never did (see Figure 7). Since confinement and the state of alarm, the size of this latter group has soared, with more than a third of the people surveyed, 36.6%, saying they avoided going to bars and restaurants after the state of alarm. In less than six months, the average weekly number of outings to bars and restaurants of the Spanish population more than halved (from 2.69 to 1.32 times).

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**Figure 7.** Distribution (in percentages) of frequency of going to bars and restaurants. Post-Lockdown Survey [64]. The question was how often did you/do you usually go to a bar or restaurant (before and after the state of alarm). The options to choose from to answer the question were the following: (i) Not on any day; (ii) 1 or 2 days a week; (iii) 3 or 4 days a week; (iv) 5 or 6 days a week; and (v) Every day of the week.

We should keep in mind that this manifestation of fear, both of leaving the house and of going to bars and restaurants, especially if inside, is a psychological response to a home confinement that lasted more than 3 months, and a high degree of uncertainty about the way the virus was passed on and its effects [9,65,70]. The consequence of this for the restaurant sector extended beyond the lockdown and it became clear that, in order to survive, the sector would need to reinvent itself.

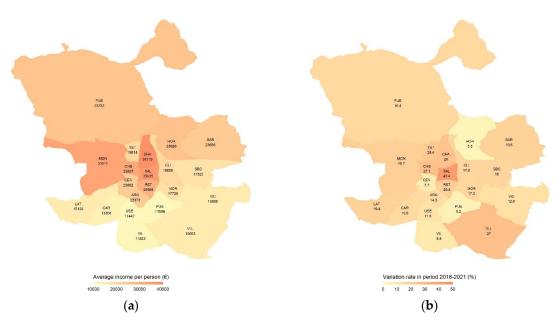
# 3.2. Discussion: The Boom of Restaurant Terraces

In light of the above, the following questions arise: How has the service offered by the restaurant sector in Madrid been affected? Has the distribution of terraces in the city changed by districts compared to a year ago? To answer these questions, we used the data available in the Madrid City Council Open Data Portal [78]. Specifically, we compared the data for April 2018 (before COVID-19) with the latest published data (April 2021).

Although we worked with official data, we can see from our own observations that, in reality, there are more terraces than those recorded by these sources, and more than reported by the media. For example, the digital newspaper El Mundo, on Thursday, 20 May 2021 [79], states that that the City Council had authorized, on an exceptional and provisional basis, about 3000 terraces called COVID terraces, 582 of them occupying parking spaces. In fact, according to other written media, the number of public parking spaces occupied by terraces is 1502 (1328 of them in green zones, parking areas set aside for residents), the Chamberí district being the most affected, with 507 (450 in the green zone and 57 in the blue zone), followed by the Salamanca district (397 in the green zone) [80]. According to local government data, in April 2018 there were 4879 licensed terraces, while in April 2021 there were 6275, that is, 1396 more terraces, of which 517 occupied public parking spaces.

Even working with underestimated official figures, we observed that over the three-year period of 2018–2021, there was an increase in seating capacity in all districts of the capital. As Figure 8 (right side) shows, all districts saw an increase in the seating capacity granted due to the exceptional measures in place because of COVID-19.

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**Figure 8.** (a) Per capita income (in euros) of Madrid residents; (b) variation rate (in percentage) of the terrace seating capacity (period 2018–2021). Compiled by the authors using data from the INE [81] and the Madrid City Council's open data portal [78].

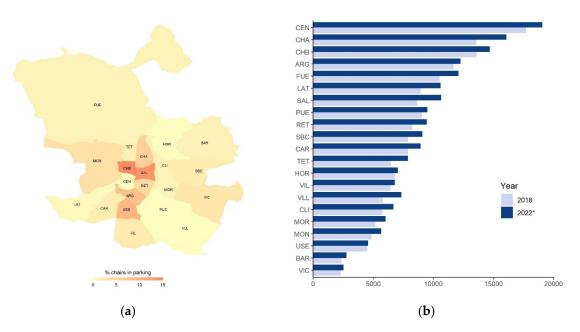
The licensing of new terraces, or the expansion of the seating available in existing ones, is not in line with the population of the districts but rather with their per capita income, as reflected by comparing the two representations in Figure 8. It is in the richest districts of the city (Chamartín, Salamanca, Chamberí and Moncloa) where there has been a greater increase in terrace seating capacity. In fact, a strong correlation (0.55) is observed between per capita income and the increase in terrace seating capacity, which is consistent with the hypothesis that the higher the income, the greater the mobility. If the correlation between the increase in seating and the population is calculated, the value is negative (-0.21), that is, the fact that a district has a higher population has not led to an increase in terrace seating capacity. Mobility restrictions, therefore, have favoured a greater increase in the supply of terraces and seating in those places where residents have been most affected in terms of habits by these measures.

Having verified this change, the next question would be whether this new trend is here to stay. The Madrid City Council announced that on 1 January 2022 it will withdraw the licences for terraces with permission to occupy public parking spaces, maintaining, until further notice, those terraces with permission to occupy pavements [82]. Madrid City Council considers that this period gives sufficient time for establishments to recover investments made, such as in the installation of decking or the total or partial enclosure of a terrace, as well as in the acquisition of outdoor heating systems. Interestingly, the Mahou San Miguel beer company has tripled its investment in tables and chairs, allocating 2.6 million euros to offering versatile furniture to the more than 10,000 bars and restaurants in the capital, as part of its Global Support Plan [83], which includes not only furniture but also one-off contributions of beer and water to establishments.

The increase in seating on the streets of Madrid may be reduced in the coming months. How will this reduction affect each of the districts? According to available data (April 2021), the local government has authorised the placement of 8826 seats in parking areas. The distribution, by district, of this variable is graphically represented in Figure 9 (left panel). The districts of Chamberí, Salamanca, Arganzuela and Chamartín will be the most affected by the entry into force of the measure imposed by the authorities, since they have, respectively, 2580, 1718, 1083 and 1039 seats placed in public parking areas. However, also other districts, such as Usera, will be greatly affected by this measure. In fact, at the

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time of writing this paper, 9.4% of the authorised seats in this Madrid area were located in public parking spaces.



**Figure 9.** (a) Proportion of seats (on restaurant terraces) authorised to occupy public parking areas (April 2021) with respect to the total number of seats authorised in each district; (b) number of seats (on restaurant terraces) in April 2018 (blue light) and estimated for 2022, taking into account the data available in April 2021, and the seats that occupy parking spaces (dark blue). Compiled by the authors using data from Madrid City Council's open data portal [78]. "\*" stands for estimated (not observed) data.

However, as previously stated, the number of terraces in the capital of Spain has increased since 2018, and, although permission for seats that occupy public parking areas might eventually be withdrawn, the increase since 2018 would still be remarkable in every district of Madrid (see Figure 9, right panel).

In fact, the report in the newspaper El Mundo of 20 May 2021 implies that this measure (rescinding the licences of the terraces that occupy public parking) may not be applied, at least not on the date initially stipulated (January 2022). Several political parties present on the city council, such as Ciudadanos or Más Madrid, advocate that the terraces remain. The first point they make is that "there are things that are here to stay, like in New York" (Begoña Villacís). In their second point, they indicate that "the public space occupied by cars is excessive ( . . . ) although it is true that space taken from car parking should be used for other activities, not just for terraces" (Rita Maestre).

# 4. Conclusions

The restaurant sector is one of the most important drivers of the Spanish economy and is also one of the sectors that has suffered the most from the consequences of COVID-19. The pandemic has caused a series of changes in the habits and behaviour of citizens, ranging from the way people socialise to the way they work.

The fear of infection and spread of the virus has increased the demand for outdoor leisure spaces. The increase in teleworking means people are keen to leave the house at the end of the working day in order to establish/maintain social contact. Mobility restrictions have drastically reduced the number of long-distance leisure trips. All of the above has increased the demand for recreation areas nearer to home. The combination of these factors has acted as a catalyst, prompting the rapid adaptation of the restaurant sector in a city such as Madrid, whose characteristics have helped create ideal conditions.

Following an analysis of the above factors and studying the idiosyncrasies of Madrid, we use data to show what the impact has been on the city's restaurant sector and on the

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urban landscape, paying particular attention to its differential spatial distribution. The positive response of Madrid and its citizens in supporting the demand for space outside bars and restaurants, with the issue gaining a high profile in the public debate of the most recent electoral campaign, leads us to think that these changes will leave their mark, with a significant proportion of the terraces (and/or increased seating capacity) being maintained as part of the city landscape. Finally, the political and fiscal measures implemented in the Spanish capital have made it possible to revive the hospitality sector at a very difficult time. We believe that the case of Madrid could serve as an example for other Spanish cities and cities abroad.

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