

5 June, 2020

Context and socioeconomic impact indicators for the COVID-19 pandemic in Portugal

## **COVID-19: a territorial view on demographic context and socioeconomic impact indicators**

Despite the progressive spread of the pandemic throughout the national territory, its impact continues to be characterised by high regional heterogeneity, both from the point of view of the cases registered and from the point of view of socioeconomic impact. Some of the results presented in this context:

- The preliminary total number of deaths between 1 March and 24 May 2020 is 2 374 higher than the number registered in the same period in 2019 and 1 133 higher than in the same period in 2018. The positive variation compared to 2019 results mainly from the increase in the number of deaths in persons aged 75 and over (+ 2 262). In 172 municipalities the number of deaths registered between April 27 and May 24 was higher than the same reference value (average number of deaths in the same period in 2018 and 2019).
- In Portugal, for every 10,000 inhabitants there were 32.6 confirmed cases of COVID-19. The number of confirmed cases of COVID-19 disease per 10 thousand inhabitants was above the national value in 50 municipalities. The analysis of the relationship between the number of confirmed cases per 10 thousand inhabitants and population density highlights a set of 34 municipalities with values above the national average in both indicators.
- Comparing the situation on March 25 and June 3, it can be seen that the territorial dispersion of the number of confirmed cases of infection has increased. However, based on the analysis of the most recent developments, it was possible to observe an increase in geographical concentration. In fact, the relationship between the number of confirmed cases per 10 thousand inhabitants and the number of new confirmed cases per 10 thousand inhabitants (between May 28 and June 3) shows ten municipalities with values above the national average in both indicators, with six standing out due to their population size: Amadora, Loures, Odivelas, Sintra, Lisboa and Porto [see Figure 11].
- Based on the analysis focused on the two metropolitan areas, it was possible to observe that there has been a progressive slowdown in the number of new cases registered in the Metropolitan Area of Porto and, in turn, a progressive increase in the number of new cases in the Metropolitan Area of Lisboa, with this region registering figures above the national average since April 30 [see Figure 12].

In parallel to this press release, INE releases today an application with information that allows a territorial analysis of the demographic context and the socioeconomic impact of the COVID-19 pandemic in Portugal [see Box 1].

As part of Statistics Portugal's Statslab, this press release also presents data on population mobility at the regional level provided by Facebook's "Data for Good" initiative [see Box 2].

The first cases diagnosed with COVID-19 in Portugal were reported on March 2<sup>nd</sup> 2020 and the first death as a result of COVID-19 was recorded on March 16<sup>th</sup> 2020. The WHO (World Health Organization) declared the outbreak of COVID-19 as a pandemic on March 11<sup>th</sup> 2020.

This press release includes results for the national context on the general deaths (all causes of death) that have occurred in national territory since March 1, 2020. The incidence of the pandemic in the territory has not been homogeneous, which justifies the analysis of context indicators, when possible, at NUTS 3 (Metropolitan Areas and Intermunicipal Communities in Portugal mainland, and Autonomous Regions) and municipality level. In addition, socioeconomic indicators, on a monthly basis, are presented in this press release to support the analysis of the impact of the pandemic in the different regions and municipalities.

The results of overall mortality refer to deaths (all causes of death) that occurred in the national territory from March 1<sup>st</sup> up to May 24<sup>th</sup>. Information on deaths is obtained through the Civil Register collected under the Integrated Civil Registration and Identification System (SIRIC). This information was computed on June 2<sup>nd</sup>. This time lag prevents the disclosed information from being subjected to considerable revisions. Even so, the information is preliminary and will be subject to further updates. Data on resident population are based on the preliminary results of the Annual estimates of resident population, referenced to December 31, 2019. The number of confirmed cases with COVID-19 is based on the information released for the entire country and by municipality in the 'Daily COVID-19 Status Report' edited by the Directorate-General of Health. This press release includes information available up to June 4 (data of the situation up to June 3). Socioeconomic indicators are based on information from the Institute of Employment and Professional Training (IEFP) and the Interbank Services Society (SIBS) (see technical note at the end for more information).

### **Demographic and territorial context indicators**

#### *Number of deaths between March 1<sup>st</sup> and May 24<sup>th</sup>, 2020 higher than in the same period in 2019 and 2018*

The preliminary total number of deaths between March 1<sup>st</sup> and May 24<sup>th</sup>, 2020 is 2,374 higher than the number registered in the same period in 2019 and 1,133 cases higher than number of deaths in 2018. The positive variation in relation to 2019 is due mainly to the increase in the number of deaths of people aged 75 and over (+ 2,262).

The following figures allow the comparison of the cumulative number of deaths from the beginning of March to May 24<sup>th</sup>, 2020 with that observed in the same period in 2019 and 2018. For the total number of deaths registered, and for the age group 75 and over, two lines were added in order to identify the moment values of cumulated deaths registered in 2020 surpass those registered in 2019 and 2018.

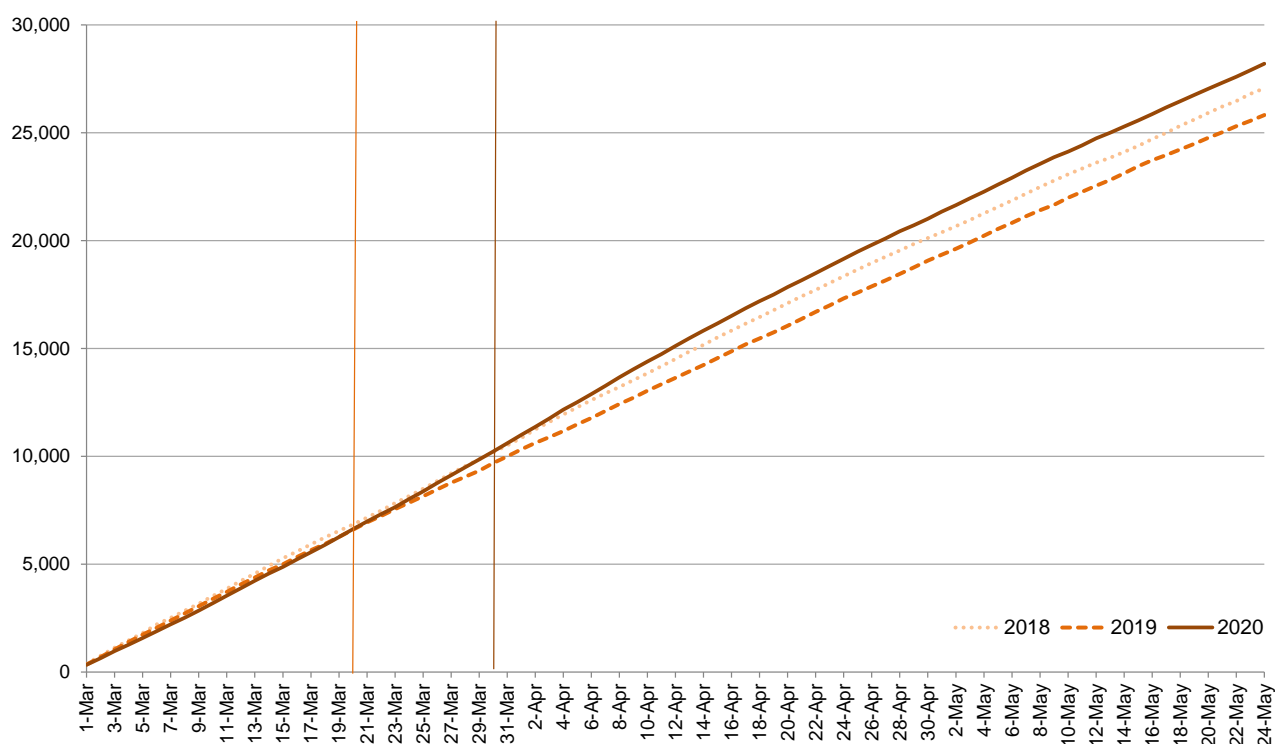
**Figure 1 - Cumulative number of deaths in Portugal from March 1<sup>st</sup> to May 24<sup>th</sup> (2018-2020)**

	Number of deaths			Number of deaths per 100 thousand inhabitants		
	2018	2019	2020	2018	2019	2020
Total	27,064	25,823	28,197	263.0	251.3	274.0
Males	13,520	12,780	13,969	277.7	263.4	287.8
Females	13,544	13,043	14,228	249.7	240.5	261.6
Under 64 years	3,804	3,745	3,739	47.1	46.6	46.7
65 to 69 years	1,617	1,660	1,652	260.9	268.5	265.3
70 to 74 years	2,224	2,178	2,298	426.5	404.5	418.4
75 to 79 years	3,094	2,874	3,242	728.0	674.4	751.7
80 to 84 years	4,844	4,492	4,898	1,386.6	1,279.1	1,389.8
85 years and over	11,479	10,872	12,360	3,858.0	3,504.0	3,802.0
65 years and over	23,258	22,076	24,450	1,050.8	983.7	1,072.0
75 years and over	19,417	18,238	20,500	1,811.5	1,676.9	1,848.8

Source: Statistics Portugal, Deaths; Statistics Portugal, Annual estimates of resident population.

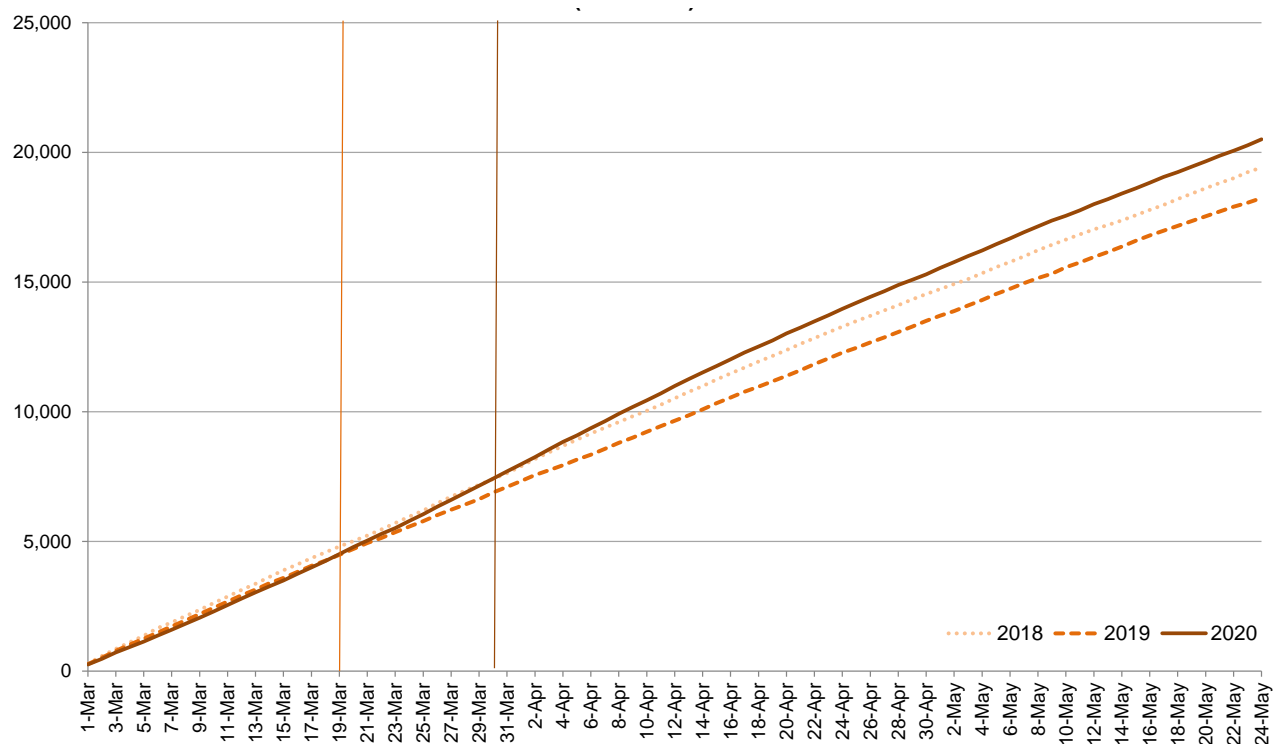
Notes: a) 2020 data: preliminary data based on information registered by the Civil Register Offices and sent to Statistics Portugal until June 2<sup>nd</sup> 2020. b) The total number of deaths may not correspond to the sum of the partial figures due to the existence of records with unknown age.

**Figure 2 - Cumulative number of deaths, by day of death, March 1<sup>st</sup> to May 24<sup>th</sup> (2018-2020)**



Source: INE, I.P., Statistics on Deaths (Preliminary (2020) and Final Results (2018 and 2019)).

**Figure 3 - Cumulative number of deaths aged 75 and over, by day of death, March 1<sup>st</sup> to May 24<sup>th</sup> (2018-2020)**

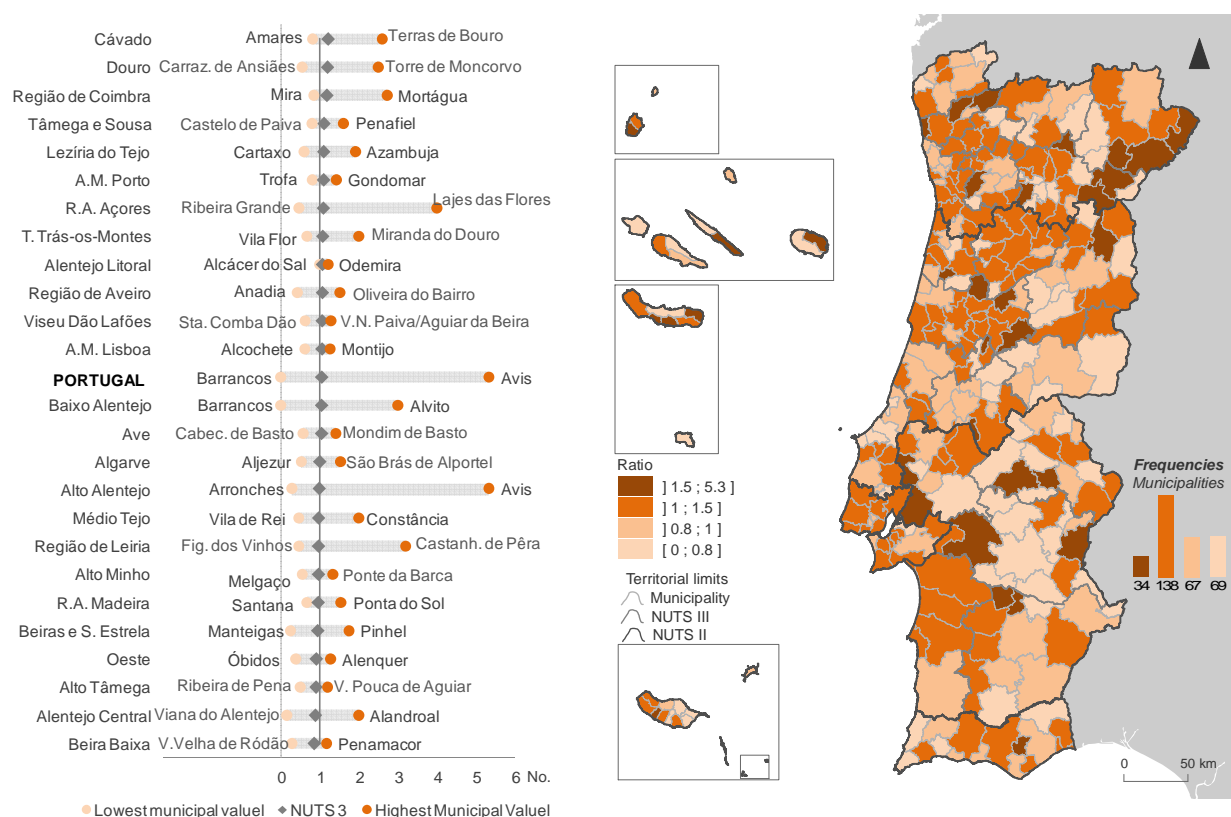


Source: INE, I.P., Statistics on Deaths (Preliminary (2020) and Final Results (2018 and 2019)).

*In 172 municipalities the number of deaths registered in the last four weeks (between 27 April and 24 May, 2020) was higher than the corresponding reference value*

In 172 out of the 308 Portuguese municipalities the number of deaths registered in the last four weeks (between 13 April and 10 May, 2020) was higher than the corresponding reference value (average number of deaths in the same period in 2018 and 2019). Of this total, 34 municipalities registered a number of deaths 1.5 times higher than in the same period of reference. For the remaining 136 municipalities (44% of the total number of municipalities) the number of deaths registered in the last four weeks was equal or lower than the number observed in the reference period.

**Figure 4- Number of deaths in the last four weeks (27 April to 24 May) per deaths in the same period of reference, Portugal, NUTS 3 and municipality**

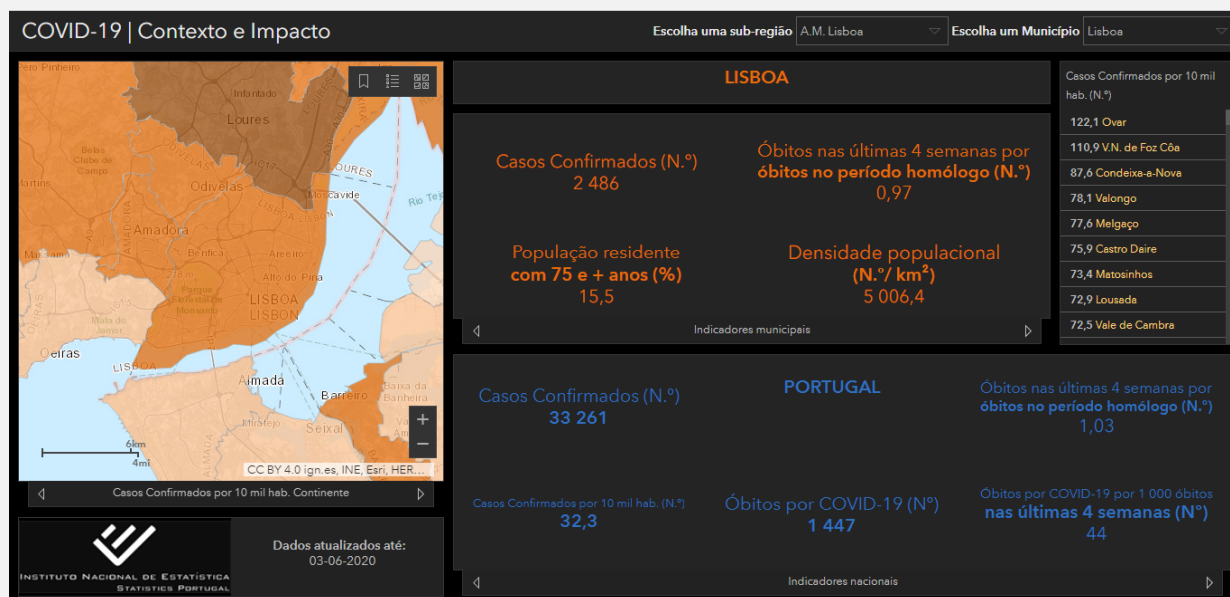


Source: INE, I.P., Statistics on Deaths (Preliminary (2020) and Final Results (2018 and 2019)).

### Box 1 - COVID-19 Dashboard | Context and Impact

Today, INE provides a *dashboard* with 22 indicators that allow a territorial analysis of the demographic context and of the socioeconomic impact of the COVID-19 pandemic in Portugal. It includes information for several areas, such as international trade, consumption, housing market, tourism and labour market. Some of the information presented in the application is of a preliminary nature, with INE anticipating calendars and/or increasing the geographical breakdown of regular dissemination. The aim is to contribute to a better monitoring of the situation and impact of the pandemic at the local level.

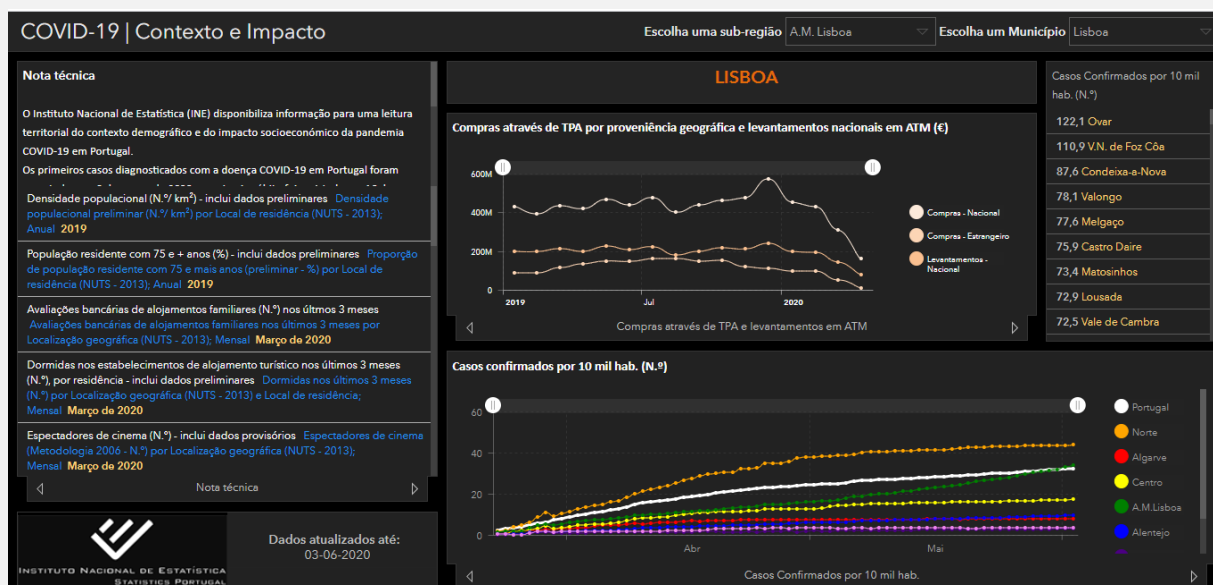
Figure 5: COVID-19 Dashboard entry view - 19 | Context and Impact



This *dashboard* allows to view information by municipality, by selection in the box in the top right bar, and for Portugal, the bottom box. The first visible slots (municipal indicators and national indicators) provide the demographic and pandemic context of the respective territorial unit. The following slots, within each of the boxes of municipal and national indicators, provide information in graph format on the evolution of different socioeconomic indicators, whenever possible since January 2019 [Figure 6].

The technical note presents the link to the metadata of the indicators and the latest reference period available in the application.

Figure 6: View of the evolution graphs for some of the indicators and of the technical note of the COVID-19 dashboard | Context and Impact





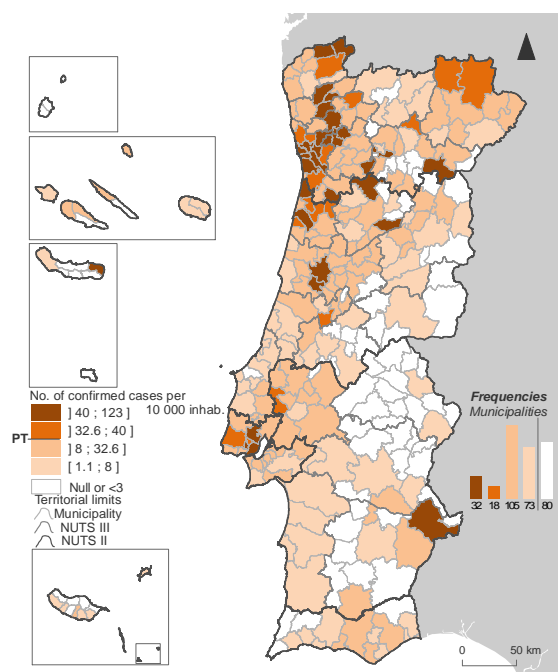
### 50 municipalities with confirmed cases of COVID-19 disease per 10 thousand inhabitants above the national value

On May 20, 2020, in Portugal, for every 10 thousand inhabitants there were 32.6 confirmed cases of COVID-19, which represents an increase of 12% compared to May 20, the reference date analysed in the last press release. Between May 20 and May 6, there was also an increase of 12% in the number of confirmed cases per 10 thousand inhabitants, and between May 6 and April 22 this increase was 20%. Between April 22 and 7 (reference date of the first press release) there was a 70% increase in this indicator.

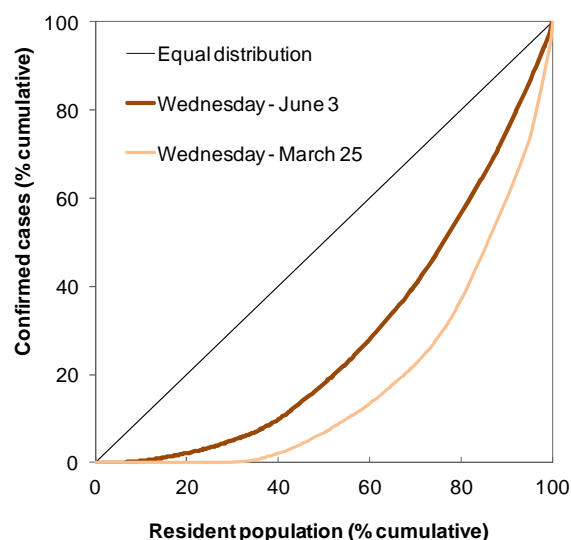
The number of confirmed cases of COVID-19 disease per 10 thousand inhabitants was above the national value in 50 municipalities. In the Norte region, 31 municipalities registered a value above the national average, and a set of contiguous municipalities in the Metropolitan Area of Porto stood out, with more than 50 confirmed cases per 10 thousand inhabitants: Valongo, Matosinhos, Maia, Porto, Gondomar, Santo Tirso and Vila Nova de Gaia. Some municipalities in the Centro (11), Metropolitan Area of Lisboa (the municipalities of Loures, Amadora, Lisboa, Odivelas and Sintra), Alentejo (the municipalities of Moura and Azambuja) and Região Autónoma dos Açores (the municipality of Nordeste) also scored values above the national value [Figure ].

Despite this differentiation, the estimated location coefficient<sup>1</sup> for March 25<sup>th</sup> and June 3<sup>rd</sup> suggests a decrease in territorial concentration of cases, i.e., a progressive spatial dissemination throughout the country. The location curves graphically reflect this trend by the approximation to the straight line of equal distribution between the number of confirmed cases and the resident population in the municipalities [Figure ].

**Figure 7 - Number of confirmed cases of COVID-19 disease per 10 thousand inhabitants until June 3, 2020, by municipality**



**Figure 8 - Territorial concentration of COVID-19 confirmed cases until March 25 and until June 3 in relation to the resident population, based on the distribution by municipality**  
*Location Curve*



<i>Location coefficient</i>	
Wednesday – June 3	32.4
Wednesday - March 25	47.7

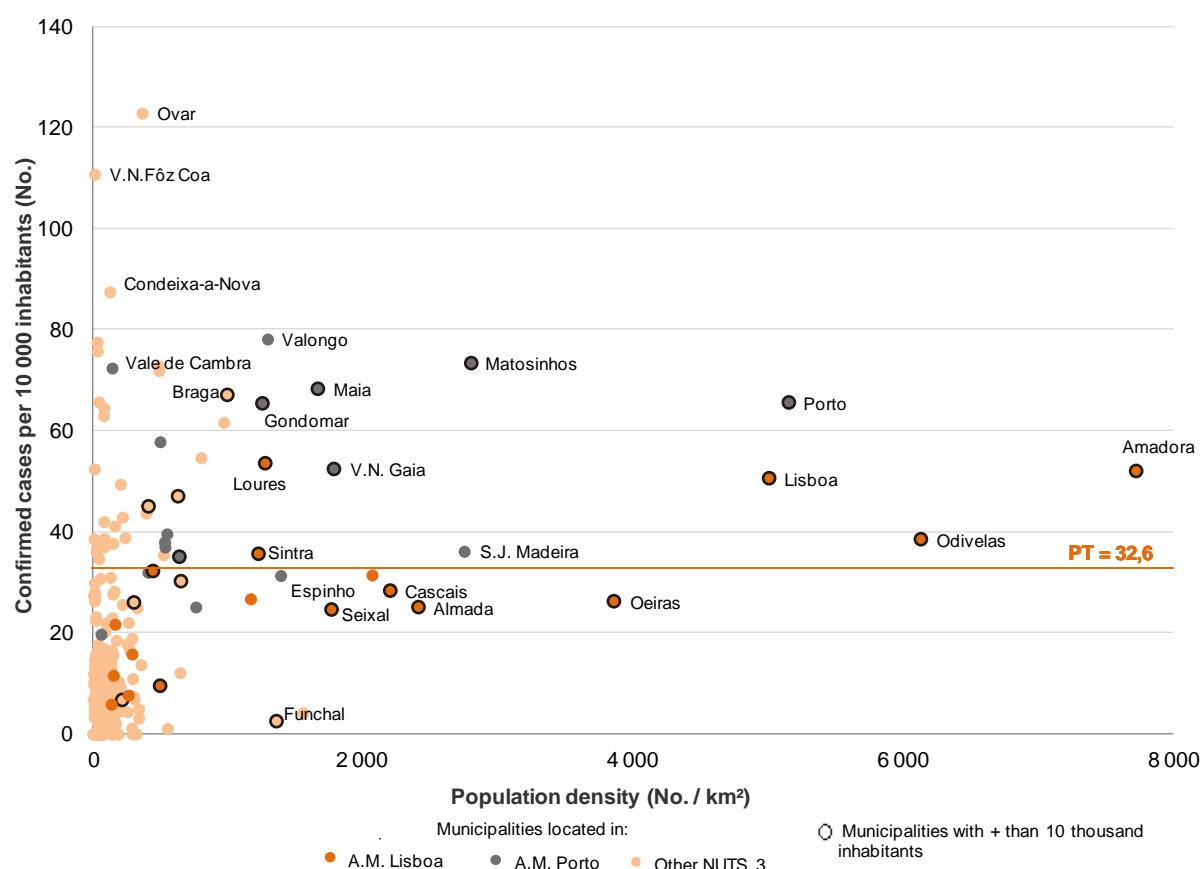
Source: Directorate-General of Health, Daily COVID-19 Status Report (released on June 4); INE, I.P., Annual estimates of resident population, 31 December 2019 (Preliminary Results). Note: For the calculation of the location coefficients zero cases were considered for the municipalities with no value in the Directorate-General of Health report (null or less than 3 cases).

<sup>1</sup> The Location coefficient varies between 0 and 100, with values closer to 100 reflecting greater inequality in the distribution of confirmed cases of COVID-19 against the total resident population.

*34 municipalities registered both a number of confirmed cases per 10 thousand inhabitants and population density values above the national reference*

The following figure illustrates the relationship between population density and the number of confirmed cases per 10 thousand inhabitants for the country's municipalities. Of the 50 municipalities with a number of confirmed cases per 10 thousand inhabitants above the value for Portugal, 34 also had population density values above the national average. From this set of 34 municipalities, the municipalities of Valongo (78.2), Matosinhos (73.4), Vale de Cambra (72.5), Maia (68.3), Porto (65.6), Gondomar (65.5), Santo Tirso (57.9) and Vila Nova de Gaia (52.5), in the Metropolitan Area of Porto, the municipalities of Lousada (72.9), Felgueiras (72.0) and Paços de Ferreira (54.7) in Tâmega e Sousa, the municipality of Braga (67.1) in Cávado, the municipality of Vizela (61.7) in the sub-region of Ave, and the municipalities of Loures (53.6), Amadora (52.1) and Lisboa (50.6) in the Metropolitan Area of Lisboa, stood out with more than 50 confirmed cases per 10 thousand inhabitants. It should also be noted that 180 of the 308 municipalities in the country had a number of confirmed cases per 10 thousand inhabitants and population density below the national reference.

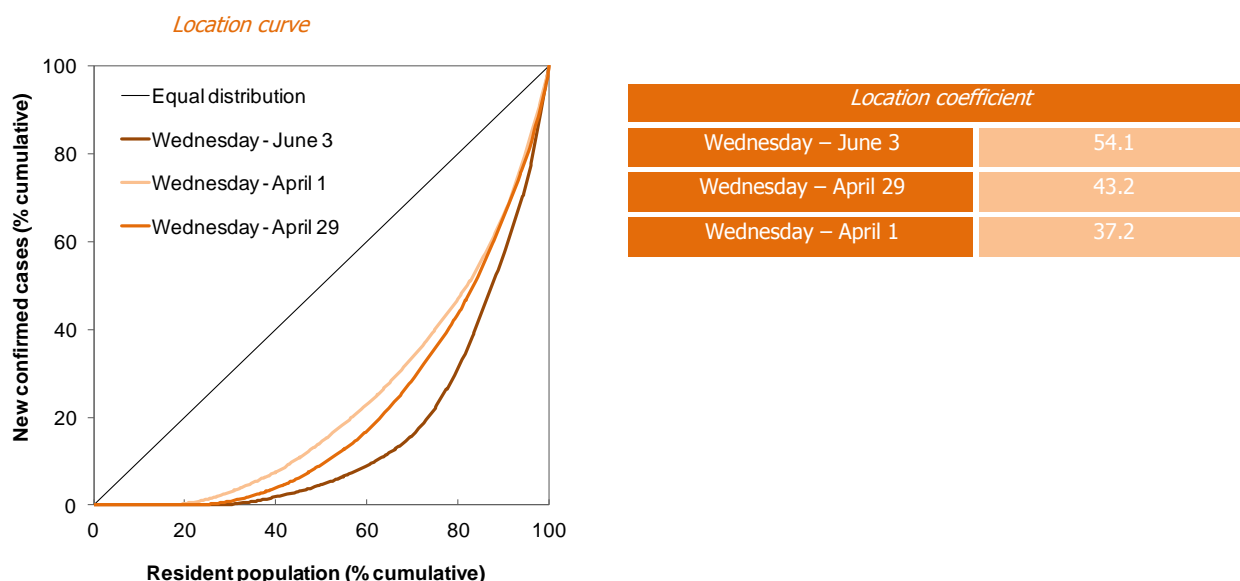
**Figure 9 - Number of confirmed cases per 10 thousand inhabitants on June 3, 2020 and Population density, by municipality**



Source: Directorate-General of Health, Daily COVID-19 Status Report (released on June 4); INE, I.P., Annual estimates of resident population, 31 December 2019 (Preliminary Results).

The calculation of the location coefficient considering the new confirmed cases (last 7 days) for April 1 and 29 and June 3 suggests an increase in the territorial concentration of the new confirmed cases of COVID-19. The location curves graphically reflect this trend by the progressively moving away from the straight line of equal distribution between the number of new confirmed cases and the resident population in the municipalities [Figure 10].

**Figure 10 – Territorial concentration of COVID-19 new confirmed cases (last 7 days) for April 1, April 29 and June 3 in relation to the resident population, based on the distribution by municipality**

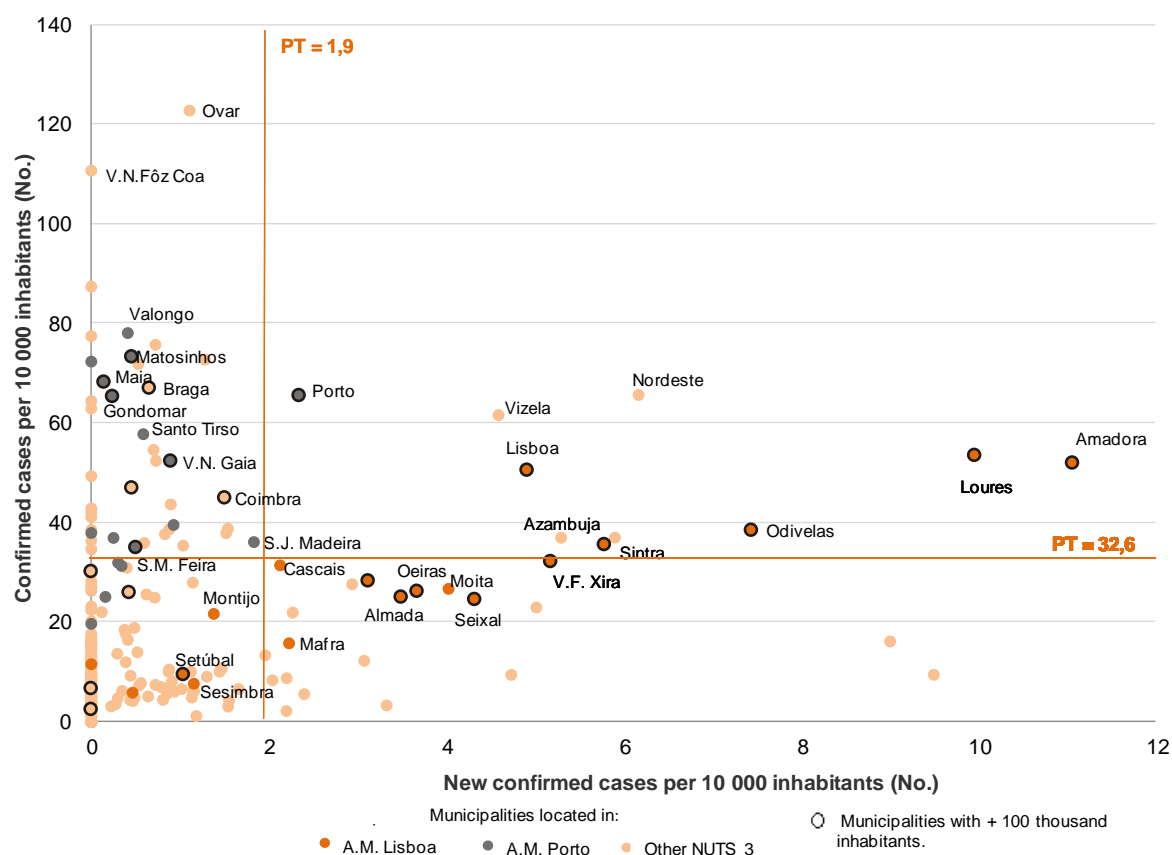


Source: Directorate-General of Health, Daily COVID-19 Status Report (released on June 4); INE, I.P., Annual estimates of resident population, 31 December 2019 (Preliminary Results). Note: For the calculation of the location coefficients zero cases were considered for the municipalities with no value in the Directorate-General of Health report (null or less than 3 cases).

The following figure illustrates the relationship between the total number of confirmed cases per 10,000 inhabitants by June 3 and the number of new cases registered per 10,000 inhabitants on June 3 (last 7 days). Of the 50 municipalities with a number of confirmed cases per 10,000 inhabitants above the figure for Portugal, 10 also scored a number of new confirmed cases per 10,000 inhabitants above the national average. Of these 10 municipalities, half were located in the Metropolitan Area of Lisboa - Amadora (11.1 new cases per 10 thousand inhabitants), Loures (10.0), Odivelas (7.4), Sintra (5.8) and Lisboa (4.9) – and the remaining corresponded to the municipality of Nordeste in Região Autónoma dos Açores, the municipalities of Vieira do Minho (5.9) and Vizela (4.6) in the sub-region of Ave, the municipality of Azambuja (5.3) in Lezíria do Tejo, and the municipality of Porto (2.3) in the Metropolitan Area of Porto.



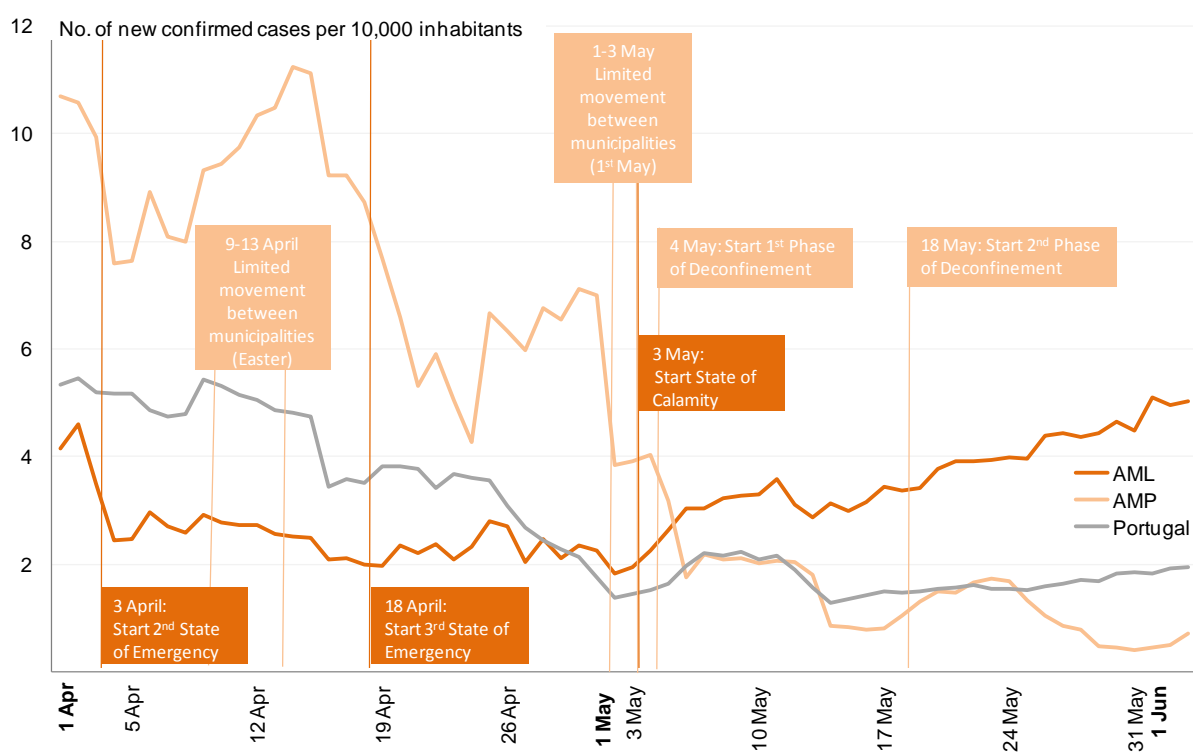
**Figure 11 – Number of confirmed cases per 10 thousand inhabitants on June 3, 2020 and Number of new confirmed cases per 10 thousand inhabitants on June 3 2020 (last 7 days), by municipality**



Source: Directorate-General of Health, Daily COVID-19 Status Report (released on June 4); INE, I.P., Annual estimates of resident population, 31 December 2019 (Preliminary Results).

Given the high population density that characterizes the two metropolitan areas, an analysis focusing on the dynamics of new confirmed cases of COVID-19 in these territories is particularly relevant. The following figure shows the number of new cases registered in the last seven days per 10 thousand inhabitants for the total of the country and for the metropolitan areas of Porto and Lisboa for the period from April 1<sup>st</sup> to June 3<sup>rd</sup>. In this context, it should be highlighted the progressive slowdown in the number of new cases registered in the Metropolitan Area of Porto and, in turn, the progressive increase in the number of new cases in the Metropolitan Area of Lisboa, with this region registering figures above the national average since April 30.

**Figure 12 – New confirmed cases in the last seven days per 10 thousand inhabitants, by day, Portugal, metropolitan areas of Lisboa (AML) and Porto (AMP)**



Source: Directorate-General of Health, Daily COVID-19 Status Report (released on June 4); INE, I.P., Annual estimates of resident population, 31 December 2019 (Preliminary Results).

Note: The dates marked on the graph axis correspond to the first days of the month and Sundays.

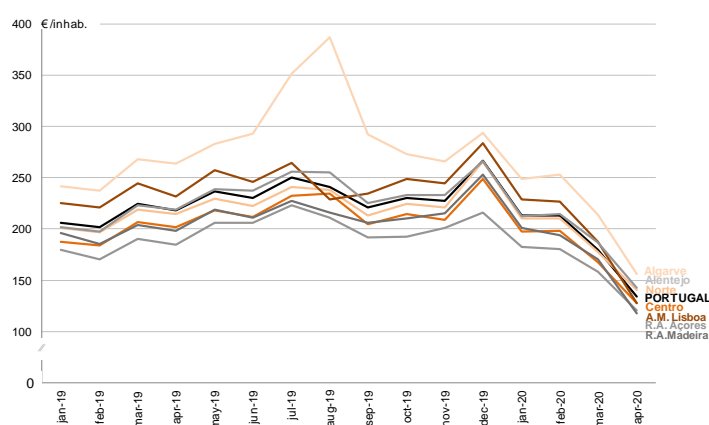
## Socioeconomic impact indicators

*Metropolitan Area of Lisboa and Algarve with decreases of more than 40% in the value of purchases and in withdrawals per inhabitant in April 2020, compared to the same period in the previous year*

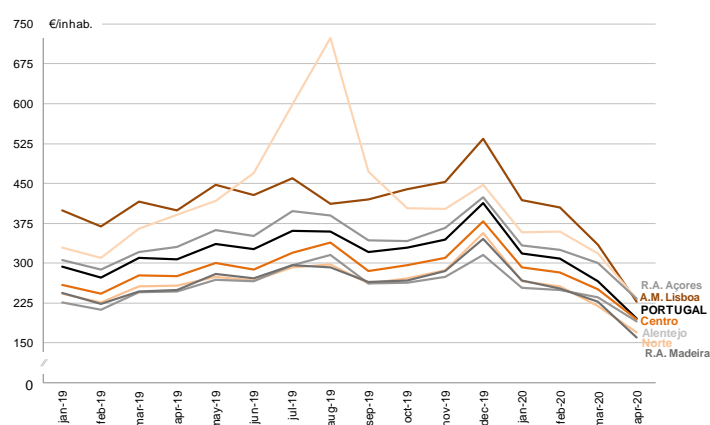
In April 2020, the value of national withdrawals at ATMs per inhabitant was 134 Euros at national level, representing a decrease of -34% compared to the previous month and -39% compared to the same period in the previous year. At regional level, the autonomous regions of Madeira (117 Euros per inhabitant) and of Açores (120), the Metropolitan Area of Lisboa (127) and Centro (128), scored, in April 2020, a value of withdrawals per inhabitant below the national average. In April 2020, there was a decrease in the value of national withdrawals at ATMs per inhabitant in the seven NUTS 2 regions, compared with the same month of the previous year, with Metropolitan Area of Lisboa (-45%), Região Autónoma da Madeira and the Algarve (-41% in both), standing out, with decreases of more than 40% [Figure 13].

In Portugal, the value of national purchases through automatic payment terminals per inhabitant was 196 in April 2020. At NUTS 2 region level, this value was lower than the national reference, in Região Autónoma da Madeira (160 Euros per inhabitant), in Norte (169), Alentejo (191) and Centro (194). In relation to the same period of the previous year, in April 2020, there was a decrease of 36% in the value of purchases per inhabitant in Portugal. This decrease was common to the seven NUTS 2 regions of the country, with the Metropolitan Area of Lisboa (-43%) and Algarve (-40%), standing out, with decreases greater than the national reference [Figure 14].

**Figure 13 - National withdrawals at ATMs per inhabitant, monthly, Portugal and NUTS 2**



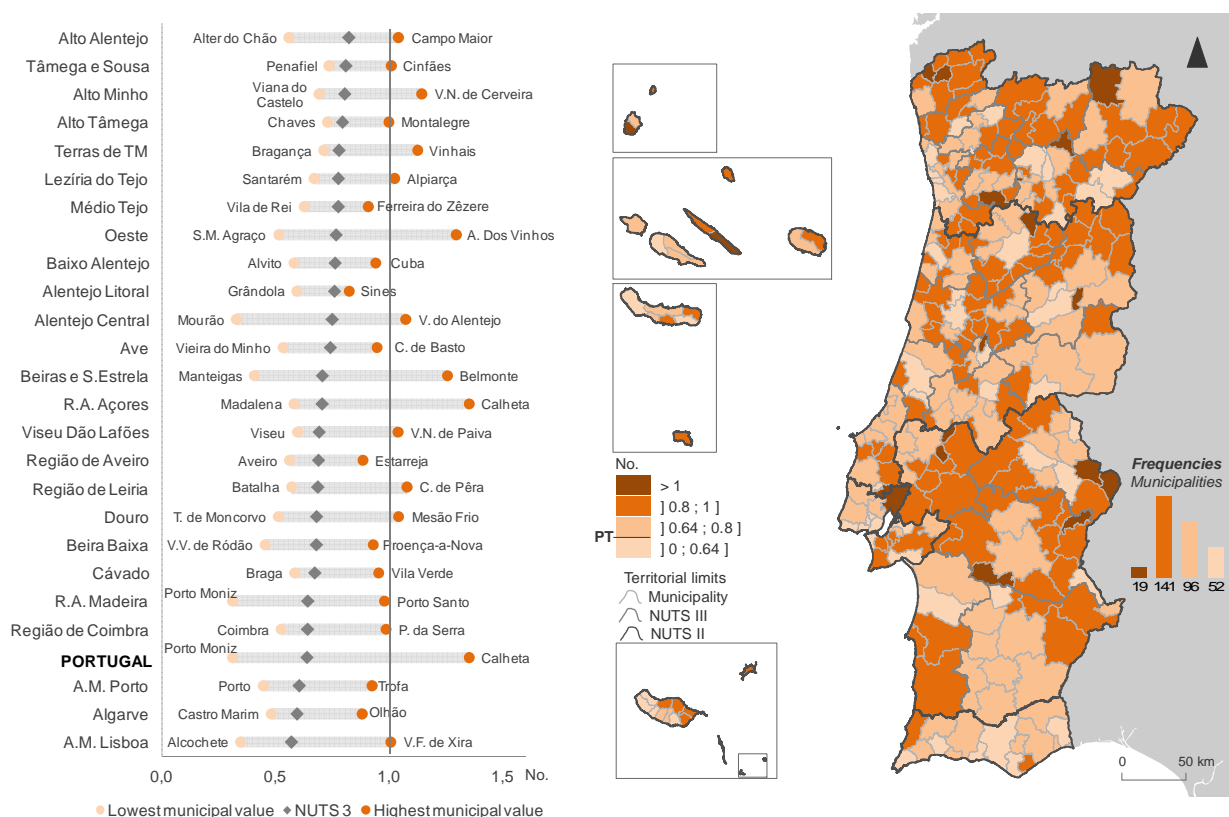
**Figure 14 - National purchases through automatic payment terminals per inhabitant, monthly, Portugal and NUTS 2**



Source: Interbank Services Society (SIBS).

In April 2020, in 94% of the Portuguese municipalities (289 out of a total of 308), the value of national purchases through automatic payment terminals was lower than the value for the corresponding month of the previous year. Of these, 52 municipalities, mostly located in the Metropolitan Area of Lisboa (8 out of a total of 18) and Porto (5 out of 17) and Algarve (6 out of 16), stand out as having a lower ratio than the one registered for the country [Figure 15].

**Figure 15 – Value of national purchases through automatic payment terminals in April 2020 compared to the same period of the previous year, Portugal, NUTS 3 and municipality**



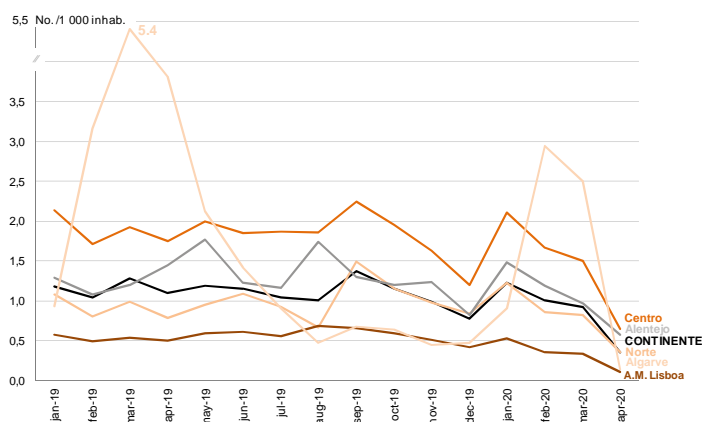
Source: Interbank Services Society (SIBS).

*74 municipalities with a flow of unemployed registered in employment centres in April 2020 more than two times higher than the same month of the previous year*

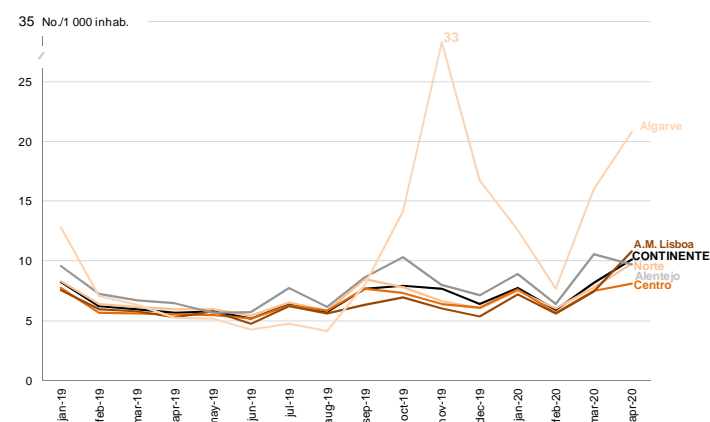
In April 2020, in mainland Portugal, 0.4 new job placements were made with candidates presented by employment centres per thousand inhabitants of working age (15-64 years), this value was less than half of the value registered in the previous month (0.9). At regional level, the Metropolitan Area of Lisboa (0.11), Algarve (0.14) and Norte (0.35) presented a lower number of job placements per thousand inhabitants of working age than the reference for mainland Portugal. In April 2020, there was a decrease in the value of this indicator compared to the same period of the previous year in the five NUTS 2 regions of mainland Portugal, with the region of Algarve standing out with a variation of -96% [Figure 16].

In April 2020, there were 10.2 new unemployed registered in employment centres per thousand inhabitants between 15 and 64 years old, in mainland Portugal, corresponding to an increase of +19% compared to the previous month. At regional level, the Algarve (20.8) stood out with the highest number of new unemployed per thousand inhabitants among the five regions of the mainland Portugal and with a value above the national reference, the Metropolitan Area of Lisboa (10.8) also stood out. In April 2020, there was an increase in the number of unemployed per thousand inhabitants of working age for mainland Portugal and for the respective five NUTS 2 regions, compared to the same month in the previous year, with the greatest variations being registered in the regions of Algarve - where the value almost quadrupled – and, the Metropolitan Area of Lisboa where the value more than doubled [Figure 17].

**Figure 16 - Job placements per thousand inhabitants between 15 and 64 years old, monthly, mainland Portugal and NUTS 2**



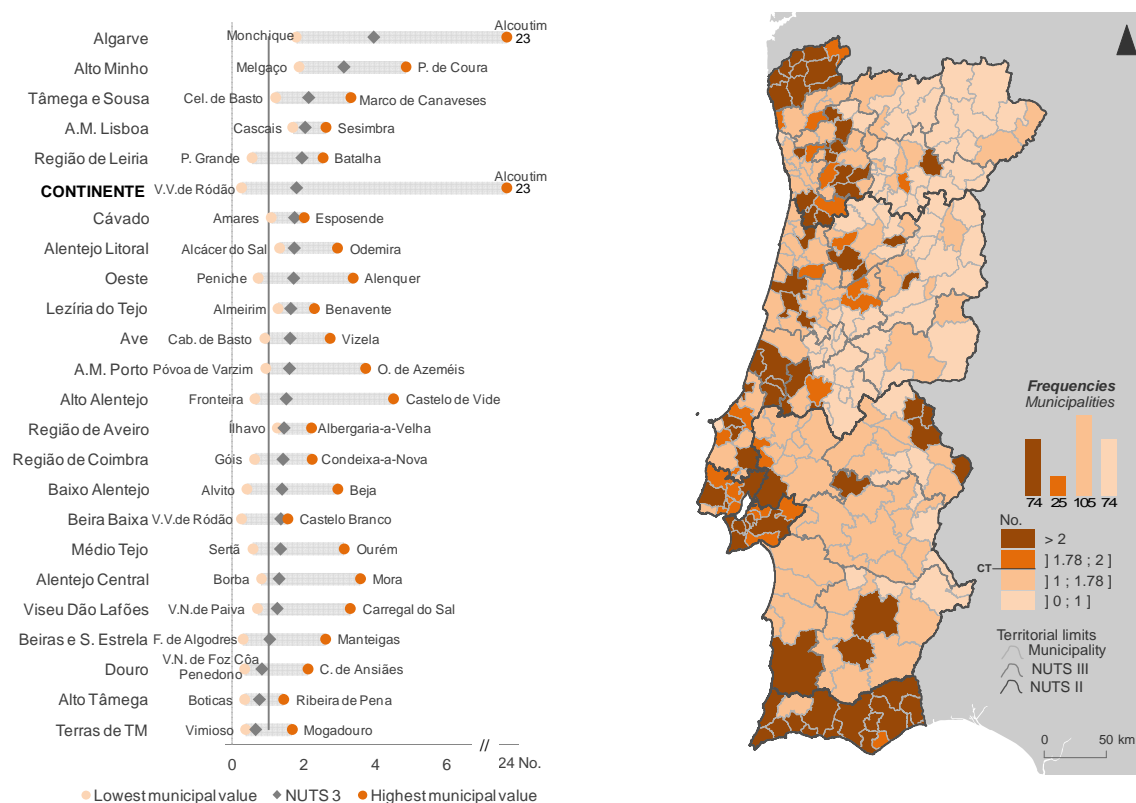
**Figure 17 – Unemployed registered at IEFP employment centres throughout the month per thousand inhabitants between 15 and 64 years old, monthly, mainland Portugal and NUTS 2**



Source: Institute of Employment and Professional Training (IEFP).

In 204 of the 278 municipalities in mainland Portugal, the number of unemployed registered in employment centres during the month of April 2020 was higher than the corresponding flow in the same period of the previous year. Of these, 74 municipalities, mostly located in the Algarve (14 out of a total of 16), Alto Minho (9 out of 10) and Metropolitan Area of Lisboa (9 out of 18) regions, stand out for presenting, in April 2020, a flow of unemployed more than two times higher than the one registered in the same month of the previous year [Figure 18].

**Figure 18 – Number of unemployed registered in IEFP employment centres over April 2020 compared to the corresponding flow in the same period of the previous year, mainland Portugal, NUTS 3 and municipality**



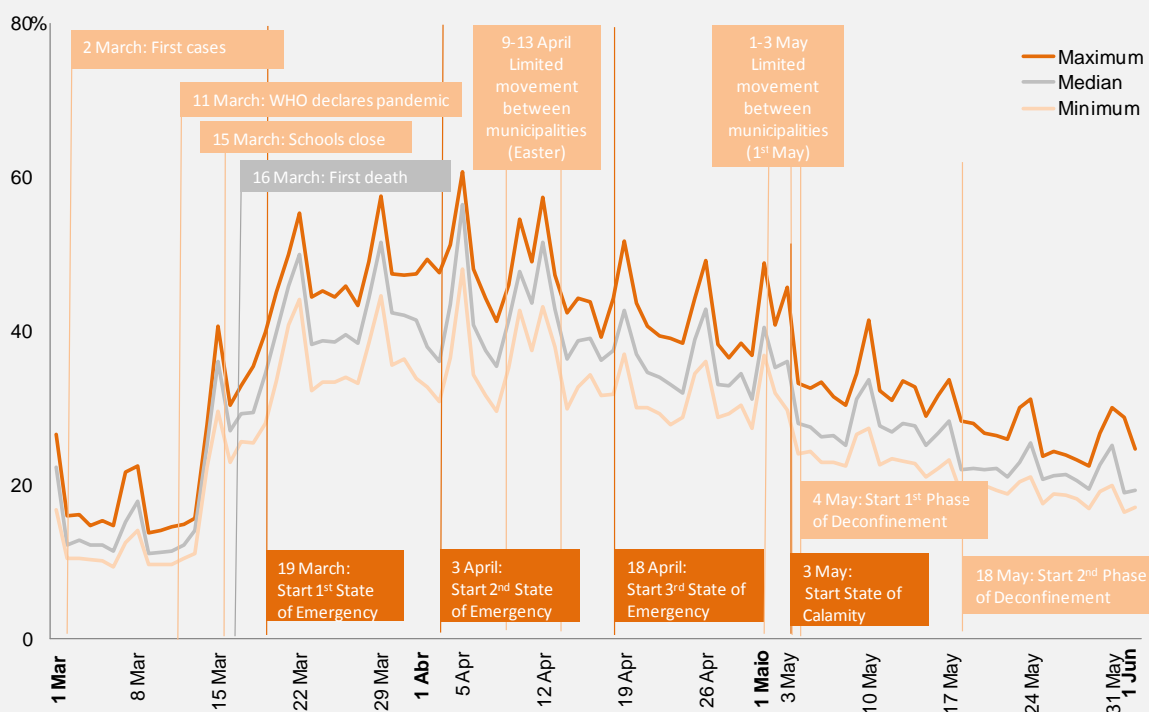
Source: Institute of Employment and Professional Training (IEFP).

## Box 2 - Population mobility indicators at regional level: an analysis based on information from Facebook's "Data for Good" Initiative

In this box, taking advantage of Facebook's "Data for Good" Initiative, population mobility indicators at NUTS 3 level in the national territory are released.

The data represented in the figure below correspond to the proportion of population "staying put" between March 1<sup>st</sup> and June 2<sup>nd</sup>, namely minimum, median and maximum values obtained from the 25 NUTS 3 sub-regions of the country. For a better contextualization of the information, the figure includes the main key moments associated with the COVID-19 pandemic in Portugal.

**Figure 19: Proportion of the population "staying put" between March 1<sup>st</sup> and June 2<sup>nd</sup> – minimum, median and maximum values of NUTS 3**



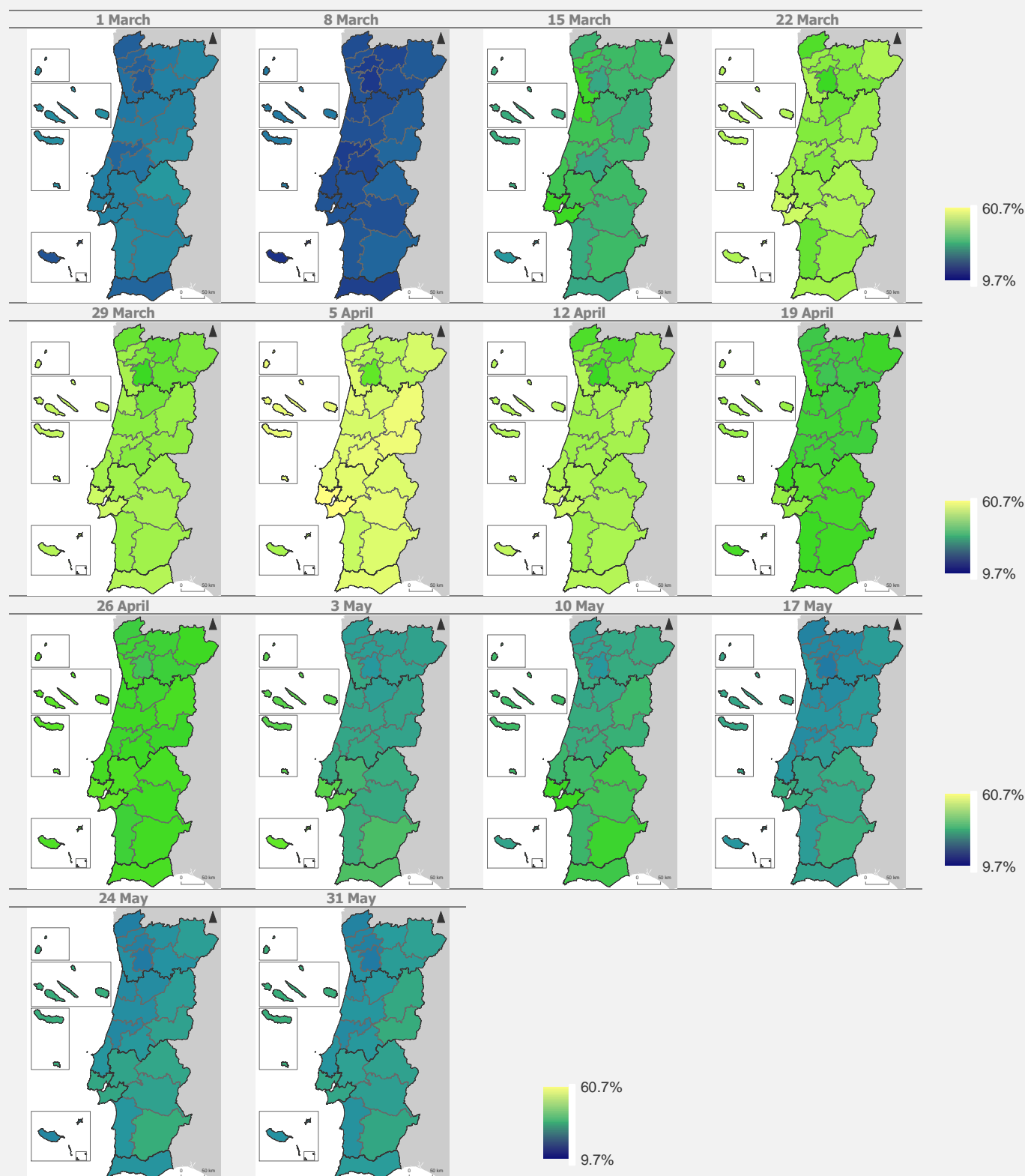
Source: Facebook's "Data for Good" Initiative. Data provided by Carnegie Mellon University.

Note: The dates marked on the graph axis correspond to the first days of the month and Sundays.

The following figures show this indicator at NUTS 3 level for the days corresponding to Sundays [Figure 20] and Mondays [Figure 21], since the beginning of March. It can be seen that the days corresponding to Sundays indicate, overall, less mobility of the population than the days corresponding to Mondays. In particular, there is a reduction in mobility levels with the beginning of the State of Emergency on March 19 (maps of March 22 and 23). On the contrary, a progressive increase in mobility has been registered with the transition from the State of Emergency to the State of Calamity on May 3, followed by the first phase of implementation of the deconfinement measures (maps on May 3 and 4), and the beginning of the second phase of deconfinement on May 18 (maps on May 18, 24, 25 and 31 and June 1).

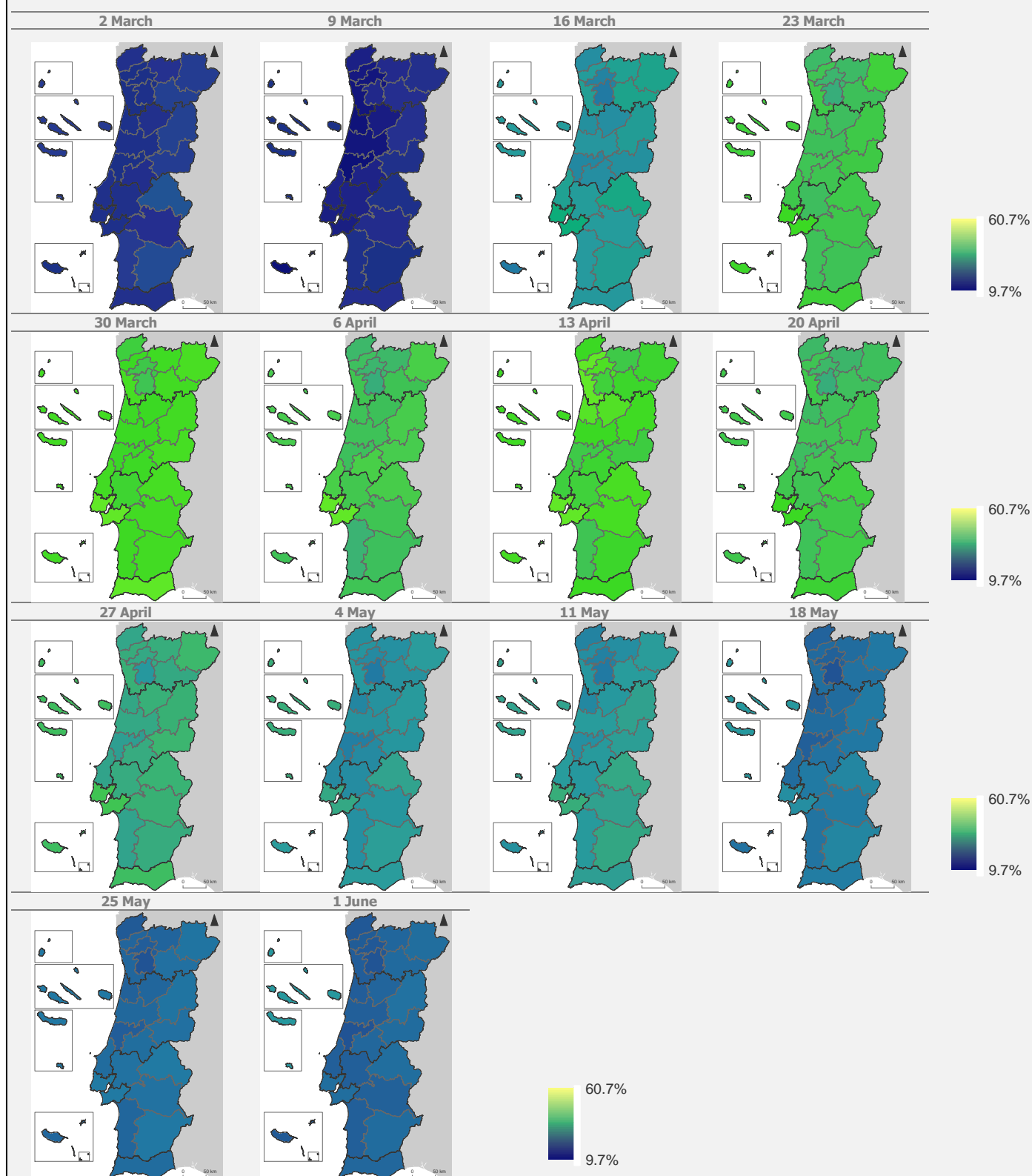


Figure 20: Proportion of the population "staying put" on Sundays between March 1<sup>st</sup> and May 31<sup>st</sup> by NUTS 3



Source: Facebook's "Data for Good" Initiative. Data provided by Carnegie Mellon University.

Figure 21: Proportion of the population “staying put” on Mondays between March 2<sup>nd</sup> and June 1<sup>st</sup> by NUTS 3



Source: Facebook's "Data for Good" Initiative. Data provided by Carnegie Mellon University.

**Technical Note:**

The mobility data from Facebook's "Data for Good" Initiative correspond to location updates collected from mobile devices of Facebook application users that have the "location history" option turned on. Only location accuracy (GPS) data of less than 200 meters is considered and if a user has multiple locations resulting from more than one associated mobile device, Facebook only considers the data with the highest location accuracy. Obtaining results for the NUTS 3 level implies a minimum of 300 unique users per sub-region.

The proportion of the population "staying put" is measured by the number of Facebook users associated with a single 600mx600m reference grid during 8am and 8pm on day x, requiring at least three occurrences during that time period. The reference grid, as a "residence" proxy, is measured daily based on the largest number of locations observed between 8pm and midnight on day x-1 and between 0 am and 8 am on day x, requiring at least three occurrences during that time period.

The information associated with the 600mx600m grids is allocated to the respective NUTS 3 sub-region. Since a grid can intercept more than one sub-region, 9 sample points are generated in each grid, assigning 1/9 of the grid population to each point in the sample.

Facebook's "Data for Good" initiative aims to provide data for research on humanitarian issues and has allowed results to be published in scientific articles particularly in the United States. Obviously, Statistics Portugal's use of this data source in the Statslab domain is not motivated by any publicity motive, but by the public interest of the information. Statistics Portugal thanks researcher Miguel Godinho Matos<sup>1</sup> for his support in the analytical preparation of this information

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<sup>1</sup> Associate Professor at Católica Lisbon School of Business & Economics and visiting research scholar at the Carnegie Mellon University.

## Technical note

### Data sources

Data on [Deaths](#) correspond to general deaths (all causes of death) occurring in the national territory since March 1<sup>st</sup>, 2020 and until the Tuesday of the week prior to publication. The information is preliminary and is obtained from statistical operations of direct and exhaustive collection on deaths occurring in Portuguese territory using facts that are subject to compulsory civil registration (death) in the *Sistema Integrado do Registo e Identificação Civil* (SIRIC). In addition to administrative information obtained from Civil Register Offices, Statistics Portugal collects an additional set of variables identified as statistically relevant to the National Statistical System (NSS) and the European Statistical System (EES). Data are recorded and sent electronically, in compliance with the requirements set out by Statistics Portugal and laid down in liaison with the *Instituto de Registos e Notariado* (IRN) and the *Instituto de Gestão Financeira e Equipamentos da Justiça* (IGFEJ).

Data on the number of confirmed cases are based on those published daily in the [Directorate-General of Health COVID-19 Status Report](#) for the entire country and by municipality. The confirmed cases are referenced to the municipality of occurrence and correspond to the total of clinical notifications in the SINAVE (National System of Epidemiological Surveillance) system. When the confirmed cases by municipality are fewer than 3, for confidentiality reasons, data are not disclosed by the Directorate-General of Health. For the reference dates considered in this press release – June 3 – data by municipality corresponded, respectively, to 91% of confirmed cases in the national territory. This proportion reflects data confidentiality by municipality, but also limitations in the process of spatial referencing of information.

The information on the labour market is based on the publication [Unemployment Registered by Municipality - Monthly Statistics](#) of the Institute of Employment and Professional Training (IEFP). Monthly Registered Unemployment data refers to the number of registers during the month for individuals aged 16 or over (subject to the reservations provided by law), registered in the Employment Centres to obtain a job as an employee, who do not have a job and are immediately available for work. The monthly data of Placements refer to Job Vacancies (available jobs reported by employers to the Job Centres) satisfied with candidates submitted by the Employment Centres.

Data on withdrawals at ATMs and purchases through Automatic Payment Terminals (TPA) are based on information recorded by Interbank Services Society (SIBS) and comprise movements made on cards issued by national institutions. Data by municipality is based on the location of the ATM and of the TPA.

The resident population data referenced to December 31, 2019 correspond to preliminary estimates, not yet disseminated.

### Disseminated Indicators

Number of total deaths, by sex or age group

Number of deaths in the last 4 weeks per deaths in the same reference period

Number of confirmed cases of COVID-19 disease per 10 thousand inhabitants

Population density

Number of new confirmed cases of COVID-19 disease in the last 7 days per 10 thousand inhabitants

Proportion of resident population with 75 or more years old

National withdrawals at ATMs per inhabitant

National purchases through automatic payment terminals per inhabitant

Value of national purchases through automatic payment terminals in March 2020 compared to the same period of the previous year

Job placements per thousand inhabitants between 15 and 64 years old

Unemployed registered at IEFP employment centres throughout the month per thousand inhabitants between 15 and 64 years old

Number of unemployed registered in IEFP employment centres over March 2020 compared to the corresponding flow in the same period of the previous year

Location coefficient

The location coefficient (LC) is obtained using the following formula:

$$LC = \left( \frac{1}{2} \sum_{j=1}^n |x_j - y_j| \right) \times 100 \quad \text{where:}$$

$x_j$  corresponds to the ratio of the number of confirmed cases of COVID-19 in each municipality  $j$  to the number of confirmed cases of COVID-19 for the total country;

$y_j$  corresponds to the ratio between the resident population in each municipality  $j$  and the total resident population in the country.

The Location coefficient varies between 0 and 100, with values closer to 100 reflecting greater inequality in the distribution of confirmed cases of COVID-19 against the total resident population and, in this sense, indicates situations of greater territorial concentration.

The location curve (or Lorenz concentration curve) corresponds to a graphical representation that relates the cumulative distribution of two variables. This representation also includes the straight line of equal distribution, and the greater the distance from it, the greater is the concentration of the variable represented in the ordinate axis (in this analysis, the confirmed cases of COVID-19, by period of reference) versus the variable represented in the abscissa axis (in this analysis, the total resident population).