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# TRANSFERABILITY OF WORKERS' SKILLS

# IN SECTORS POTENTIALLY AFFECTED BY COVID-19

Brindusa Anghel, Aitor Lacuesta and Ana Regil

## ABSTRACT

This article analyses the characteristics of workers who are potentially more affected by the COVID-19 crisis and their employment possibilities in other productive sectors. Sectors related to travel, accommodation and food services, leisure and wholesale and retail trade, which have been particularly affected by the measures adopted to limit the impact of the pandemic, concentrate 19.6% of total employment in Spain. On the other hand, sectors related to distribution, logistics and information and communication –demand for which appears to be less affected or might even have increased during the lockdown– account for 7.4% of total employment. Among the workers from sectors that are most affected, the proportion of women, young adults, the lesser-skilled, and workers with less experience and with temporary contracts, is especially high. The analysis based on the tasks performed by workers in the different sectors suggests that the potential mobility of the employees that have been hardest hit by the crisis is scarce, especially in accommodation and food services and in wholesale and retail trade, in part owing to the limited intensity of use in those sectors of tasks associated with information and communication technologies, writing, reading and numerical skills. However, workers in sectors related to shipping and leisure or entertainment activities might have more opportunities of finding a job in other areas. These results point to the need to support training in certain skills for the potentially unemployed in the sectors most affected by the pandemic in order to facilitate their transition to new vacancies.

**Keywords:** Occupational mobility, occupations, COVID-19.

**JEL classification:** J23, J24.

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## Introduction

The pandemic caused by the coronavirus and the measures implemented by the authorities to contain contagion have had a very significant effect on aggregate demand over the past few months. Spain has not been immune to these changes. Carvalho et al. (2020), using 1.4 billion bank transactions, note that daily expenditure fell by around 70% from that seen during the first half of March.[1] By type of expenditure, the study shows an increase in the percentage of online sales from 15% of the total before the lockdown to 22% afterwards. By product type, a very substantial fall has been observed in spending on furniture, leather goods and footwear, fashion items from specialised stores, leisure and entertainment (pubs, bars and restaurants) and personal services (massages and personal care), while the weight of staple products relating to food or health increased.

The effects of the pandemic are also evident in employment. According to Social Security registration data (excluding the special regimes for farmers and domestic workers) for April, almost all the sectors, except agriculture, forestry and fishing, and human health and social work activities, lost workers between 28 February and 30 April (see Chart 1), although with varying intensity depending on the sector. Arts, entertainment and recreation activities, accommodation and food service activities, construction, and administrative and support service activities posted sharp falls in excess of 8%. The decrease was more moderate (and below 2%) in water supply and waste management, financial and insurance activities, electricity and domestic service.

There is currently much uncertainty as to how demand will change once the confinement measures are lifted and, in general, until an efficient treatment against the disease becomes available. Against this backdrop, it seems plausible to assume that activities related to tourism, such as passenger transport, accommodation and food service activities, and restaurant and leisure services, will continue to record weak demand for some time. Likewise, the recent increase in e-commerce has accelerated the shift in consumption patterns towards a lower use of the traditional

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1 The transactions analysed in the study include not only those made with household debit or credit cards, but also corporate spending transactions, provided they are supported by a corporate debit or credit card.

Job destruction has varied in intensity by sector. It has been particularly intense in accommodation and food service activities, construction, arts, entertainment and recreation activities, and administrative and support service activities.
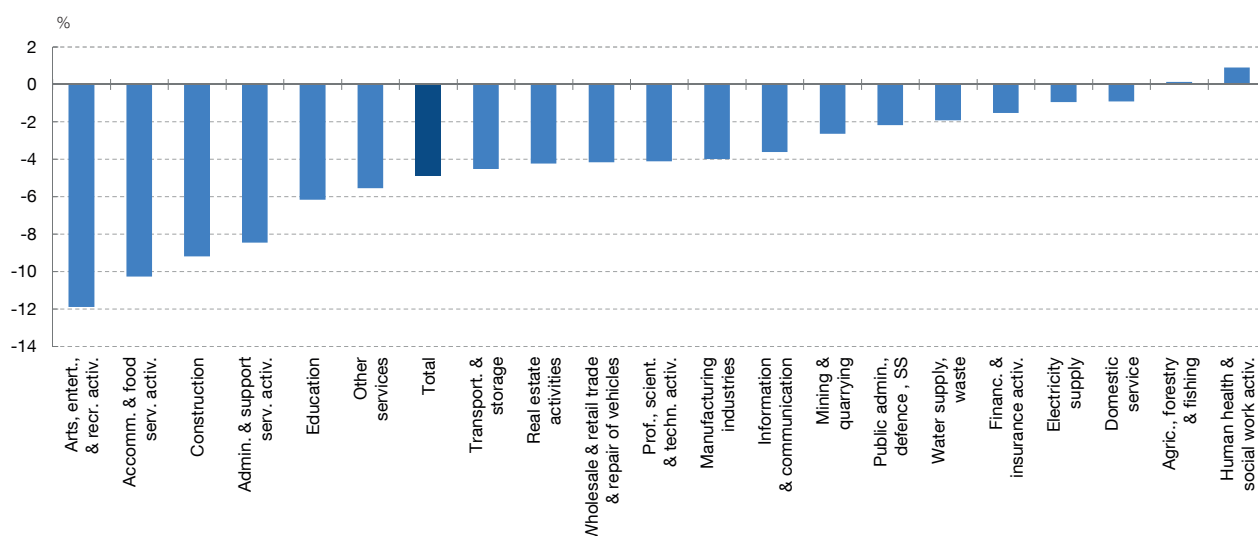


**SOURCE:** Social Security (employees registered and working at month-end).

**a** The General Social Security Regime and the Special Social Security Regimes for the self-employed and for seafarers (excluding the Special Regimes for farmers and domestic workers.

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channels, which might also negatively impact employment in the retail and wholesale sectors. In this setting, the first section of the article analyses the characteristics of persons employed in these sectors and compares them with those of persons employed in the rest of activities to determine which groups might be more affected by the current circumstances.

The article also aims to analyse the employability of potentially affected workers in other sectors of activity. In particular, as an alternative to restaurant service and traditional trading channels, online services will possibly be in greater demand, which would lead to an increase in the demand for shipping services and related activities. Likewise, home-based leisure may gain weight with respect to leisure outside the home, increasing the demand for information and communication services. To analyse the possible transferability of workers from one sector to another, Section 2 compares the characteristics of persons employed in sectors where jobs may be lost with those in sectors where they may be gained. The transferability of workers between jobs will be easier to the extent that the tasks to be performed in the new job are similar to those of their previous job.[2] Accordingly, Section 3 characterises the occupations of each sector in terms of the tasks performed by their employees. Finally, Section 4 compares pairs of sectors of activity

2   See Gathmann, C. and U. Schonberg (2010) and Yi, M., S. Mueller and J. Stegmaier (2017).

at a disaggregated level to determine which ones are more similar and therefore susceptible to accepting movements between their workers in the future.

## Characteristics of groups employed in sectors potentially more affected by a fall in demand following COVID-19

It is to be expected that during the period immediately after lockdown, and at least until there is an efficient treatment against coronavirus, tourism, restaurant and mass leisure activities will face weak demand owing to the social distancing required, even when they are able to restart following strict public health safety rules.[3] According to data from the Continuous Sample of Working Histories (MCVL, by its Spanish abbreviation), total employment in these sectors as a whole would account for somewhat more than 2.1 million employees according to Social Security registrations for 2018 as a whole, out of a total of 19.1 million (11%).[4]

Additionally, it cannot be ruled out that trade in physical establishments –both retail and wholesale– will be substantially weaker, as a result both of lower customer footfall owing to the risk of contagion and of the boom in e-commerce. If all wholesale and retail trade sectors are added to the above-mentioned sectors affected by a drop in demand, the number of potential workers affected would be close to 3.75 million on 2018 data (19.6% of total employment).[5]

The sectors which could, in principle, benefit from this situation include, on the one hand, services that make online sales of goods possible and faster (shipping services, logistics and vehicle repair)[6] and, on the other, those relating to greater consumption of home leisure. Also, the extension of teleworking and online sales may positively affect other sectors, such as those relating to information and

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3   Specifically, this article assumes that the sectors most affected by this fall in demand will be passenger transport by intercity rail and other land transport; passenger transport by sea, inland waterways and air; hotels and similar accommodation, holiday and other collective accommodation (including recreational vehicle parks, trailer parks and camping grounds); other accommodation (student residences, etc.); restaurants and mobile food service activities, and event catering and other food service activities; beverage serving activities; travel agency, tour operator and other reservation services and related activities; and organisation of conventions and trade shows. As regards leisure, it is assumed that the activities most affected will be creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting; sports activities and amusement and recreation activities; and other activities of membership organisations. The three-digit NACE Rev. 2 codes are: 491, 493, 501, 503, 511, 551, 552, 553, 559, 561, 562, 563, 791, 799, 823, 900, 910, 920, 931, 932, 949 and 950.

4   All the data mentioned in this section are Banco de España calculations, based on MCVL 2018 data. Each labour relationship is weighted by the number of days worked that month divided by the number of days corresponding to a full month (30).

5   Two-digit NACE Rev.2 codes 46 and 47.

6   More specifically, the sectors that would benefit would be maintenance and repair of motor vehicles, freight transport by rail, by road (including removal services), by sea, by inland waterways, and by air and space; warehousing and storage; transportation support; postal activities under universal service obligation, and other postal and courier activities. The three-digit NACE Rev. 2 codes for these sectors are: 452, 492, 494, 502, 504, 512, 521, 522, 531 and 532.

Table 1

**DESCRIPTION OF PERSONS EMPLOYED IN SECTORS WHICH LOSE OR GAIN JOBS**

There is a larger proportion of women, young adults and less educated groups among the population employed in sectors where jobs could be destroyed.

| | 2018. Average employees registered with the Social Security (a) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Losing jobs | | Losing jobs + wholesale and retail trade | | Services gaining jobs | | Total employment | |
| | Number of workers | % | Number of workers | % | Number of workers | % | Number of workers | % |
| Total | 2,103,150 | 100 | 3,745,042 | 100 | 1,403,923 | 100 | 19,096,388 | 100 |
| Sex | | | | | | | | |
| Male | 1,096,417 | 52 | 1,819,510 | 49 | 1,019,373 | 73 | 10,247,881 | 54 |
| Female | 1,006,733 | 48 | 1,925,531 | 51 | 384,550 | 27 | 8,848,508 | 46 |
| Age | | | | | | | | |
| 16-24 | 253,790 | 13 | 381,031 | 11 | 67,128 | 5 | 1,024,131 | 6 |
| 25-34 | 511,429 | 26 | 922,790 | 26 | 301,452 | 23 | 3,763,881 | 21 |
| 35-44 | 500,523 | 25 | 967,335 | 27 | 399,785 | 30 | 5,064,837 | 28 |
| 45-54 | 445,667 | 22 | 799,067 | 23 | 358,281 | 27 | 4,784,225 | 27 |
| 55-64 | 263,371 | 13 | 441,337 | 12 | 179,999 | 14 | 3,034,373 | 17 |
| 65 or over | 17,773 | 1 | 33,811 | 1 | 12,473 | 1 | 202,853 | 1 |
| Contribution group | | | | | | | | |
| Groups 7-12 | 1,388,803 | 73 | 2,080,921 | 62 | 591,735 | 51 | 8,807,177 | 57 |
| Groups 3-6 | 421,222 | 22 | 1,077,830 | 32 | 356,099 | 31 | 3,845,592 | 25 |
| Groups 1-2 | 86,711 | 5 | 196,336 | 6 | 214,373 | 18 | 2,681,392 | 17 |

**SOURCE:** Social Security.

**a** Banco de España calculations based on MCVL data. Average number of employees registered with the Social Security, weighting each labour relationship by the number of days worked in the month.

communication, and to computer and communication equipment repair.[7] In 2018 these sectors of activity provided employment to 1.4 million people (7.4% of total employment).

According to the 2018 MCVL data, there is a larger proportion of women, young adults and lesser-skilled groups among the employed population in the most affected sectors (see Table 1). In terms of gender, women accounted for half of the population employed in sectors where jobs could be destroyed (48%, or 51% if wholesale and retail trade is included), a proportion somewhat higher than that observed in total employment (46%) and in the sectors which, as a whole, may record a possible

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7   In particular, publishing of books, periodicals and other publishing activities; software publishing; motion picture, video and television programme activities; sound recording and music publishing activities; radio broadcasting; television programming and broadcasting activities; wired, wireless and satellite telecommunications activities; other telecommunications activities; computer programming, consultancy and related activities; data processing, hosting and related activities, web portals; other information service activities; repair of computers and communication equipment. The three-digit NACE Rev. 2 codes for these sectors are: 581, 582, 591, 592, 601, 602, 611, 612, 613, 619, 620, 631, 639 and 951.

**CHARACTERISTICS OF JOBS IN SECTORS WHICH LOSE OR GAIN JOBS**

Persons employed in sectors which could be more affected by COVID-19 are more likely to be wage and salaried workers on temporary or partial employment contracts, while there tend to be more self-employed in the more buoyant sectors. Also, in relative terms, firms are smaller in the hardest hit sectors, making them more vulnerable.

| | 2018. Average employees registered with the Social Security (a) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Losing jobs | | Losing jobs + wholesale and retail trade | | Services gaining jobs | | Total employment | |
| | Number of workers | % | Number of workers | % | Number of workers | % | Number of workers | % |
| **Total** | **2,103,150** | **100** | **3,745,042** | **100** | **1,403,923** | **100** | **19,096,388** | **100** |
| Employment status | | | | | | | | |
| Indefinite employee | 1,186,183 | 57 | 2,323,390 | 63 | 884,281 | 64 | 8,964,496 | 50 |
| Temporary employee | 679,765 | 33 | 978,927 | 27 | 261,925 | 19 | 4,638,490 | 26 |
| Self-employed | 206,407 | 10 | 389,715 | 11 | 241,338 | 17 | 4,358,031 | 24 |
| Working arrangements | | | | | | | | |
| Full-time | 1,302,956 | 62 | 2,445,067 | 65 | 1,229,933 | 88 | 15,447,163 | 81 |
| Part-time | 800,194 | 38 | 1,299,975 | 35 | 173,990 | 12 | 3,649,227 | 19 |
| Firm size | | | | | | | | |
| Less than 50 workers | 1,496,867 | 71 | 2,493,746 | 67 | 867,665 | 62 | 11,874,848 | 62 |
| 50-249 workers | 342,390 | 16 | 562,077 | 15 | 237,871 | 17 | 3,092,348 | 16 |
| 250 or more workers | 263,894 | 13 | 689,221 | 18 | 298,388 | 21 | 4,129,192 | 22 |
| Job tenure | | | | | | | | |
| Less than 6 months | 748,310 | 36 | 1,047,577 | 28 | 260,542 | 19 | 4,260,712 | 22 |
| Between 6 and 12 months | 287,133 | 14 | 437,373 | 12 | 147,109 | 10 | 1,963,596 | 10 |
| Between 1 and 2 years | 238,131 | 11 | 423,965 | 11 | 172,434 | 12 | 2,094,810 | 11 |
| Between 2 and 5 years | 322,848 | 15 | 631,027 | 17 | 266,433 | 19 | 3,414,769 | 18 |
| Between 5 and 10 years | 203,224 | 10 | 473,162 | 13 | 209,000 | 15 | 3,228,975 | 17 |
| Over 10 years | 303,504 | 14 | 731,937 | 20 | 348,402 | 25 | 4,133,527 | 22 |

**SOURCE:** Social Security.

**a** Prepared by Banco de España based on MCVL data. Average number of employees registered with the Social Security, weighting each labour relationship by the number of days worked in the month.

increase in demand (27%). By age group, the proportion of young adults below 25 years old in the affected sectors (around 11% and 12%) was almost twice that observed in the total economy and in the group of sectors potentially generating employment (where their weight is between 5% and 6%). As regards the contribution group, which is used in the MCVL as an approximation of educational level, the lowest contribution groups cover 75% of employment in activities relating to tourism and leisure (62% if wholesale and retail trade is included). In the economy as a whole, this group represented 57% of the total and, in the sectors in which employment is expected to grow, the percentage drops to 51%.

By contract type, certain interesting differences are also perceptible (see Table 2). In particular, the set of sectors where a fall in employment is to be expected shows a lower

proportion of self-employed workers (10%) than that observed in the sectors where growth would be expected (17%). Also, the contractual terms of wage and salaried workers in the affected sectors are more precarious than in the rest. In particular, the rate of temporary and partial employment is higher and the average years of service of the workers is clearly lower.[8] Likewise, and despite the lower presence of self-employed workers in the affected sectors, there is a greater bias toward small firms[9] (71% of employees registered with the Social Security worked at firms with less than 50 workers, compared with 52% in the sectors with better prospects).

Table 3 shows the weight of employment in each of the three groups analysed in this section, by region. As regards the weight of sectors with greater job destruction potential, the island regions (around 25%) and, to a lesser extent, Ceuta and Melilla, Andalusia, and Castile and Leon (around 15%), are noteworthy. Also notable, if wholesale and retail trade is included in the analysis, is the weight of the affected sectors in La Rioja, in addition to the four regions mentioned above and Ceuta and Melilla, and –in a lower proportion– that of the sectors that could destroy jobs in Catalonia and the Valencia region (over 20%).

In the remaining regions, except for Navarre, this indicator exceeded 15%. Lastly, in all of them –except Navarre– the sectors in a potential downturn concentrated more employment than emerging sectors, although this difference is particularly noteworthy in the Balearic and Canary Islands, La Rioja and the autonomous city enclaves of Ceuta and Melilla (around 30 pp). In Andalusia, Valencia, and Castile and Leon, this differential stood close to 15 pp and in the rest, above or near 10 pp, except in Madrid, at 8 pp, and Navarre, where it was negative.

## Tasks performed in different occupations

To analyse the employability of workers in the sectors affected by the pandemic, we estimate below the differences between the skills used in different occupations based on the information in the database of the Programme for the International Assessment of Adult Competences (PIAAC) (OECD, 2013) that are applied to the composition of the occupations by sector of activity in the Spanish Labour Force Survey (LFS).[10]

Skill indicators are constructed by compiling replies to several questions in the PIAAC survey on how often different tasks are performed at work (OECD, 2013). Specifically, indicators which measure the use at work of skills related to information and communications technologies (ICTs), planning, the capacity to choose the type

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8   Years of service are measured as the total days worked to date under the current contract establishing the labour relationship between person and firm.

9   Firm size refers to the secondary contribution account and, therefore, actual firm size may be underestimated.

10  This exercise is similar to that conducted in A. Lacuesta, S. Puente and E. Villanueva (2012), although in said article the O*NET database is used to define the tasks associated with the different occupations.

**PERSONS EMPLOYED IN SECTORS WHICH LOSE OR GAIN JOBS, BY REGION**

As regards the weight of sectors with greater job destruction potential, the island regions (around 25%) and, to a lesser extent, Ceuta and Melilla, Andalusia, and Castile and Leon (around 15%), are noteworthy. Also notable, if wholesale and retail trade is included in the analysis, is the weight of the affected sectors in La Rioja, in addition to the aforementioned four regions and Ceuta and Melilla, and –in a lower proportion– that of the sectors that could destroy jobs in Catalonia and the Valencia region (over 20%).

| | 2018. Average employees registered with the Social Security (a) | | | | | | | |
| | Losing jobs | | Losing jobs + wholesale and retail trade lost | | Services gaining jobs | | Total employment | |
| | Number of workers | Employment in each region (%) | Number of workers | Employment in each region (%) | Number of workers | Employment in each region (%) | Number of workers | Total employment (%) |
|---|---|---|---|---|---|---|---|---|
| **Total** | **2,103,150** | **100** | **3,745,042** | **100** | **1,403,923** | **100** | **19,096,388** | **100** |
| Region | | | | | | | | |
| Andalusia | 378,446 | 14 | 599,452 | 22 | 203,908 | 8 | 2,671,419 | 14 |
| Aragon | 47,051 | 9 | 85,789 | 16 | 35,562 | 7 | 526,235 | 3 |
| Asturias | 33,814 | 10 | 65,938 | 19 | 18,202 | 5 | 355,017 | 2 |
| Balearic Islands | 121,681 | 25 | 162,946 | 33 | 24,168 | 5 | 494,835 | 3 |
| Canary Islands | 171,381 | 25 | 257,623 | 38 | 39,987 | 6 | 675,979 | 4 |
| Cantabria | 20,948 | 10 | 36,041 | 17 | 10,339 | 5 | 212,331 | 1 |
| Castile and Leon | 117,873 | 14 | 182,554 | 22 | 44,897 | 5 | 820,025 | 4 |
| Castile-La Mancha | 47,769 | 7 | 115,456 | 18 | 42,789 | 7 | 643,656 | 3 |
| Catalonia | 343,304 | 11 | 630,856 | 21 | 256,781 | 9 | 3,002,344 | 16 |
| Valencia | 188,772 | 11 | 358,540 | 21 | 104,871 | 6 | 1,674,748 | 9 |
| Extremadura | 24,161 | 9 | 47,247 | 17 | 13,740 | 5 | 276,400 | 1 |
| Galicia | 81,212 | 8 | 166,074 | 17 | 62,292 | 6 | 985,569 | 5 |
| Madrid | 323,450 | 10 | 584,144 | 18 | 322,267 | 10 | 3,286,706 | 17 |
| Murcia | 42,482 | 9 | 87,019 | 18 | 32,003 | 7 | 475,277 | 2 |
| Navarre | 21,825 | 8 | 37,562 | 13 | 54,820 | 19 | 281,348 | 1 |
| Basque Country | 98,247 | 11 | 162,863 | 18 | 51,268 | 6 | 911,715 | 5 |
| Rioja | 10,018 | 8 | 39,648 | 32 | 5,029 | 4 | 124,015 | 1 |
| Ceuta and Melilla | 7,807 | 17 | 16,842 | 38 | 1,672 | 4 | 44,844 | 0 |

**SOURCE:** Social Security.

**a** Prepared by Banco de España based on MCVL data. Average number of employees registered with the Social Security, weighting each labour relationship by the number of days worked in the month.

of tasks to be performed, the ability to influence others, reading comprehension, writing, numerical competence, learning at work and physical skills are used (see Table 4 with the description of each indicator). The higher the indicator, the more frequently the tasks are performed by individuals in their workplace.[11] The first step

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11 The questionnaire includes several questions on the frequency of performance of different tasks at work, worded, for instance, as follows: "How often does you current/did your latest job involve planning your own/others' activities?" The reply options are: (1) never, (2) less than once a month, (3) less than once a week but at least once a month, (4) at least once a week but not every day, and (5) every day. The OECD uses the Item Response Theory (OECD, 2013) to combine different multiple choice questions with the aim of deriving continuous variables that measure the frequency with which an individual performs certain tasks at work (OECD, 2013). Also, to

Table 4
**SKILLS USE INDICES IN THE PIAAC**

| Tasks and associated skills | |
|---|---|
| Skill | Tasks |
| ICT skills | Using e-mail, internet, spreadsheets, word processors and programming languages; conducting transactions online; participating in online discussions (conferences, chats) |
| Planning | Planning one's activities and those of others; organising one's time |
| Task discretion | Choosing or changing sequence of job tasks, and speed and hours of work; choosing how to do the job |
| Influencing skills | Instructing, teaching or training people; making speeches and presentations; selling products or services; advising people; planning others' activities; persuading or influencing others; negotiating |
| Reading | Reading documents (directions, instructions, letters, reports, e-mails, articles, books, manuals, invoices, diagrams, maps) |
| Writing | Writing documents (letters, reports, e-mails, articles, forms) |
| Numeracy | Calculating prices, costs or budgets; use of fractions, decimals or percentages; use of calculators; preparing graphs or tables; use of algebra or formulas; use of advanced math or statistics (calculus, trigonometry, regressions) |
| Learning at work | Learning new things from supervisors or co-workers; learning-by-doing; keeping up-to-date with new products or services |
| Physical skills | Working physically for a long period |

**SOURCE:** PIAAC (OECD, 2013).

consists of constructing the average for each of the indicators (using data from all the countries in the PIAAC sample) for ten types of occupations.

Table 5 gives an idea of the different intensity of use of skills in different occupations. Thus, for example, if the skills of middle management and professionals are compared with those of associate professionals, the two types of work require expertise in the use of ICTs and the ability to write and use numerical competencies. However, according to this database, middle management and professionals usually need to devote more time during the day to planning, influencing others and reading, in relative terms, than do associate professionals, who generally perform more physical tasks.

The second step consists of applying these task indicators to the LFS data, which provide information on the structure of occupations within each sector of activity.[12] This results in an index of the intensity of use of the different skills within each sector of activity.

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facilitate the comparisons, the indices are standardised with the average equal to 3 and a standard deviation equal to 1 in the sample of all individuals and countries. Approximately 90% of the observations have values between 0 and 4: values close to 0 suggest a low frequency of use, while those near 4 suggest a high frequency. It should also be borne in mind that individuals who reply "never" to all the questions relating to any of the indices are excluded (see OECD, 2013 for further details). The indicators in Table 1 represent this continuous variable created by the OECD, except the physical effort indicator, which measures direct replies to the question "How often does/did your work involve working physically for long periods?"

12  For each 2018 LFS three-digit sector of activity the proportion of workers in each occupational group is calculated and this information is cross-matched with the data on average skills indices of the PIAAC.

Table 5

**INDEX OF INTENSITY OF USE OF SKILLS, BY OCCUPATION**

| | ICT skills | Planning | Task discretion | Influencing skills | Numeracy | Reading | Writing | Learning at work | Physical skills |
|---|---|---|---|---|---|---|---|---|---|
| 0 Military occupations | 2.08 | 2.49 | 1.78 | 2.81 | 1.87 | 2.52 | 2.66 | 2.53 | 3.18 |
| 1 Managers | 2.62 | 2.66 | 2.58 | 2.80 | 2.59 | 2.62 | 2.57 | 2.22 | 2.40 |
| 2 Middle management and professionals | 2.19 | 2.24 | 2.10 | 2.47 | 2.20 | 2.61 | 2.38 | 2.22 | 2.25 |
| 3 Associate professionals | 2.12 | 2.10 | 2.11 | 2.18 | 2.27 | 2.33 | 2.36 | 2.15 | 2.58 |
| 4 Accounting, clerical and other office workers | 2.07 | 1.76 | 1.92 | 1.79 | 2.08 | 2.07 | 2.18 | 1.92 | 2.04 |
| 5 Restaurant, personal and protection service and sales workers | 1.41 | 1.80 | 1.85 | 1.96 | 1.77 | 1.73 | 1.86 | 2.00 | 3.68 |
| 6 Skilled agricultural, forestry and fishery workers | 1.39 | 1.98 | 2.44 | 1.48 | 1.57 | 1.70 | 1.26 | 1.79 | 4.58 |
| 7 Craft and skilled manufacturing and construction workers (except plant and machine operators) | 1.46 | 1.85 | 1.88 | 1.65 | 1.86 | 1.66 | 1.73 | 1.93 | 4.28 |
| 8 Plant and machine operators, and assemblers | 1.12 | 1.61 | 1.51 | 1.37 | 1.64 | 1.45 | 1.66 | 1.68 | 4.02 |
| 9 Elementary occupations | 1.11 | 1.53 | 1.62 | 1.37 | 1.47 | 1.16 | 1.29 | 1.71 | 4.35 |

**SOURCE:** Prepared by the Banco de España based on the PIAAC (OECD, 2013) data.

Chart 2 shows the intensity of use of each skill with respect to the unconditional average of all the sectors in the Spanish economy. Thus a value higher (lower) than 1 indicates that the group of persons employed in the related sectors uses this skill more (less) than the average. In this connection, the sectors which could gain weight as a result of the pandemic require, in relative terms, more ICT, reading, writing and numerical skills. By contrast, these sectors appear to require fewer physical skills. Sectors where jobs will likely be lost are not well positioned in these dimensions, since, in general, they underutilise the skills that are most in demand and overutilise physical skills. This raises the need to support training in certain skills for the potentially unemployed in the sectors most affected by the pandemic in order to facilitate their move towards new vacancies.

## Transferability of skills between sectors affected by changes in demand

A disaggregated analysis of similarities and differences in tasks is performed sector by sector. Table 6 briefly describes the conclusions of this analysis. The first 17 rows of the table make reference to the different wholesale and retail trade sectors; the following five refer to transport; subsequently, the accommodation and food service activities sectors are described; then, travel agency activities and tourism; and, finally, the last six rows relate to arts, entertainment and leisure. To calculate the similarity between two sectors, a metric is used that allows the different intensity of

Chart 2

## INTENSITY OF SKILLS REQUIRED, BY SECTOR

The sectors which could gain weight in the wake of the pandemic require, in relative terms, more ICT, reading, writing and numerical skills. By contrast, they do not appear to require physical skills. Sectors where jobs will likely be lost are not well positioned in these dimensions, since, in general, they underutilise these skills and overutilise physical skills.
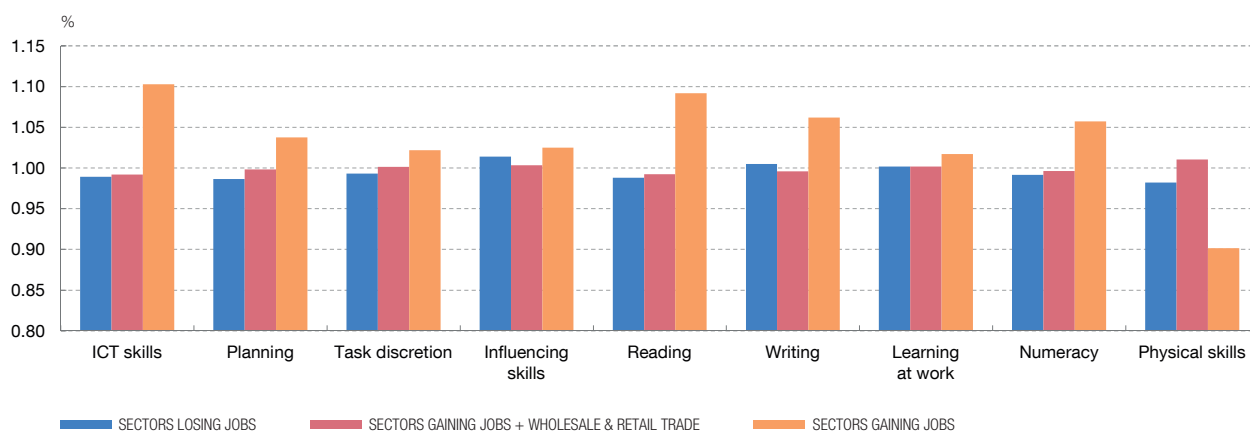


**SOURCE:** PIAAC (OECD, 2013).

use of each task in the two sectors to be expressed quantitatively.[13] Based on this information, the ten alternatives that are most similar are identified for each sector of activity affected. Columns 2 to 4 of Table 6 indicate how many of these ten sectors lose, maintain or gain jobs. Column 5 indicates the name of the sector(s) in the latter case.

Generally, it can be inferred from this analysis that the wholesale and retail trade sectors are quite similar in terms of tasks, but quite different from the sectors which would seem to benefit more from the present circumstances. An exception is businesses requiring ICT knowledge. For example, wholesale and retail trading of ICT equipment appears to use tasks similar to motion picture, video and television programme activities, sound recording and music publishing activities, and other telecommunications activities. Also, insofar as the fall in demand is heterogeneous depending on the product sold in the different retailers, which could happen in view of the recent changes in consumption of staple products in comparison with the rest, opportunities of reassignment of these workers to other retail outlets could differ.

The five transport sectors in Table 6, which may be more directly affected by the decline in tourism, would seem, in general, to have more alternatives. In this connection, the skills of affected workers in the land, sea and air transport sectors

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13  In this article the squared sum of the differences in intensity is used. This index has a minimum value of 0 for an equal intensity of use in the nine tasks.

## Table 6

**TRANSFERABILITY OF VULNERABLE SECTORS, BY TASKS CARRIED OUT BY PERSONS**

Persons employed in wholesale and retail trade and in accommodation and food service activities generally perform tasks similar to those in demand in their sector, but do not share the skills in demand in other possibly buoyant sectors. The transferability of persons employed in passenger transport and in travel, leisure and entertainment activities is somewhat higher, given that freight transport and new technologies are in a better position.

| | Losing jobs + wholesale and retail trade lost | Gaining jobs | Other | Sectors gaining jobs |
|---|---|---|---|---|
| Wholesale on a fee or contract basis | 3 | 1 | 6 | Sea and coastal freight water transport |
| Whole of agricultural raw materials and live animals | 3 | 0 | 7 | |
| Wholesale of food, beverages and tobacco | 3 | 0 | 7 | |
| Wholesale of household goods | 7 | 0 | 3 | |
| Wholesale of ICT equipment | 1 | 2 | 7 | Motion picture, video and television programme activities; sound recording and music publishing activities |
| Wholesale of other machinery, equipment and supplies | 5 | 0 | 5 | |
| Other specialised wholesale trade | 2 | 0 | 8 | |
| Non-specialised wholesale trade | 4 | 1 | 5 | Sea and coastal freight water transport |
| Retail sale in non-specialised stores | 7 | 0 | 3 | |
| Retail sale of food, beverages and tobacco in specialised stores | 6 | 0 | 4 | |
| Retail sale of automotive fuel in specialised stores | 6 | 0 | 4 | |
| Retail sale of ICT equipment in specialised stores | 3 | 1 | 6 | Other telecommunications activities |
| Retail sale of other household equipment in specialised stores | 4 | 0 | 6 | |
| Retail sale of cultural and recreation goods in specialised stores | 5 | 0 | 5 | |
| Retail sale of other goods in specialised stores | 4 | 0 | 6 | |
| Retail sale via stalls and markets | 7 | 0 | 3 | |
| Retail trade not in stores, stalls or markets | 5 | 0 | 5 | |
| Passenger rail transport, interurban | 1 | 0 | 9 | |
| Other passenger land transport | 2 | 2 | 6 | Freight transport by road and removal services; warehousing and storage |
| Sea and coastal passenger water transport | 6 | 0 | 4 | |
| Inland passenger water transport | 1 | 1 | 8 | Freight transport by road and removal services |
| Passenger air transport | 3 | 1 | 6 | Freight transport by rail |
| Hotels and similar accommodation | 4 | 0 | 6 | |
| Holiday and other short-stay accommodation | 4 | 1 | 5 | Other telecommunications activities |
| *Camping grounds, recreational vehicle parks and trailer parks* | 4 | 0 | 6 | |
| Other accommodation | 5 | 0 | 5 | |
| Restaurants and mobile food service activities | 7 | 0 | 3 | |
| Event catering and other food service activities | 7 | 0 | 3 | |
| Beverage serving activities | 6 | 0 | 4 | |
| Travel agency and tour operator activities | 1 | 1 | 8 | Other information service activities |
| Other reservation service and related activities | 5 | 1 | 4 | Wireless telecommunications activities |
| Organización de convenciones y ferias de muestras | 4 | 1 | 5 | Wired telecommunications activities |
| Creative, arts and entertainment activities | 1 | 1 | 8 | Publishing of books, periodicals and other publishing activities |
| Libraries, archives, museums and other cultural activities | 5 | 0 | 5 | |
| Gambling and betting activities | 4 | 1 | 5 | Sea and coastal freight water transport |
| Sports activities | 4 | 1 | 5 | Wired telecommunications activities |
| Amusement and recreation activities | 2 | 1 | 7 | Other telecommunications activities |
| Activities of other membership organisations | 1 | 2 | 7 | Wired telecommunications activities; wireless telecommunications activities |

**SOURCES:** Banco de España, based on the 2018 LFS (INE) and the PIAAC (OECD, 2013).

are similar to those required in freight transport by road and removal services, freight transport by rail, and warehousing and storage activities.

In accommodation and food service activities, as was the case in wholesale and retail trade, there is much similarity between sectors and the alternatives are scarce among those which could improve in the current circumstances. Once again, the exception appears to be workers from firms where ICTs are significant, such as, for instance, holiday and other collective accommodation, which could find alternatives in other telecommunications activities as their knowledge of ICTs is broader. Likewise, if trade in food products were to become more significant, in line with recent changes in the household consumption basket, it could attract accommodation and food service activity professionals, since the tasks involved are relatively similar.

Tasks carried out in services related to package tours generally require skills that are also intensive in the information and communication sectors. Specifically, there are skills that are useful and similar to those in demand in other information services and in wireless telecommunications activities.

Lastly, as occurs with travel services, creative arts and entertainment activities are similar, in terms of tasks, to some information and communication sectors as regards the use of new technologies. Specifically, tasks carried out in publishing of books, periodicals and other publishing activities, and in wireless, cable and other telecommunications activities appear to have notable similarities.

In short, the previous analysis reveals that there is a group of sectors potentially more affected by the crisis, particularly in accommodation and food service activities and in wholesale and retail trade, given the limited intensity of use of tasks related to ICTs, writing, reading and numerical skills. Conversely, there appear to be more alternatives for workers from the transport, package tour and leisure and recreational activities sectors, given the types of skills they develop. These employability problems which may arise for a significant portion of workers urgently require strengthening the public employment service. In particular, there is substantial consensus about the positive impact a case-by-case guidance would have as an active policy. If such individualised guidance were not possible for all the unemployed, in order to at least complement it, it is necessary to make progress in profiling techniques for unemployed persons and vacancies and to foster active job search assistance and, if necessary, specialised training.[14]

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14   See Card, D. et al (2009) assessing the effectiveness of assistance in active job searching and, at medium term, in training. For profiling techniques see Felgueroso et al (2018).

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