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COVID impacts across Mediterranean E.U.: Hints from Harmonized Surveys on Business Activity

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Policy Brief

No. 13

19 July 2021

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Acknowledgements:

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Introduction

The Covid-19 crisis brought unprecedented disruption to business activity in virtually all developed economies. If comparable in many regards, both the early impact and the second phase were however different across countries. Understanding the nature of both common and diverging trends affecting firms across Europe is informative of the respective economic structures and thus of most appropriate supportive policies.

To do so, in this policy note we harmonize evidence from businesses surveys that were independently conducted by national statistical institutes in France, Italy, Portugal, and Spain over the course of 2020. We concentrate on three main dimensions: business activity, workforce management, and technology adoption. When data allow, we examine dynamics across two periods: 1) lockdown period (March-May 2020) and 2) the second semester (June-December 2020). We also provide glimpses on the U.S. data that, when compared with the other countries, can be used as a benchmark.

The main results are as follows:

- Italian firms suffered the most in terms of business activity;
- For all countries, Hospitality and Restauration was the worst hit sector;
- In all countries, firms indicated that the most impactful factor was lower demand;
- Larger firms, particularly in Italy and Portugal, proved more resilient than the smaller ones;
- Teleworking adoption was particularly substantial among firms in Portugal and Spain; in terms of employees involved, Spanish firms had by far the higher share (for micro firms, some ten times larger than in France and Italy);
- The largest firms and the ones operating in the ICT sector were the most prone to adopt Teleworking;
- The ICT sector introduced product and technology innovations more rapidly;
- Overall, U.S. dynamics for factors impacting business activity and Teleworking adoption are comparable to European countries.

Methodology

During the so-called "first wave" of the pandemic, coinciding for most of the European countries with the period March-May 2020, governments adopted measures to cope with its impacts on economic activity. National statistical institutes (NSIs) have since released large amounts of data on the reaction of firms to the pandemic and related state restrictions. Some of these institutes have added questions in their periodic mandatory surveys measuring the altered level of business activity and organization caused by the pandemic; others, including the ones of the above-mentioned countries, have gone a step forward implementing "extraordinary" surveys aimed at gathering more details on the nature of impacts to firms. Such national surveys however have not been coordinated in advance (e.g., timing, type of questions, variable definitions), thus making difficult their direct comparison.

To overcome the issue, we focused on the surveys conducted by five countries NSIs, including similar questions and targeting a similar business population over same periods. We then proceeded by reclassifying and aggregating the survey results across countries to obtain comparable macro-sectors and size classes. The surveys we have used are listed below, by country:

- France, Institut national de la statistique et des études économiques (INSEE), "Impact of the Health Crisis on Business Activity and Organisation in 2020";
- Italy, Istituto Nazionale di Statistica (ISTAT), "Situazione e prospettive delle imprese nell'emergenza Sanitaria Covid-19";
- Portugal, Banco de Portugal, and Instituto Nacional de Estatistica (INE), "Inquérito Rápido e Excecional às Empresas – COVID 19" (Series of weekly/bimonthly surveys: figures presented are averaged over the relevant period);
- Spain, Instituto Nacional de Estadística (INE), "Módulo especial sobre el impacto de la Covid 19";
- U.S.A., U.S. Bureau of Labor Statistics, "Business Response Survey".

Figure A1.1 and **Tables A1.1- A1.2** in **Appendix 1** specify for each country the period and frequency of the data collection, the actual sample sizes, and the original firm size and industry classifications of the data[1]. As shown in these tables, all surveys available for the analysis differ in terms of the above-mentioned characteristics. To compare these results, we homogenized the datasets – also by contacting separately the relevant NSI - using common sectoral and dimensional classifications and identifying overlapping questions. This is the main original contribution of this brief. Further details on this process and the nature of the data are provided in **Appendixes 2** and **3**.

Main Results

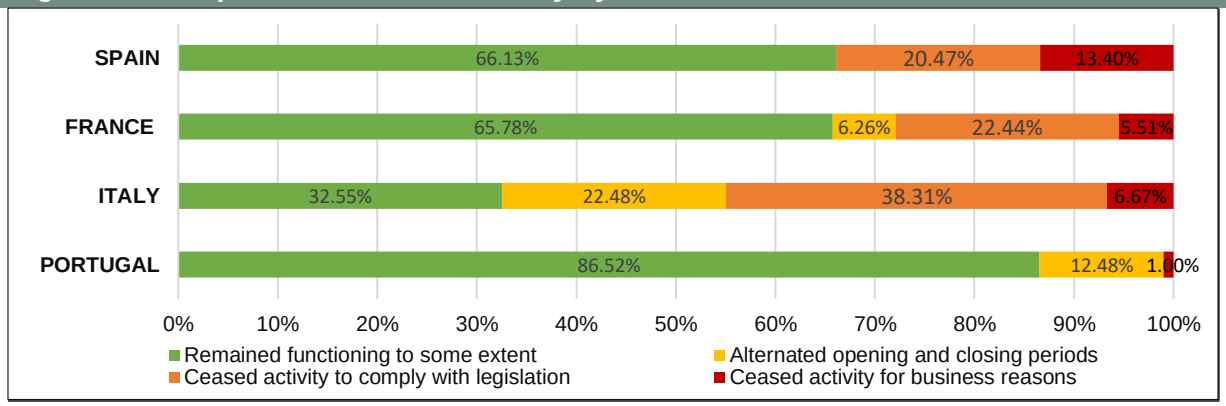
Following the harmonization exercise, we compare cross-country responses of firms across three main dimensions: business activity, workforce management, and technology adoption. We concentrate on a few main findings also comparing the lockdown period (March-May 2020) with the second semester (June-December 2020) whenever the available information makes this possible.

[1] All the information is freely accessible from the website of the respective national statistical institute.

Business Activity

Business disruption – as measured by the ratio of firms which did not remain opened during March-May 2020 (**Figure 1**) - was highly heterogenous across countries. It was the largest in Italy (67%) and was around 35% in France and Spain. By comparison Portugal (with 13,5%) was almost unaffected.

Figure 1. Disruption of business activity by share of firms



Note: data for Portugal on firms who have ceased activity are not distinguished by reason (i.e., comply with legislation or other). Data for Spain on firms who alternated closing and opening periods are not available.

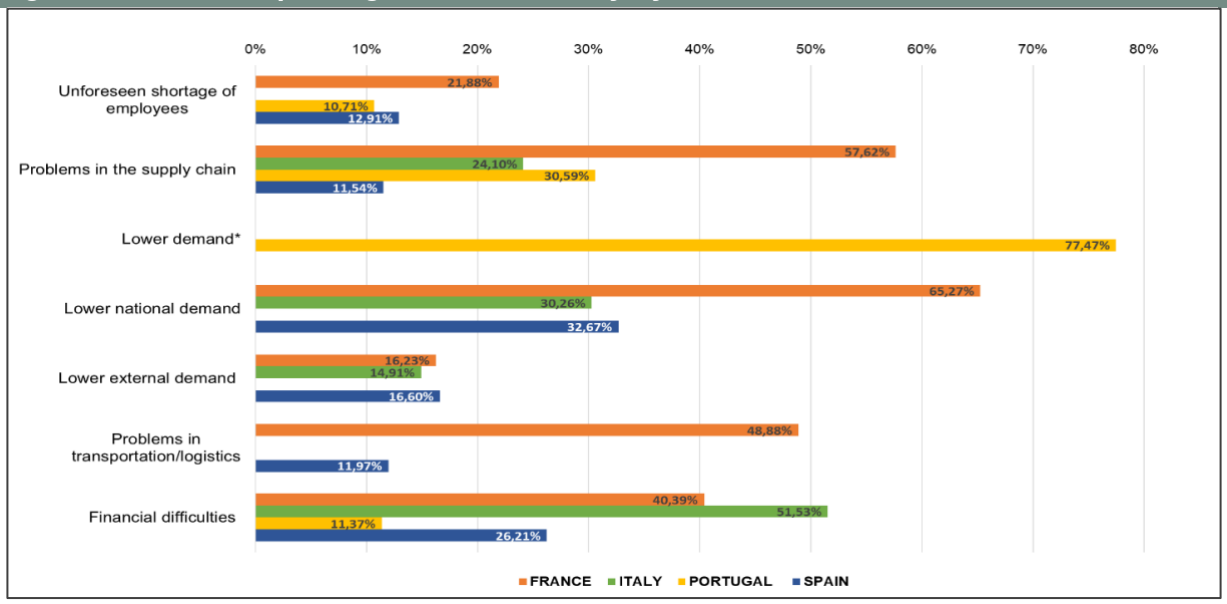
Stricter lockdown measures may be behind the lower percentage of active establishments in Italy, as suggested by the percentage of Italian firms closing for business reasons which is in line with France and Spain (more on this in **Box 2**). The latter statistic is instead exceptionally low in Portugal, only around 1%.

Portugal appears therefore to have lagged behind the other countries in terms of impacts in the first part of the crisis. As shown in **Box 1** below, however, business impacts in Portugal turned out be to be very similar if one considers the later period (i.e., early 2021 vis a vis the early 2020).

Figure 2 explores the factors perceived as having most negative impact on business activity – namely, an unforeseen shortage of employees, problems in the supply chain, lower demand (divided into national and external demand for France, Italy, and Spain), problems in transportation and financial difficulties[2].

[2] Surveys by the Spanish INE and by the Portuguese INE included respectively the option of detailing the extent of the impact as "high", "medium", or "low", and as "high" or "low". In both cases, only "high" impact answers were considered in the comparison.

Figure 2. Factors impacting business activity by share of firms

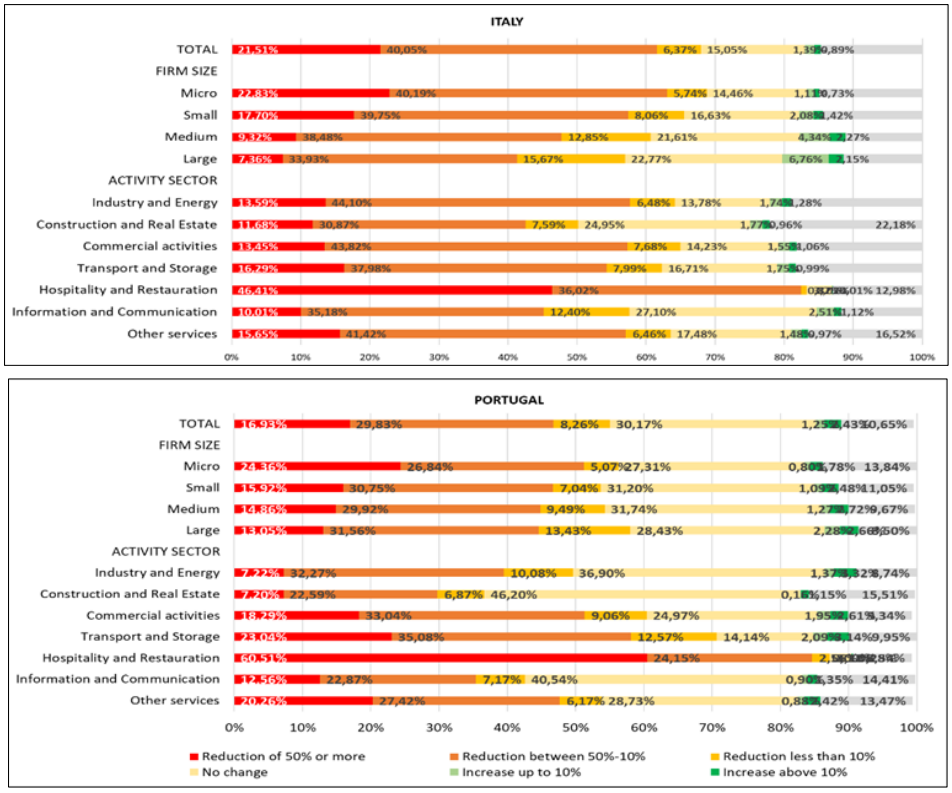


Notes: percentages for Portugal and Spain refer to the number of firms which judged the above factors as having "high" impact on their business activity. *Data for Portugal regarding the impact of lower demand are not distinguished between national and external demand, hence this factor is only generally presented as "lower demand".

Drop in the demand – particularly domestic - was indicated by most Portuguese, French, and Spanish firms as the main factor. Italian respondents instead perceived at most financial difficulties (i.e., insufficient liquidity to meet debt and current expenses). Financial constraints, on the contrary, have represented an obstacle only to 11,4% of Portuguese establishments, while figures for France and Spain locate in the middle, at 40,4% and 26,2% of firms respectively. An unforeseen shortage of employees was deemed a relevant factor by a low percentage of French, Spanish, and Portuguese firms. At the same time, problems in the supply chain or in the logistics were felt by considerably higher proportions of French businesses than in other countries (57,6% and 48,9% respectively).

Box 1. Turnover drop by size class and macro-sector in Italy and Portugal

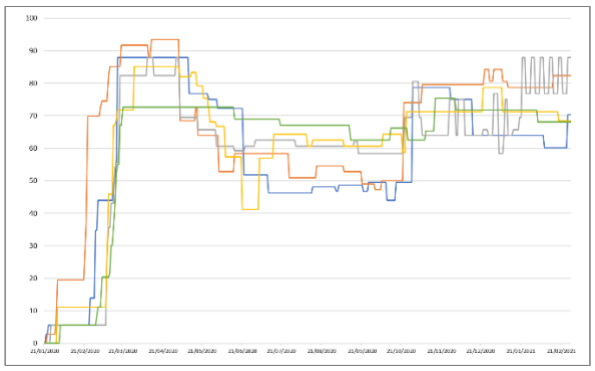
B1.1 – Change in turnover, Dec2020-Feb2021 vs Dec2019-Feb2020



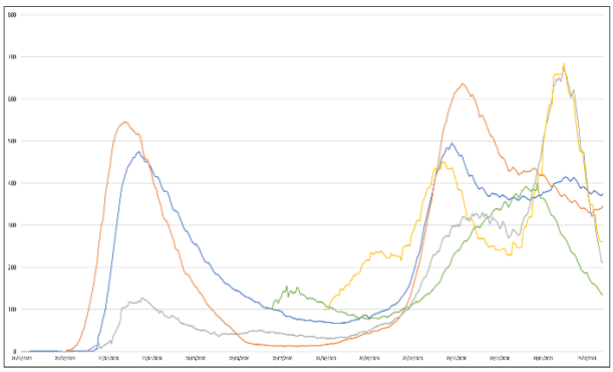
Most recent data available only for Italian and Portuguese firms show that Portuguese firms were eventually paramount affected by the crisis, following their relative resilience in the earlier period noted in the text. Comparing firms turnover in the quarter ending February 2021 with the corresponding period in 2020, when the crisis erupted shows that economic activity deteriorated markedly over the whole economy (**Figure B1.1**). All size classes and macro-sectors report at least 30% of firms experimenting a turnover drop beyond 10%. The proportion of firms with a reduction of 10% or more appears to decrease as their size grows, this trend being more pronounced for Italy. Changes in turnover, moreover, are the most negative for Italian and Portuguese firms active in the Hospitality and Restauration sector. Overall, trends across size classes and macro-sectors are comparable between the two countries.

Box 2. Pandemic trends across countries

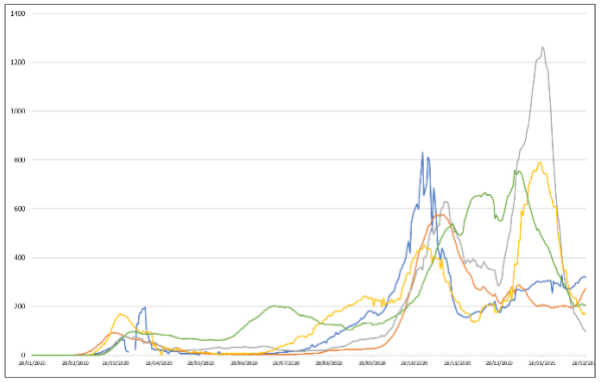
B2.1 – Stringency Index



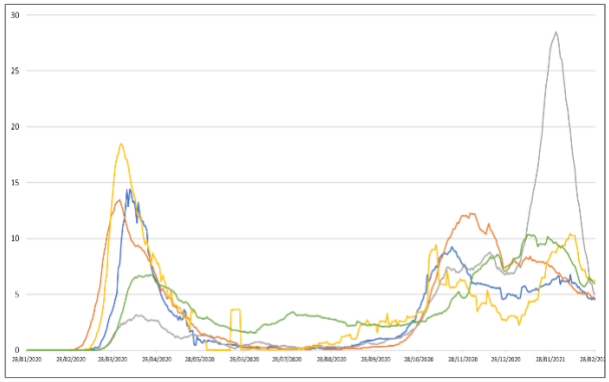
B2.2 – Covid-19 hospitalizations per million



B2.3 – New Covid-19 cases per million



B2.4 – New Covid-19 deaths per million



Notes: All values are on daily basis from 01/2020 to 02/2021. The Stringency Index (100 = strictest response) is a composite measure of nine metrics: school closures; workplace closures; cancellation of public events; restrictions on public gatherings; closures of public transport; stay-at-home requirements; public information campaigns; restrictions on internal movements; and international travel controls (Hale et al., 2021). When policies vary at the sub-national level, the index of the strictest sub-region is shown. The tables come from the authors' elaboration on information that was extracted from OurWorldInData.org (Ritchie et al, 2020). Sources: B2.1: Oxford COVID-19 Government Response Tracker; B2.2: European CDC for E.U. countries, the Department of Health & Human Services for the U.S; B2.3-4: Johns Hopkins University CSSE COVID-19 Data.

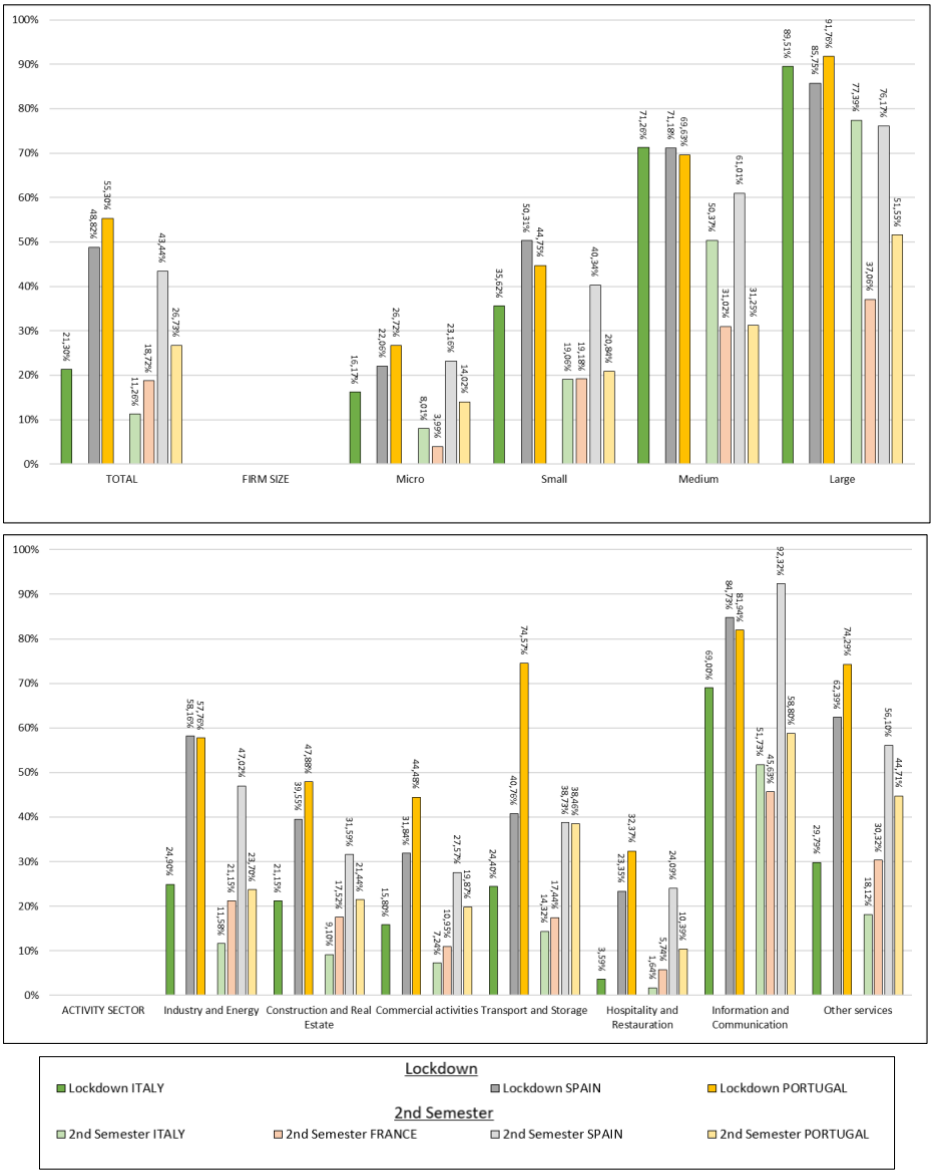
When tracking how Covid-19 crisis unfolded in terms of restrictions stringency, hospitalizations, new cases, and deaths, we see that different waves impacted the analysed countries with somewhat similar timing, even though their magnitudes were not always comparable. **Figure B2.1** also indicates more stringent containment measure between March-May 2020, which we broadly defined "lockdown period". Italy adopted the most rigid lockdown until the end of April 2020, whereas Portuguese restrictions were among the lowest in Europe at the time. This may explain the respective shares of firms that remained functioning in these two countries (**Figure 1**). Despite a surge during the first days into 2021 (**Figures B2.2-3-4**), it was not until the end of January that Portugal implemented a more stringent containment than Italy. This is then one possible reason for generally smaller turnover drops in the lower section of **Figure B1.1**.

Workforce Management

There were significant differences in the use of Teleworking across countries, macro-sectors, and size classes. (**Figure 3**) These discrepancies largely reflected differences in the industrial structure: countries with larger shares of employment in knowledge- and ICT-intensive services were also those where higher proportion of workers began to telework after the pandemic outbreak (Eurofound, 2020).

Across our sample, Portugal (and by a slightly lesser extent Spain) recorded during the first semester the highest percentage of establishments adopting Teleworking at the country level and across most macro-sectors, with Italy lagging behind.

Figure 3. Percentage of firms implementing Teleworking, Lockdown vs Second Semester



Note: French percentages are predictions of implementing Teleworking "after the crisis" as expressed by managers at the time of the lockdown; data on Telework adoption in France during the lockdown itself are however not available.

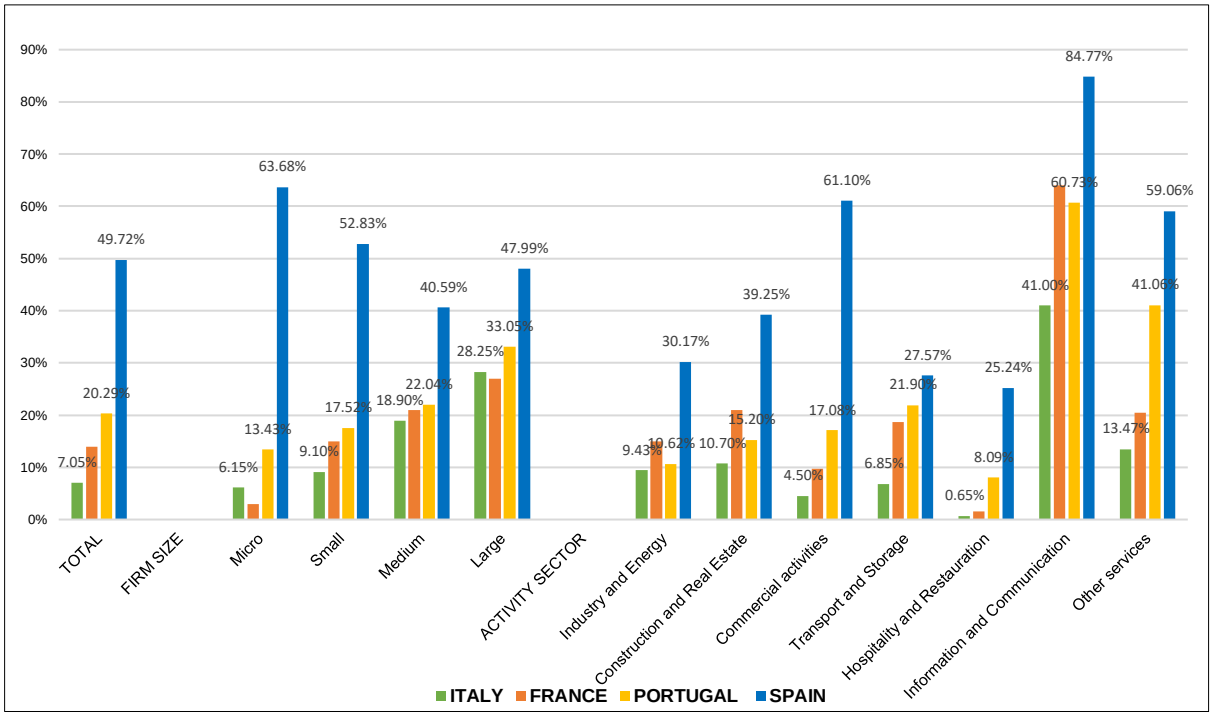
During the second semester of 2020, most countries, size classes, and macro-sectors registered a decrease in the adoption of Teleworking by share of firms, with Spanish percentages being the highest in all size classes and macro-sectors. France (only available for this period) and Italy reported significantly lower rates for most size classes and macro-sectors.

Two trends are nevertheless evident for all the four countries and over both time spans:

1. Information and Communication sector was the highest adopter;
2. Teleworking adoption is generally increasing in line with size classes, with up to 90% of large businesses having implemented it in Italy, Portugal, and Spain.

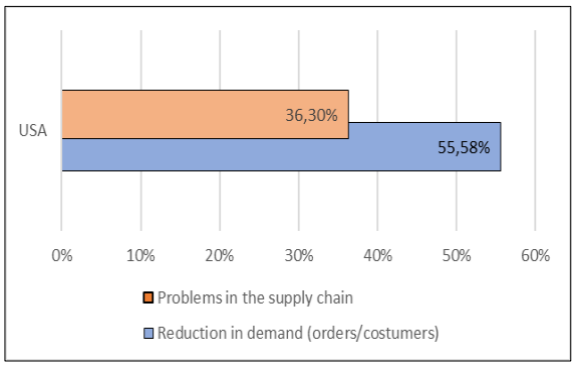
One notable result of our research is that teleworking adoption by firms is not necessarily correlated to the extent employees are actually involved in teleworking. **Figure 4** shows that for the latter dimension Spain is far ahead the other countries. During lockdown there were some 50% of all employees involved in teleworking (blue histogram); a lead which is noticeable for all size classes and macro-sectors (particularly in ICT with some 86% of the workforce involved).

Figure 4. Average percentage of Teleworking Staff within the firm, Lockdown

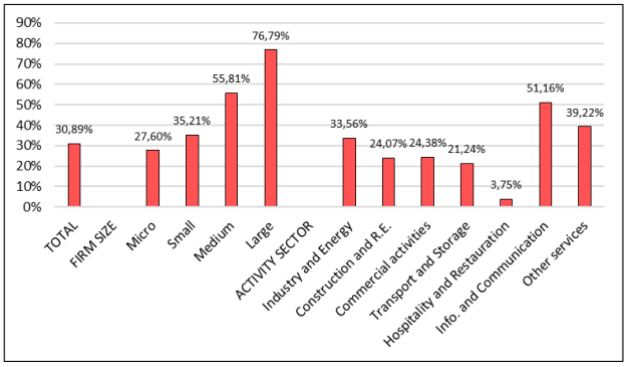


BOX 3 – AN OVERVIEW ON THE U.S.A. (SECOND SEMESTER)

B3.1 – Factors impacting business activity



B3.2 – Percentage of firms implementing Teleworking



U.S. data confirms the overall trends noted for our E.U. sample. Similar shares of U.S. firms pointed at problems in the supply chain (36.3%) and at lower demand (55.6%) as main factors harming their economic activity during the second semester (**Figure B3.1**).

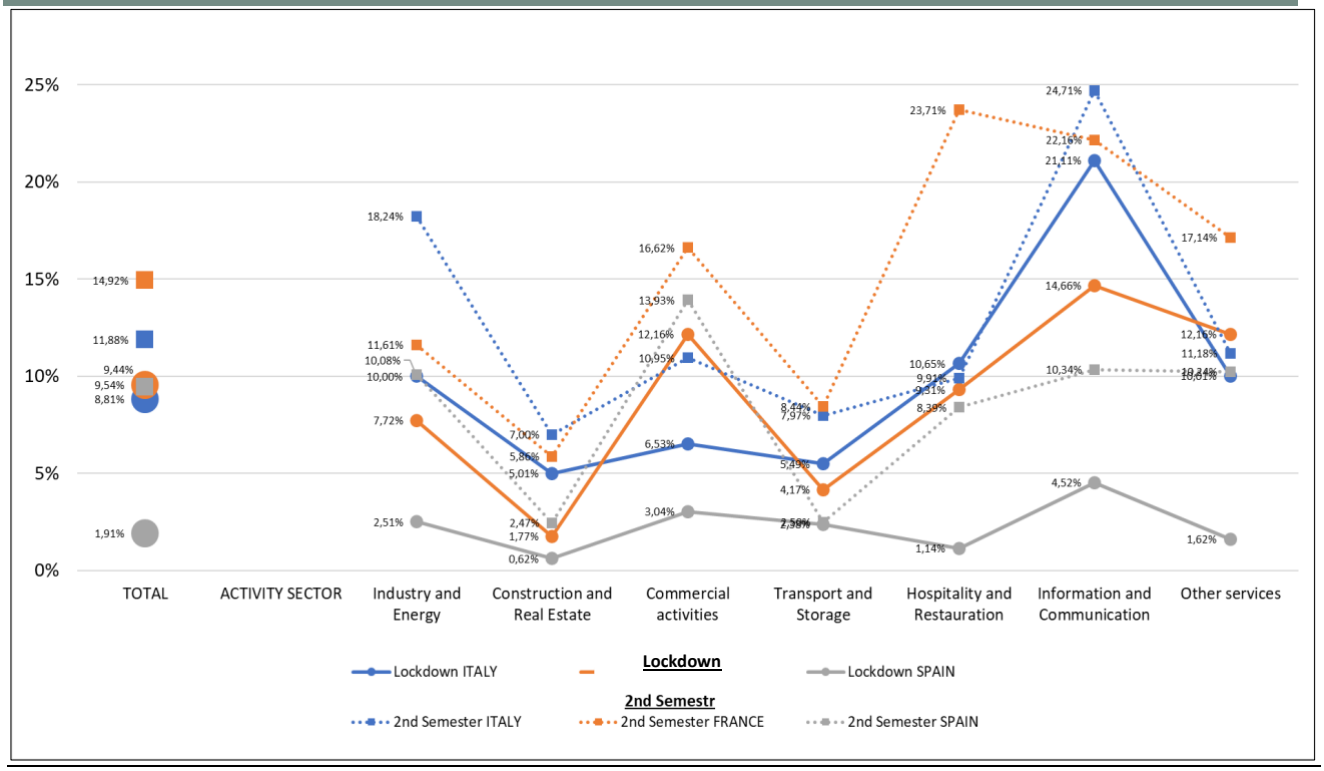
Figure B3.2 shows that teleworking adoption was high on average in the U.S. (30%), matching only Spain for the large firm share (76%) as well as Italy (77%). Similarly to our E.U. sample, Information and Communication with more than 50% share was the sector most prone in that adoption.

Technology Adoption

During the crisis, enterprises have engaged in many different strategies to strengthen their competitiveness and expand their production. Among these, the surveys have mostly focused on introduction of New Products and on development of New Technologies.

Starting with the former, **Figure 5** shows that Italian and French firms were champions in introducing New Products (blue and orange), with Spanish firms lagging severely behind although catching up in the second semester of 2020 (grey square). Again, the ICT sector appeared to be leading for all countries in the introduction of New Products, in line with **Figures 3**, **4**, and **B3.2**. For all countries, the second semester saw substantial progress in this dimension (dashed vis a vis continuous lines).

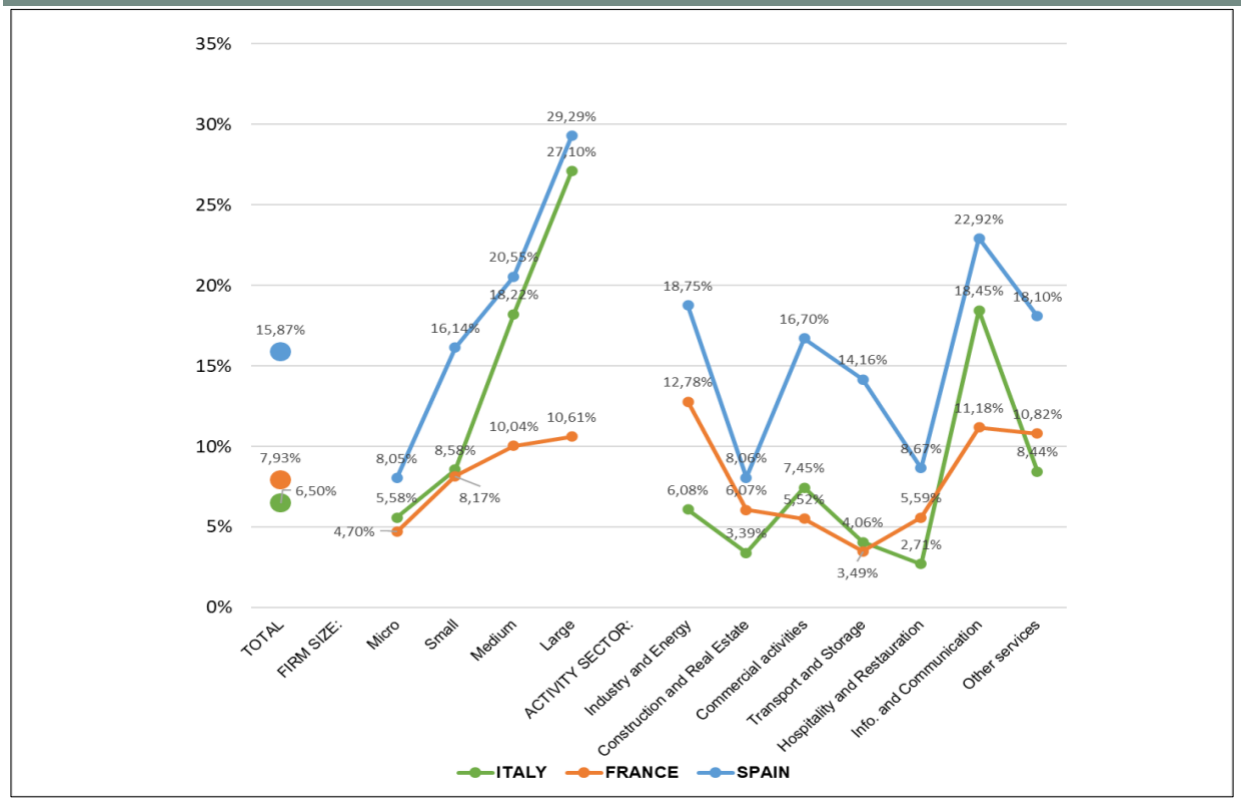
Figure 5. Share of firms introducing New Products, Lockdown vs Second Semester



Data for the introduction of New Technology are available for the same countries but only for the second semester of 2020 (**Figure 6**). Two messages come across very clearly:

1. Spain is leading in terms of share of its firms involved in introducing New Technology for all macro-sectors and firm size classes;
2. For all countries (and only by a lesser extent in France) firm size matters: the larger is the firm the stronger the New Technology adoption, on a factor one to three.

Figure 6. Share of firms investing in New Technologies, Second Semester



Conclusions

In this Policy Note we explored the impact of Covid-19 and firm-level responses for four economies of Mediterranean Europe: France, Italy, Portugal, and Spain. We also presented some evidence with regards to the United States. We proceeded by systematically harmonizing dedicated and publicly available business surveys that were implemented by NSIs in the sample countries amidst the pandemic.

We identified overlapping survey items and, whenever needed, grouped figures under common size class and macro-sector categories to allow for cross-country comparison. To present results, we further organized aggregated survey evidence into three general topics (business activity, workforce management, technology adoption) and, whenever viable, under two distinguished time periods (lockdown and second semester of 2020).

Our investigation both confirmed consolidated trends and shed light on new stylized facts. In particular, findings from Eurofound (2020) that discrepancies in Teleworking adoption associate to differences in knowledge- and ICT-intensities were largely reflected in our data, where Information and Communication sector exhibited higher rates of teleworking firms for all countries, time periods, and methods of considering Teleworking.

Among other results, we observed that Italy presented the most pronounced percentages of firms with discontinued business activity, and that enterprises in most countries perceived lower demand as the most impactful factor. In Italy and Portugal, Hospitality and Restauration sector was affected the worst, and probability of considerable turnover drops was lower when size class was larger. Sizeable firms were more likely to utilize Teleworking in all countries as well. Furthermore, in our data Portugal and Spain were the two major adopters of Teleworking, but on average this scheme involved wider shares of staff within Spanish firms. During the second half of 2020, moreover, there was a generalized rise in product innovation, which may suggest this was indeed one preferred method for firms to face the crisis. Mirroring Teleworking adoption, innovation in both products and technology was also led by Information and Communication sector, besides higher shares of large firms introducing New Technologies.

These trends, and especially more intense rates of innovation and Teleworking adoption within the ICT sector and larger firms, could be a signal that the pandemic has been accelerating dynamics which may eventually enhance competitive advantages for specific categories of firms.
More in general, the brief shows that there is remarkable amount of cross-country evidence that can inform the debate on designing adequate policies. The still rough information which we were able to collect with quite an effort out of existing and not coordinated surveys, calls for NSIs to make further efforts to ensure ex-ante harmonization of surveys and micro-datasets across European countries.

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https://www.eurofound.europa.eu/publications/report/2020/living-working-and-covid-19

Ritchie, H., Ortiz-Ospina, E., Beltekian, D., Mathieu, E., Hasell, J., Macdonald, B., Giattino, C., Appel, C., Rodés-Guirao, L., & Roser, M. (2020). "Coronavirus Pandemic (COVID-19)"; last visited on 28/07/2021 at: https://ourworldindata.org/coronavirus

All survey data are retrievable following the links to the dedicated webpages of the respective national statistical agencies, as listed below:

FRANCE
https://www.insee.fr/fr/statistiques/5356431?sommaire=5356433

ITALY
March-May 2020
https://www.istat.it/it/archivio/251618
Appendice statistica in the download box

June-October 2020
https://www.istat.it/it/archivio/244378
Appendice statistica in the download box

PORTUGAL
https://www.bportugal.pt/page/quais-os-impactos-do-covid-19-na-economia-portuguesa

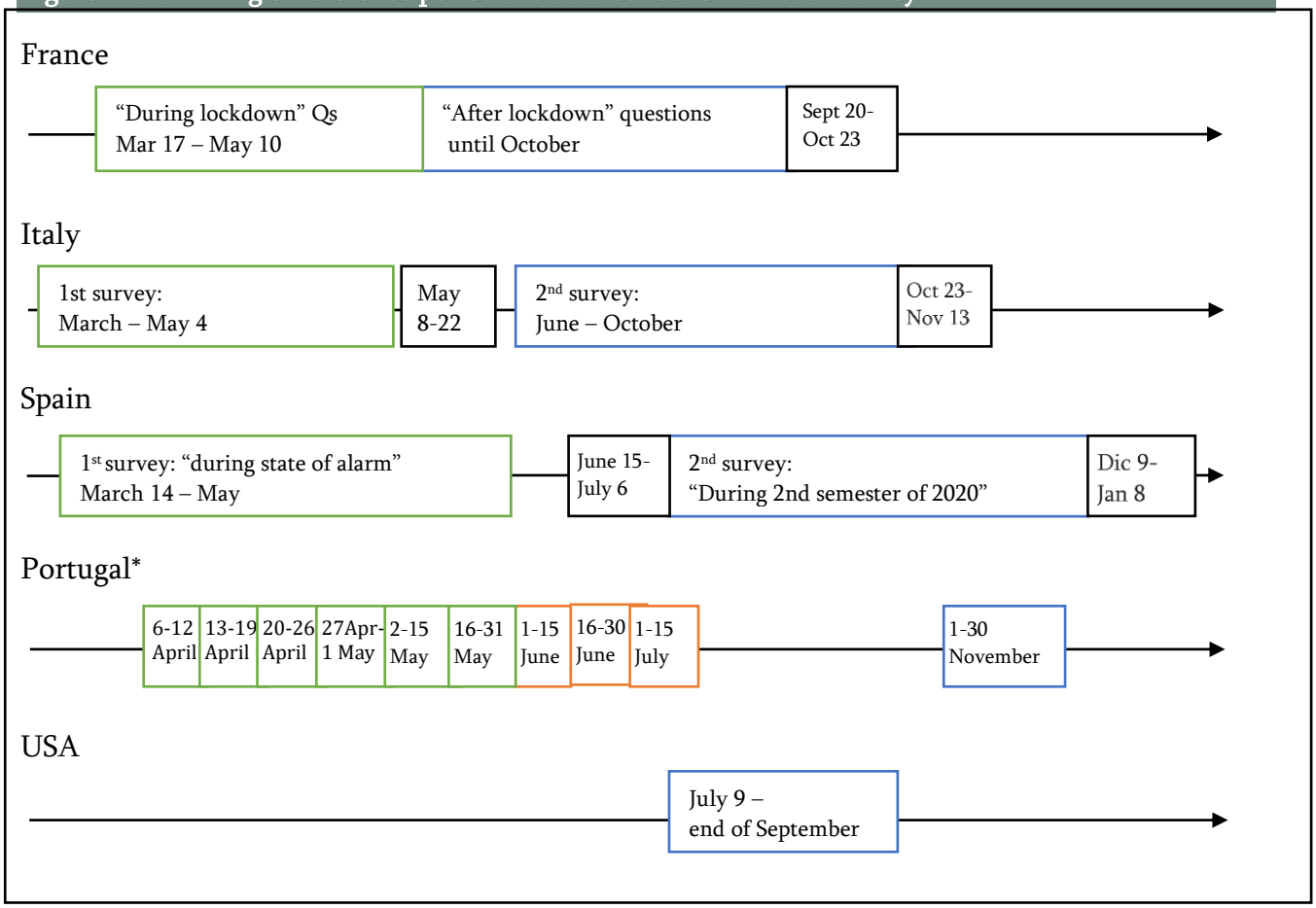
SPAIN
https://www.ine.es/dyngs/INEbase/en/operacion.htm?c=Estadistica_C&cid=1254736163552&menu=resultados&idp=1254735576550#!tabs-1254736195723

(The Spanish survey data used within the present Note has been reaggregated by the INE for the purpose of homogenizing size and macro-sector classes across all surveys)

The U.S.A.
https://www.bls.gov/brs/data/tables/home.htm

Appendix 1

Figure A1.1. Timing of reference period and data collection for each survey



Note: green boxes indicate reference periods of surveys or part of surveys used for the "lockdown" period; blue boxes indicate reference periods of surveys or part of surveys used for the "second semester" period; black boxes indicate the data collection periods; orange boxes are surveys that were not used in this Note. Size of boxes should not be interpreted as proportional to the period indicated inside. *Banco de Portugal with INE conducted weekly and then bimonthly surveys collecting and publishing responses the following week. The survey was then repeated once for the November period.

Table A1.1. Actual sample size and response rate for each survey

COUNTRY	SURVEY (with reference period)	ACTUAL SAMPLE SIZE (response rate)
FRANCE	1) During/after lockdown	233,789
ITALY	1) March – May 4 2) June – October	42,426 (46,9%) 40,345 (44,6%)
SPAIN	1) March 14 – May 2) 2nd semester 2020	~ 7,000 (73,7%) ~ 8,000 (70,2%)
PORTUGAL	1) April 6 – 12 2) April 13 – 19 3) April 20 – 26 4) April 27 – 1 May 5) May 2 – 15 6) May 16 – 31 7) June 1 – 15 8) June 16 – 30 9) July 1 – 15 10) November 1 – 30	4, 793 (54,0%) 5,837 (65,7%) 5,830 (65,6%) 5,504 (62,0%) 5,493 (61,8%) 5,313 (59, 8%) 5,678 (63,9%) 4,920 (55,4%) 4,850 (54,6%) 5,837 (65,8%)
USA	1) July 9 – September	152,698

Note: "Actual sample size" refers to the number of respondents (theoretical sample size multiplied for response rate, the latter being provided when available).

Table A1.2. Original size class and macro-sector classification for each survey

SURVEY country	CLASS SIZE classification	MACRO SECTOR classification
FRANCE	5-9*; 10-49; 50-249; 250+	NACE Rev.2 and other subdivisions Main sections: B, C, D, E, F, G, H, I, J, L, M, P, Q, R, S Additional sectors: "Automobile industry"; "Pharmaceutical industry"; "Food, drink, tobacco industry"; "Air transport"
ITALY	3-9; 10-49; 50-249; 250+	NACE Rev.2 Main sections: B, C, D, E, F, G, H, I, J, K, L, M, N, P, Q, R, S
SPAIN	0-9; 10-49; 50-199; 200-999; 1000+	1. Industry (B NACE Rev. 2 main section) 2. Construction (F) 3. Commercial activities (G) 4. Transport and Hospitality (H and I) 5. Other services (E, L, J, M, N, P, Q, R and S)
PORTUGAL	0-9; 10-49; 50-249; 250+ employees	1. Industry and energy (B and E NACE rev. 2 main sections) 2. Construction and Real estate activities (F and L) 3. Commercial activities (G) 4. Transport and Storage (H) 5. Hospitality and Catering/Restauration (I) 6. Information and Communication (J) 7. Other services (M, N, P, Q, R and S)
USA	1-4; 5-9; 10-19; 20-49; 50-99; 100-249; 250-499; 500-999; 1000+ employees	NAICS Sections: 0, 11, 21, 22, 23, 31-33, 42, 44-45, 48-49A, 4811, 484, 51, 52, 53, 54, 55, 56, 61, 621-623, 624, 71, 72, 81.

*The size class 5-9 employees for the INSEE survey (France) only includes operators active in retail trade.

Appendix 2

To render survey results fully comparable, we homogenized originally different sectoral and dimensional classifications (illustrated in **Tables A1.2**) in each dataset under common categories. To this end, we implemented a procedure including the following steps:

1. All surveys have been categorized either under the "lockdown period" (March-May 2020 – green boxes in **Figure A1.1**) or the "second semester of 2020" (June- December 2020 – blue boxes in **Figure A1.1**) and have been analysed separately according to this distinction.
   The unique survey conducted in France by INSEE was deemed relevant for both periods as it asked questions distinguishing between "during the lockdown" and "after lockdown"; the "Business Response Survey" by the U.S. Bureau of Labor Statistics was instead only considered within the second period.

2. Differently from all other statistical institutes, the Portuguese INE carried out multiple surveys during the lockdown period, although maintaining the same format throughout the weekly/bi-monthly series. The data shown for Portugal are then new percentages resulting from autonomous summation of all the responses in absolute values across weeks for to the whole period April-May.

3. Given that firm-level information was never directly available for any of the surveys, we commissioned the Spanish INE a reaggregation of its data to homogenize the classifications along with the following NACE Rev. 2 two-digits sector classification:

   - Industry and energy: 05 to 39
   - Construction and Real estate activities: 41 to 43 and 68
   - Commercial activities: 45 to 47
   - Transport and Storage: 49 to 53
   - Hospitality and Catering/Restauration: 55 to 56
   - Information and Communication: 58 to 63
   - Other services: 69 to 75 (except 70), 77 to 82, 92 to 93, 95 to 96

   And with the following size classes:
   - 0-9; 10-49; 50-249; 250+ employees

   This allowed to obtain Spanish data that are directly comparable to the Portuguese surveys.

4. The Italian, French, and U.S. surveys have also been turned into the Portuguese industry nomenclature by aggregating their originally more specific classifications (see **Table A1.2**) into the NACE Rev. 2 main sections as illustrated at the previous point. Also, more granular size classes for the U.S.A. (see again **Table A1.2**) were gathered into the four above-indicated categories.

5. Finally, we identified a group of similar questions across surveys for both time periods (pre-post lockdown), on the base of their argument and response format. These questions are suitable for comparison and are listed in **Appendix 3**. The set of countries for which each question was available (i.e., FR-IT-SP-PO-USA) is also reported: it was not always the case, indeed, that all the five surveys were comparable within a single question.

Appendix 3

We provide below a list of questions overlapping between the considered countries. The different items have been divided into Lockdown and Second Semester periods.

Common questions for the Lockdown

1. **FR-IT-SP-PO: Business activity during lockdown period:**
    a. Remained functioning
    b. Alternated opening and closing periods
    c. Ceased activity to comply with legislation
    d. Ceased activity for business reasons

2. **IT-SP-PO: To what extent turnover has changed during the lockdown?**
    a. Reduction of 50% or more
    b. Reduction between 10% and 50%
    c. Small or no change
    d. Increase above 10%

3. **FR-IT-SP-PO: Which factors impacted business activity during the lockdown?**
    a. Unforeseen shortage of employees
    b. Problems in the supply chain
    c. Lower demand
        -Lower national demand
        -Lower external demand
    d. Problems in transportation/logistics
    e. Financial difficulties*

4. **FR-IT-SP-PO: What percentage of your staff has been teleworking during the alarm state?**

5. **IT-SP-PO: Percentage of establishments which implemented telecommuting during lockdown**

6. **IT-SP-PO: During the alarm state, percentage of establishments that have had to:**
    a. Reduce working hours of staff
    b. Reduce permanent staff (layoffs)

c. Not renew fixed-term contracts*
d. Reorganize the working day/shifts
e. Increase working hours of staff
f. Hire new staff

7. **FR-IT-SP**: **What strategies has the company adopted to respond to the crisis?**
    a. development of online selling (IT-FR-SP)
    b. new delivery system (IT-FR-SP)
    c. introduce new products (IT-FR-SP)
    d. change partners/suppliers (IT-FR-SP)
    e. decrease in R&D expenditure (IT-FR)
    f. increase level of digitalization (IT-SP)
    g. no change (IT-FR-SP)

8. **IT-FR-PO: Take up of government support in the form of moratorium or state-guaranteed loan? %**

Common questions for the Second Semester

1. **IT-SP-PO-USA: Percentage of establishments that were affected in their operation by the following factors during the second half of 2020**
    a. Mandatory containment measures
    b. Reduction in demand (orders/costumers)
    c. Problems in the supply chain
    d. Variations in personnel employed

2. **Since the lockdown, have you decided on/made any investments in:**
    a. new products (IT-FR-SP-PO)
    b. R&D/ new technology (IT-FR-SP)
    c. new sales channels (IT- SP)
    d. new markets (IT-SP-PO)
    e. new partners/suppliers (IT-FR-SP)

3. **FR-IT-SP-PO-USA: Percentage of establishments which employed teleworking during the second half of 2020**

4. **FR-SP: Percentage of staff which has been teleworking during 2020 and 6-month predictions**

5. **Percentage of establishments that, during the second half of 2020 compared to the situation before the crisis, have had to:**
    a. Hire new staff
    b. Carry out staff layoffs and / or not renew contracts*
    c. Reduce the working hours of workers

   d. Increase the working hours of workers
   e. Reorganize the working day (shifts)
   f. Increase investment in training of workers

6. **IT-SP: Percentage of firms needing financing during the 2nd half of 2020**

7. **IT-SP: Achievement of financing in the second half of 2020**

8. **IT-PO: Did you resort to the emergency measures put in place or encouraged by the public authorities?**
   a. Moratoria
   b. State-guaranteed loans

9. **IT-FR: Change in R&D spending during all 2020 compared to 2019 levels**

10. **IT-PO: Change in turnover during December-February 2021 versus the same period in the previous year**