**Appendixes**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Appendix A. Report on missing values in the databases developed in relation to the original data** | | | | | | |
|  | **2013** | | | **2019** | | |
| **Country** | **Database with NA** | **Database without NA** | **Loss** | **Database with NA** | **Database without NA** | **Loss** |
| Italy | 1528 | 1445 | 83 | 1498 | 1399 | 99 |
| Spain | 1474 | 1365 | 109 | 1477 | 1347 | 130 |
| Portugal | 1002 | 938 | 64 | 973 | 902 | 71 |
| Greece | 1001 | 861 | 140 | 501 | 462 | 39 |
|  | | | | | | |
| **Employee Rep** | | | | | | |
| Not present | 3648 | 3349 | 299 | 3156 | 2922 | 234 |
| Present | 1357 | 1260 | 97 | 1293 | 1188 | 105 |
|  | | | | | | |
| **Sector** | | | | | | |
| Industry | 1785 | 1683 | 102 | 1511 | 1398 | 113 |
| Construction | 381 | 349 | 32 | 351 | 322 | 29 |
| Commerce | 1287 | 1185 | 102 | 1173 | 1089 | 84 |
| Transp. and comm. | 348 | 324 | 24 | 546 | 509 | 37 |
| Financial | 128 | 122 | 6 | 82 | 70 | 12 |
| Others | 1008 | 946 | 62 | 786 | 722 | 64 |
| NA | 68 |  | 68 |  |  | 0 |
|  | | | | | | |
| **Size** | | | | | | |
| From 10 to 49 | 2760 | 2518 | 242 | 2841 | 2609 | 232 |
| From 50 to 249 | 1514 | 1402 | 112 | 1194 | 1108 | 86 |
| More than 250 | 731 | 689 | 42 | 414 | 393 | 21 |
|  | | | | | | |
| **Multi-empl. agree** | | | | | | |
| No | 1165 | 1109 | 56 | 1015 | 983 | 32 |
| Yes | 3707 | 3500 | 207 | 3337 | 3127 | 210 |
| NA | 133 |  | 133 | 97 |  | 97 |
|  | | | | | | |
| **Single-empl. agree** | | | | | | |
| No | 2905 | 2765 | 140 | 3289 | 3205 | 84 |
| Yes | 1984 | 1844 | 140 | 945 | 905 | 40 |
| NA | 116 |  | 116 | 215 |  | 215 |
|  | | | | | | |
| **Ev. employment** | | | | | | |
| Increased | 1153 | 1070 | 83 | 2024 | 1881 | 143 |
| Decreased | 2019 | 1874 | 145 | 450 | 420 | 30 |
| Remained same | 1819 | 1665 | 154 | 1960 | 1809 | 151 |
| NA | 14 |  | 14 | 15 |  | 15 |
|  | | | | | | |
| **Prop. temp work** | | | | | | |
| <20% | 349 | 326 | 23 | 308 | 285 | 23 |
| 20% a 39% | 183 | 171 | 12 | 177 | 168 | 9 |
| >=40% | 4429 | 4112 | 317 | 3917 | 3657 | 260 |
| NA | 44 |  | 44 | 47 |  | 47 |
|  | | | | | | |
| **Prop. part-time work** | | | | | | |
| <20% | 4224 | 3929 | 295 | 3703 | 3480 | 223 |
| 20% a 39% | 317 | 290 | 27 | 341 | 324 | 17 |
| >=40% | 432 | 390 | 42 | 327 | 306 | 21 |
| NA | 32 |  | 32 | 78 |  | 78 |
|  | | | | | | |
| **Empl. membership** | | | | | | |
| No | 2891 | 2730 | 161 | 3151 | 2946 | 205 |
| Yes | 1969 | 1879 | 90 | 1244 | 1164 | 80 |
| NA | 145 |  | 145 | 54 |  | 54 |
| Source: ECS 2013 and 2019 | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Appendix B. Comparison of** **percentages of the responses with and without missing values for each of the categories** | | | | |
|  | **2013** | | **2019** | |
| **Country** | **Database with NA** | **Database without NA** | **Database with NA** | **Database without NA** |
| Italy | 30.5 | 31.4 | 33.7 | 34 |
| Spain | 29.5 | 29.6 | 33.2 | 32.8 |
| Portugal | 20 | 20.4 | 21.9 | 21.9 |
| Greece | 20 | 18.7 | 11.3 | 11.2 |
|  |  |  |  |  |
| **Employee Rep** | |  |  |  |
| No present | 72.9 | 72.7 | 70.9 | 71.1 |
| Present | 27.1 | 27.3 | 29.1 | 28.9 |
|  |  |  |  |  |
| **Sector** |  |  |  |  |
| Industry | 36.2 | 36.5 | 34 | 34 |
| Construction | 7.7 | 7.6 | 7.9 | 7.8 |
| Commerce | 26.1 | 25.7 | 26.4 | 26.5 |
| Transp. and comm. | 7 | 7 | 12.3 | 12.4 |
| Financial | 2.6 | 2.6 | 1.8 | 1.7 |
| Others | 20.4 | 20.5 | 17.7 | 17.6 |
|  |  |  |  |  |
| **Size** |  |  |  |  |
| From 10 to 49 | 55.1 | 54.6 | 63.9 | 63.5 |
| From 50 to 249 | 30.2 | 30.4 | 26.8 | 27 |
| More than 250 | 14.6 | 14.9 | 9.3 | 9.6 |
|  |  |  |  |  |
| **Multi-empl. agree** | |  |  |  |
| No | 23.9 | 24.1 | 23.3 | 23.9 |
| Yes | 76.1 | 75.9 | 76.7 | 76.1 |
|  |  |  |  |  |
| **Single-empl. agree** | |  |  |  |
| No | 59.4 | 60 | 77.7 | 78 |
| Yes | 40.6 | 40 | 22.3 | 22 |
|  |  |  |  |  |
| **Ev. employment** |  |  |  |  |
| Increased | 23.1 | 23.2 | 45.6 | 45.8 |
| Decreased | 40.5 | 40.7 | 10.1 | 10.2 |
| Remained same | 36.4 | 36.1 | 44.2 | 44 |
|  |  |  |  |  |
| **Prop. temp work** | |  |  |  |
| <20% | 7 | 7.1 | 7 | 6.9 |
| 20% a 39% | 3.7 | 3.7 | 4 | 4.1 |
| >=40% | 89.3 | 89.2 | 89 | 89 |
|  |  |  |  |  |
| **Prop. part-time work** | |  |  |  |
| <20% | 84.9 | 85.2 | 84.7 | 84.7 |
| 20% a 39% | 6.4 | 6.3 | 7.8 | 7.9 |
| >=40% | 8.7 | 8.5 | 7.5 | 7.4 |
|  | | | | |
| Empl. membership | | | | |
| No | 59.9 | 59.2 | 71.7 | 71.7 |
| Yes | 40.5 | 40.8 | 28.3 | 28.3 |
| Source: ECS 2013 and 2019 | | | | |

**Appendix C. Processing and treatment of data**

The responses selected are those that do not have missing values for any of the variables under consideration in the studies corresponding to Southern European countries (Italy, Spain, Portugal and Greece), for both 2013 and 2019. The base for 2013 is 4,609 responses and that for 2019 is 4,110 responses.

In order to construct the models, it has been necessary to carry out pre-processing of both databases. This has been done with the intention of both databases having the same categories.

1. Country variable: this has not required pre-processing. It has been taken directly from the downloaded databases.
2. Employee representative variable:

|  |  |  |
| --- | --- | --- |
| **2013 database (original)** | **2019 database (original)** | **Homogenized 2013 and 2019 databases** |
| Present | Trade union representation  Trade union representative/shop steward  Works council  Public sector equivalent of works council  Non-union staff representation  Non-union staff representative  Other country-specific bodies  Other country-specific individuals | Present |
| Not present | No ER present | Not present |

1. Sector variable:

|  |  |  |
| --- | --- | --- |
| **2013 database (original)** | **2019 database (original)** | **Homogenized 2013 and 2019 databases** |
| Industry | B. Mining and Quarrying  C. Manufacturing  D. Electricity, Gas, Steam and Air Conditioning supply  E. Water supply, Sewage, Waste Management and Remediation activities. | Industry |
| Construction | F. Construction | Construction |
| Commerce and hospitality | G. Wholesale and retail trade, Repair of motor vehicles and motorcycles  I. Accommodation and food service activities | Commerce and hospitality |
| Transport and communication | H. Transportation and storage  J. Information and communication | Transport and communication |
| Financial services and real estate | K. Financial and insurance activities  L. Real Estate activities | Financial services and real estate |
| Other services (with public services: O. Public administration and defence, Compulsory social security  P. Education  Q. Human health and Social Work activities) | M. Professional, Scientific and Technical activities  N. Administrative and support service activities  R. Arts, entertainment and recreation  S. Other service activities  (without public services: O. Public administration and defence, Compulsory social security  P. Education  Q. Human health and Social Work activities) | Other services with public services in 2013; Other services without public services in 2019. |

1. Company size variable:

|  |  |  |
| --- | --- | --- |
| **2013 database (original)** | **2019 database (original)** | **Homogenized 2013 and 2019 databases** |
| 10-49 | 0-9 or No size provided  Small (10-49) | 10-49 |
| 50-249 | Medium (50-99, 50-199 or 50-249) | 50-249 |
| 250+ | Large (100+, 200+ or 250+) | 250+ |

1. Multi-employer agreement variable: this variable was created on the basis of the national, sectoral and regional agreement variables, present in the two initial databases. The multi-employer agreement variable has two values: Yes or No. It has the Yes value if at least one of the three variables it was created from has this value.
2. Single-employer agreement variable: this variable was created on the basis of the company and specific (occupation) variables, already present in both databases. The single-employer agreement variable has two values: Yes or No. It has the Yes value if at least one of the two variables it was created from has this value..
3. Evolution of employment variable: this variable has not required pre-processing, the categories are coincident.
4. Temporary work variable:

|  |  |  |
| --- | --- | --- |
| **2013 database (original)** | **2019 database (original)** | **Homogenized 2013 and 2019 databases** |
| None at all  Less than 20% | None at all  Less than 20% | < 20% |
| 20% to 39% | 20% to 39% | 20% to 39% |
| 40% to 59%  60% to 79%  80% to 99%  All | 40% to 59%  60% to 79%  80% to 99%  All | >= 40% |

1. Part-time work variable:

|  |  |  |
| --- | --- | --- |
| **2013 database (original)** | **2019 database (original)** | **Homogenized 2013 and 2019 databases** |
| None at all  Less than 20% | None at all  Less than 20% | < 20% |
| 20% to 39% | 20% to 39% | 20% to 39% |
| 40% to 59%  60% to 79%  80% to 99%  All | 40% to 59%  60% to 79%  80% to 99%  All | >= 40% |

**Appendix D. Association between variables of interest and EO membership for the years 2013 and 2019**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **AFFILIATION OF COMPANIES** |  |  | **2013** | | | |  |  |  | **2019** | | | |  |
|  |  | **NO** | | **YES** | |  |  |  | **NO** | | **YES** | |  |
|  |  | **Cases** | **Percentage** | **Cases** | **Percentage** | **Chi-square** |  |  | **Cases** | **Percentage** | **Cases** | **Percentage** | **Chi-square** |
| **Cases** | 4609 | 100% | 2730 | 59.23% | 1879 | 40.77% |  | 4110 | 100% | 2946 | 71.68% | 1164 | 28.32% |  |
| **COUNTRY** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Greece* | 861 | 18.68% | 620 | 72.01% | 241 | 27.99% | 50.282\*\* | 462 | 11.24% | 420 | 90.91% | 42 | 9.09% | 60.341\*\* |
| *Italy* | 1445 | 31.35% | 698 | 48.30% | 747 | 51.70% | 1399 | 34.04% | 953 | 68.12% | 446 | 31.88% |
| *Portugal* | 938 | 20.35% | 610 | 65.03% | 328 | 34.97% | 902 | 21.95% | 623 | 69.07% | 279 | 30.93% |
| *Spain* | 1365 | 29.62% | 802 | 58.75% | 563 | 41.25% | 1347 | 32.77% | 950 | 70.53% | 397 | 29.47% |
| **UNION REPRESENTATION** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Not present* | 3349 | 72.66% | 2158 | 64.44% | 1191 | 35.56% | 77.761\*\* | 2922 | 71.09% | 2315 | 79.23% | 607 | 20.77% | 202.404\*\* |
| *Present* | 1260 | 27.34% | 572 | 45.40% | 688 | 54.60% | 1188 | 28.91% | 631 | 53.11% | 557 | 46.89% |
| **COLLECTIVE BARGAINING**  **CAMULTIEMP** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *No* | 1109 | 24.06% | 798 | 71.96% | 311 | 28.04% | 26.301\*\* | 983 | 23.92% | 852 | 86.67% | 131 | 13.33% | 107.511\*\* |
| *Yes* | 3500 | 75.94% | 1932 | 55.20% | 1568 | 44.80% | 3127 | 76.08% | 2094 | 66.97% | 1033 | 33.03% |
| **COLLECTIVE BARGAINING**  **CAUNIEMP** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *No* | 2765 | 59.99% | 1733 | 62.68% | 1032 | 37.32% | 33.100\*\* | 3205 | 77.98% | 2389 | 74.54% | 816 | 25.46% | 32.839\*\* |
| *Yes* | 1844 | 40.01% | 997 | 54.07% | 847 | 45.93% | 905 | 22.02% | 557 | 61.55% | 348 | 38.45% |
| **COMPANY SIZE** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *10-49* | 2518 | 54.63% | 1733 | 68.82% | 785 | 31.18% | 169.180\*\* | 2609 | 63.48% | 2057 | 78.84% | 552 | 21.16% | 81.599\*\* |
| *50-249* | 1402 | 30.42% | 748 | 53.35% | 654 | 46.65% | 1108 | 26.96% | 684 | 61.73% | 424 | 38.27% |
| *250+* | 689 | 14.95% | 249 | 36.14% | 440 | 63.86% | 393 | 9.56% | 205 | 52.16% | 188 | 47.84% |
| **SECTOR** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Commerce and hospitality* | 1185 | 25.71% | 787 | 66.41% | 398 | 33.59% | 48.735\*\* | 1089 | 26.50% | 834 | 76.58% | 255 | 23.42% | 37.741\*\* |
| *Construction* | 349 | 7.57% | 229 | 65.62% | 120 | 34.38% | 322 | 7.83% | 238 | 73.91% | 84 | 26.09% |
| *Financial services* | 122 | 2.65% | 48 | 39.34% | 74 | 60.66% | 70 | 1.70% | 41 | 58.57% | 29 | 41.43% |
| *Industrial* | 1683 | 36.52% | 927 | 55.08% | 756 | 44.92% | 1398 | 34.01% | 902 | 64.52% | 496 | 35.48% |
| *Transport and communication* | 324 | 7.03% | 166 | 51.23% | 158 | 48.77% | 509 | 12.38% | 385 | 75.64% | 124 | 24.36% |
| *Other services* | 946 | 20.53% | 573 | 60.57% | 373 | 39.43% | 722 | 17.57% | 546 | 75.62% | 176 | 24.38% |
| **EVOLUTION OF EMPLOYMENT IN THE COMPANY OVER THE LAST 3 YEARS** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Decreased* | 1874 | 40.66% | 1087 | 58.00% | 787 | 42.00% | 3.378 | 420 | 10.22% | 278 | 66.19% | 142 | 33.81% | 11.119\*\* |
| *Increased* | 1070 | 23.22% | 619 | 57.85% | 451 | 42.15% | 1881 | 45.77% | 1362 | 72.41% | 519 | 27.59% |
| *Stayed about the same* | 1665 | 36.12% | 1024 | 61.50% | 641 | 38.50% | 1809 | 44.01% | 1306 | 72.19% | 503 | 27.81% |
| **TEMPORARY EMPLOYMENT IN THE COMPANY** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Less than 20% of staff* | 326 | 7.07% | 206 | 63.19% | 120 | 36.81% | 16.486\*\* | 285 | 6.93% | 206 | 72.28% | 79 | 27.72% | .393 |
| *20% to 39%* | 171 | 3.71% | 117 | 68.42% | 54 | 31.58% | 168 | 4.09% | 118 | 70.24% | 50 | 29.76% |
| *>=40%* | 4112 | 89.22% | 2407 | 58.54% | 1705 | 41.46% | 3657 | 88.98% | 2622 | 71.70% | 1035 | 28.30% |
| **PART-TIME EMPLOYMENT IN THE COMPANY** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Less than 20% of staff* | 3929 | 85.25% | 2329 | 59.28% | 1600 | 40.72% | 2.881 | 3480 | 84.67% | 2497 | 71.75% | 983 | 28.25% | 5.700 |
| *20% to 39%* | 290 | 6.29% | 162 | 55.86% | 128 | 44.14% | 324 | 7.88% | 233 | 71.91% | 91 | 28.09% |
| *>=40%* | 390 | 8.46% | 239 | 61.28% | 151 | 38.72% | 306 | 7.45% | 216 | 70.59% | 90 | 29.41% |

\*\*p<.01