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***Desk research report on telework in Portugal:
outcomes of the Deep View Project***

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Desk research report on telework in Portugal: outcomes of the Deep View Project

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Abstract: Despite early legislation supporting telework contracts in 2003, virtual work is still not expressive in the labour market. The current labour minister stated that the government encourages the topic to be discussed through social dialogue and collective bargaining. Virtual work received little consideration from the social partners in social dialogue. Collective agreements considering virtual work were also meagre and mostly repeated parts of the labour law emphasizing the improvements of working conditions. We detected collective bargaining outputs in the computer programming activities and two company agreements in the health care sector but did not find any convention mentioning telework in the finance sector.

Keywords: virtual; work; telework; trade unions; industrial relations; labour

JEL codes: J5; J2; J3; J8; O33

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1. Incidence and trends of virtual work in the country

Statistics about telework in Portugal are as discrepant as its concept. According S. dos S. Gil (2015), statistics about the incidence of telework may not take into account the distinction between subordinate and independent teleworkers; may not cover teleworkers at home; may account for only those who telework all the time; and may exclude the mixed formulas (the most frequent). Several reasons may account for this discrepancies, such as lack of political will, inefficiencies of the statistical system, strategic and competitive factors of companies, as well as workers' fiscal interest (S. dos S. Gil 2015). Nevertheless, we will report on the data found in the two main periods of data collection for statistical purposes found about Portugal: the early period of 2000 to 2005 and, later, the period from 2010 to 2016.

From 2000 to 2005

The earliest data about the incidence of virtual work in Portugal is concentrated in the period of 2000 to 2005. In this period, five main results were found to characterize this type of work:

- In 2000, there was 1% of workers involved in telework from home all the time, and 2% at least ¼ of the time (Paoli and Merllié 2001).
- In 2001, the telework activity, regularly or occasionally, involved 1.8% of the 29% of population that used a computer, according to the first national survey that collected data about virtual work (Instituto Nacional de Estatística 2002).
- In 2005, there was 2,1% of workers working in telework from home (Parent-Thirion et al. 2007).
- In 2005, 1,8% of the workers were involved in telework at least 'a quarter of the time' or more, and 0,5% were involved in telework 'almost all of the time' (Eurofound 2010, 5).¹ These percentages of workers were significantly low when compared to the European average of 7% and 1.7%, respectively.
- Between 2000 and 2005, there was a decreasing trend in terms of telework usage in Portugal (Eurofound 2010).

¹ The workers responded to the question "Does your main paid job involve: telework from home with a PC?" of the European Working Conditions Survey in 2005.

From 2010 to 2016

Portugal has been categorized in the group of countries made up of eastern and southern Member States (with Bulgaria, Hungary, Italy and Romania) with very low levels of telework and with a percentage of less than 3% (Eurofound 2010). The country also revealed a decreasing trend in terms of telework usage with four other countries (i.e. Bulgaria, Cyprus, Luxembourg and Romania) (Eurofound 2010).

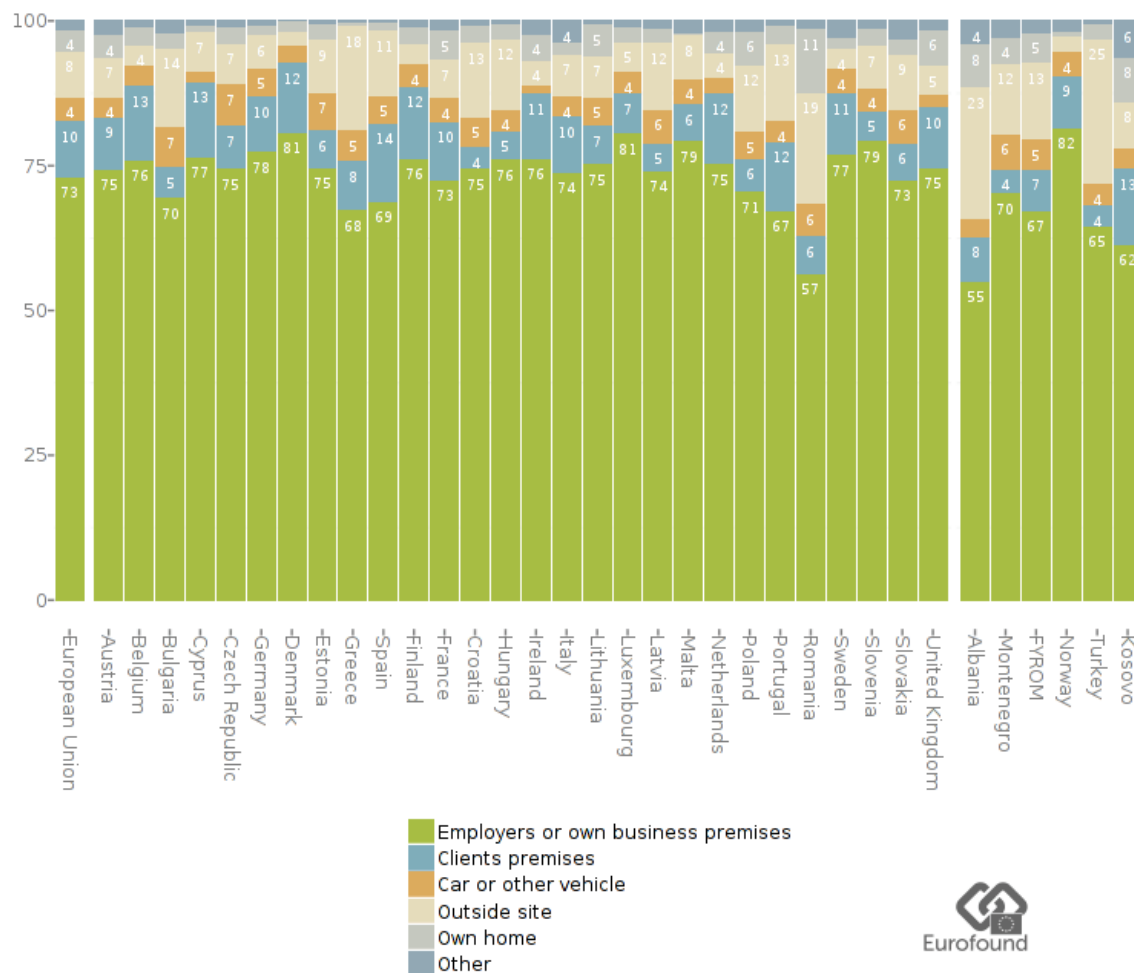
There is additional indirect information about the incidence and trend of virtual work in Portugal for the period between 2010 and 2016. These datasets are based on indicators collected in two surveys: the European Working Conditions Survey (EWCS) in 2010 and 2016; and *Quadros de Pessoal* (Personnel Records) dataset collected by the Statistical Department of the Ministry of Labour and Social Solidarity in 2010 and 2016. These datasets allow the analysis of four main indicators to characterize virtual work: the (i) place of work, (ii) mobility of workers, (iii) ICT usage in work and (iv) telework contracts.²

(i) Place of work

In 2010, the EWCS 2010 collected data about the main place of work in major European countries.

² These indicators can be used to characterize the incidence and trends of virtual work, as the definition adopted by the project Deep View about virtual work is a comprehensive concept, which involves different locations outside the 'employers' premises' and different degrees of mobility, as far as they entail a frequent use of ICT for the purpose of work.

Figure 1- Percentages of the people per answers according to locations as their main place of work in 2010 in EU and other countries



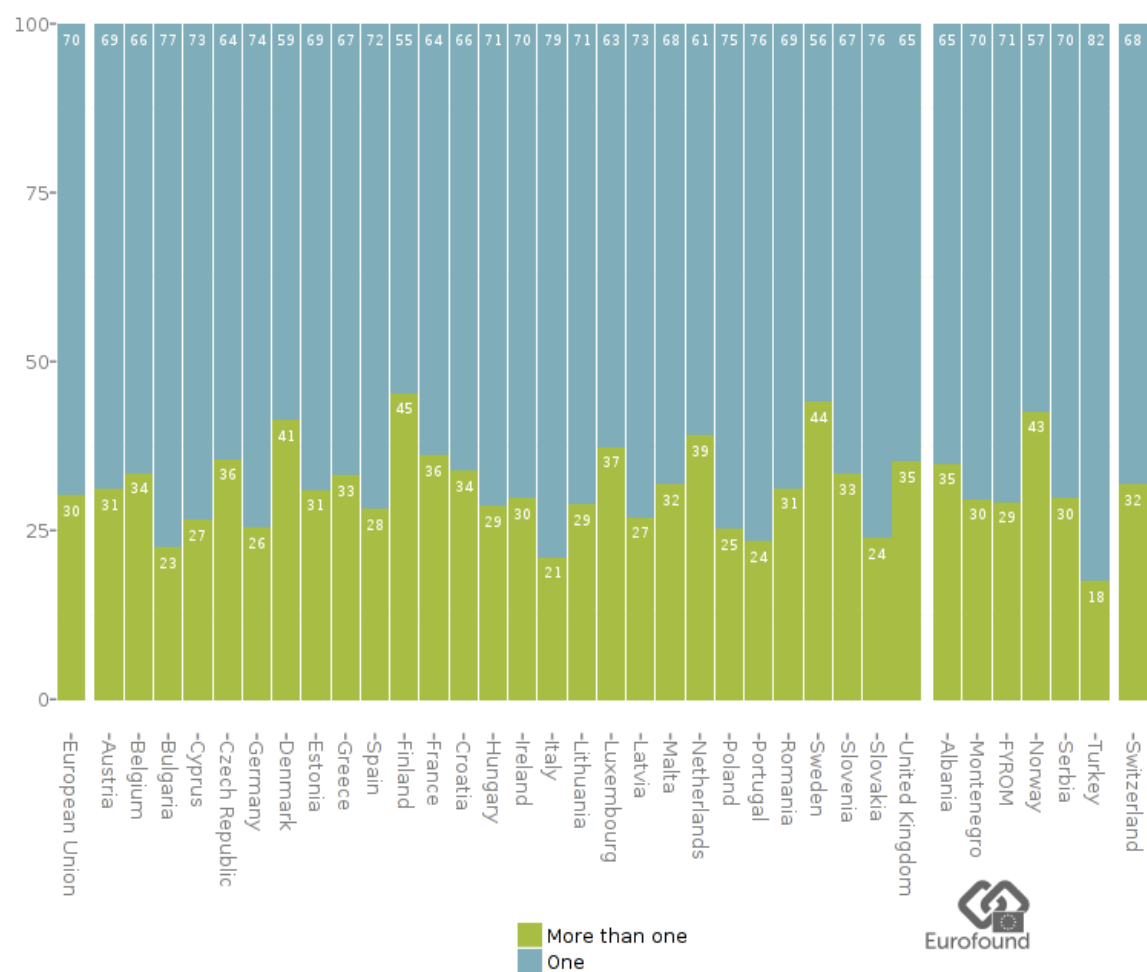
Source: European Working Conditions Survey 2010

In 2010, 33% of the workers reported other locations as their main place of work (other than the employer's premises) such as clients' premises (12%), car or other vehicle (4%), outside site (13%), own home (3%) and other (1%).³ This is the second highest rate of other locations (than employer premises) in the

³ In the figure, we see the percentages of the people per answers when asked 'Where is your main place of work?'.

European Union, after Romania. The EU27 average is 23%. Conversely, 67% reported working mainly in their employer's premises. Thus, in 2010 the proportion of Portuguese workers that identified other places of work was relatively high in the European context. In 2015, the EWCS collected data about workers with one or more work locations.

Figure 2 - Percentages of the people per answers that considered having one or more than one location of work in 2015 in EU and other European countries



Source: European Working Conditions Survey 2015

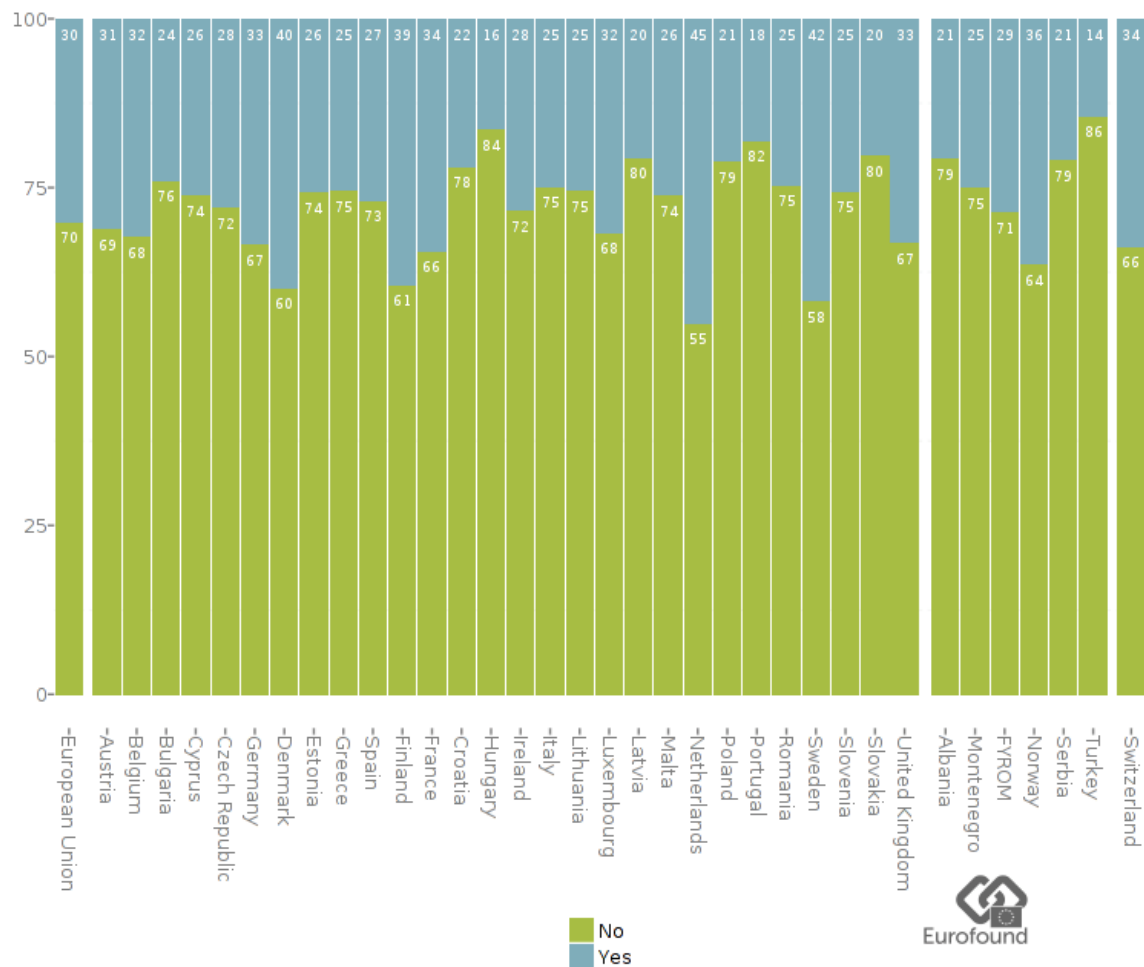
In 2015, 24% of workers considered having more than one work location. The EU27 average was at 30%. Portugal belonged to a group of four countries (with Italy, Bulgaria and Slovenia) where the number of workers with more than one location was lower. Thus, in 2015, the proportion of workers indicating to have more than one location was significantly low.

It can be concluded that there was a declining trend in places of work in the period of 2010 to 2015: in 2010, 33% identified other places of work; and, in 2015, only 24% indicated to have more than one work location.

(ii) Mobility of workers

In 2015, the EWCS also collected data about the work mobility.

Figure 3 - Percentages of the people per answers that considered that their work did not involve visiting customers, patients, clients or working at their premises or in their home in 2015 in EU and other European countries



Source: European Working Conditions Survey 2015

In 2015, 82% of workers considered that their work did not involve visiting customers, patients, clients or working at their premises or in their home. Portugal had the second highest response after Hungary. The EU27 average was at 70%. Thus, there was a significantly high proportion of Portuguese workers considering that their work did not involve visiting customers, patients, clients or working at their premises or in their home in 2015.

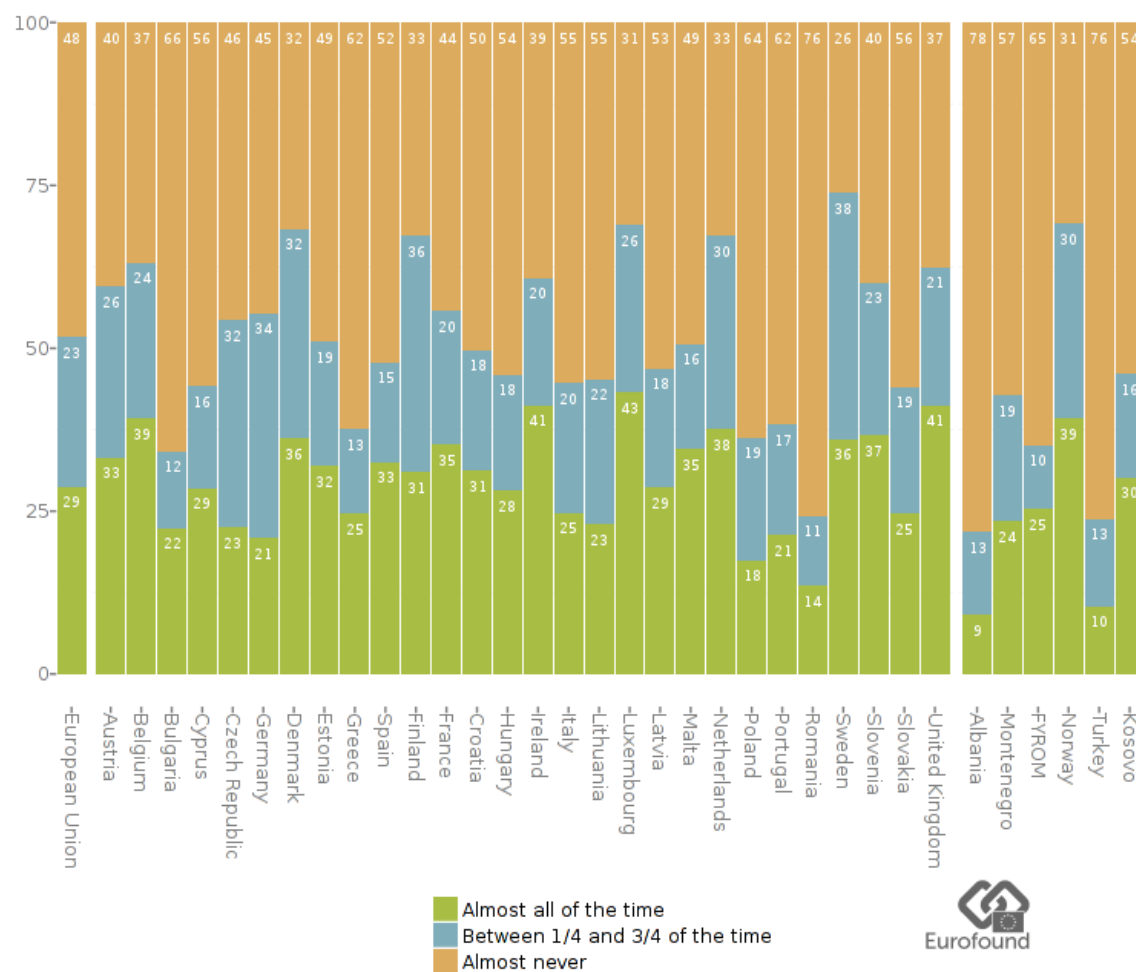
From 2010 to 2015, there was a growing trend in mobility of workers: In 2010, 67% reported working in their employer's premises (as shown in Figure 1); and,

in 2015, 82% of workers considered that their work did not involve visiting customers, patients, clients or working at their premises or in their home.

(iii) ICT usage

The following figure presents data about the frequency of work with ICT in 2010.

Figure 4 - Percentages of the people per answers when asked 'Does your work involve working with computers?' in 2010 in EU and other countries

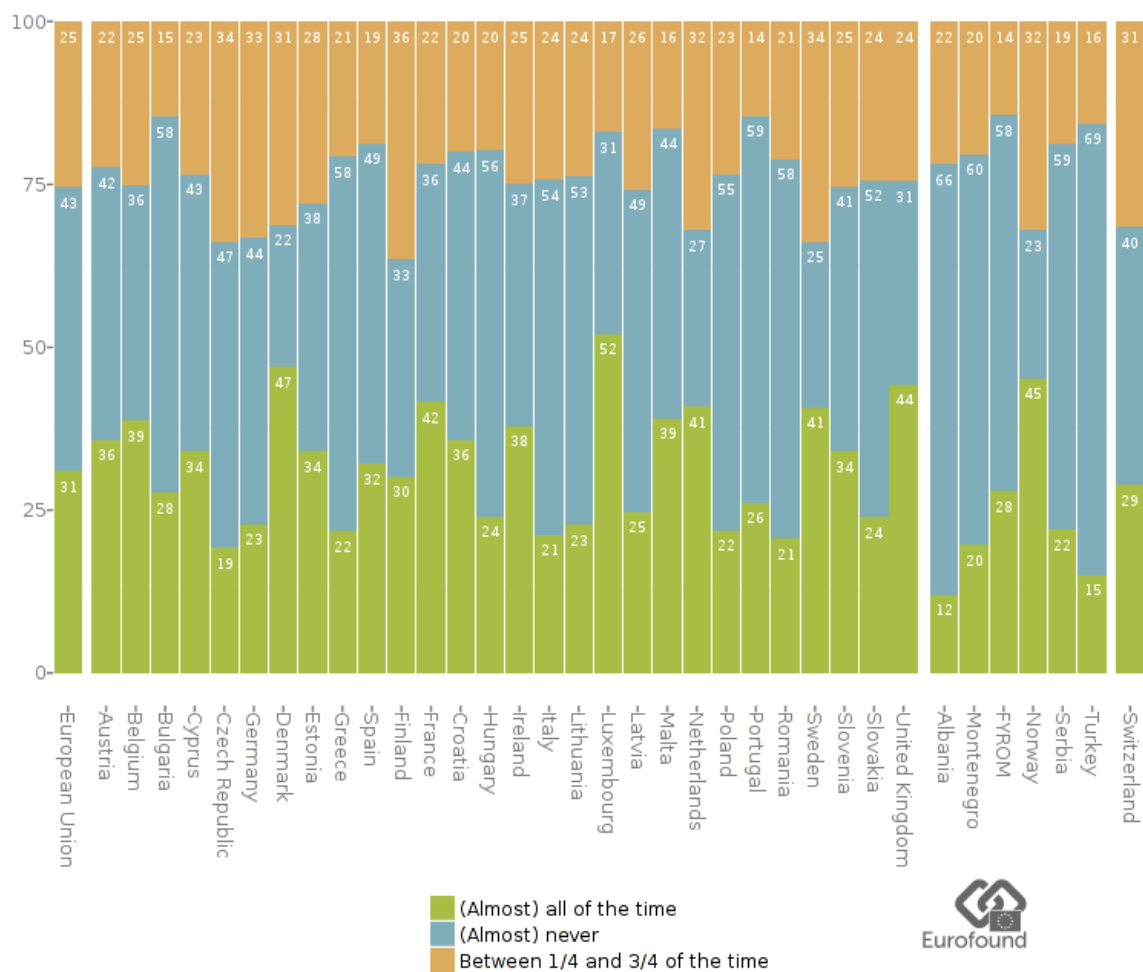


Source: European Working Conditions Survey 2010

The figure reveals that, in 2010, 62% of the workers considered that they were almost never involved with work with computers. The EU27 average was 48%. Furthermore, only 17% involved this type of work between $\frac{1}{4}$ and $\frac{3}{4}$ of the time. The EU27 average was 23%. In addition, 14% indicated to be almost all of the

time involved working with computers. The EU27 average was 29%. Therefore, in 2010 there was a low proportion of time with work that involved computers. In 2015, the EWCS also collected data about the work involving computers, laptops, smartphones, etc.⁴

Figure 5 - Percentages of the people per answers when asked about intensity of involving work with computers, laptops, smartphones, etc. in 2015 in EU and other countries



Source: European Working Conditions Survey 2015

⁴ The literal question was 'Does your work involve working with computers, laptops, smartphones, etc.?'

The figure reveals that, in 2015, 59% of the workers were (almost) never involved working with computers, laptops, smartphones, etc. This was the highest proportion in the EU context. The EU27 average was 43%. Furthermore, only 14% were involved in this type of work between $\frac{1}{4}$ and $\frac{3}{4}$ of the time. This proportion was the lowest in the EU context. The EU27 average was 25%. In addition, 26% indicated to be (almost) all of the time involved working with computers, laptops, smartphones, etc. The EU27 average was 31%. Therefore, in 2015, there was a low proportion of time with work involving computers, laptops, smartphones, etc.

In sum, Portuguese workers revealed a low percentage of work with ICT when compared to their European Union colleagues. However, there was a growing trend in ICT-usage from 2010 to 2015: the trend declined among those who never use ICT (62% to 59%) and among those who used between $\frac{1}{4}$ and $\frac{3}{4}$ of the time (23% to 14%); and the trend increased among those who used (almost) all of the time (14% to 26%).

(iv) Telework contracts

The telework contracts are a form of labour contracts specific to develop virtual work. This type of contracts does not account for the workers who have a regular contract and are involved with virtual work or those who are self-employed. The former and the latter have been recently considered significant in Portugal (Sousa 2016; Gil 2015; Eurofound 2015), but are both outside Deep View's definition of virtual work. The following table presents data collected in Portuguese organizations about the existence of formal contracts of telework in year of 2010 and 2016.

Table 1 – Incidence and trends of virtual work in Portugal from 2010 to 2016, by type of contract

Type of contract	2010		2016	
	Number	%	Number	%
Open-ended contract	1 932 900		1 757 787	
Open-ended contract to provide subordinated telework	2 302	95%	703	83%
Fixed-term contract	483 767		633 632	
Fixed-term contract to provide subordinated telework	87	4%	118	14%
Uncertain-term contract	79 222		145 154	
Uncertain-term contract to provide subordinated telework	42	2%	30	4%
Total	2 599 509	100%	2 641 919	100%
Total of telework contract	2 431	0,09%	851	0,03%

Note: Data for continental Portugal

Source: Quadros do pessoal (Gabinete de Estratégia e Planeamento 2012, 2018)

The table reveals that in 2016 around 0,03% of the contracts were of telework. In this year, 83% of the telework contracts were open-end contracts of telework, 14% were fixed-term contracts and 4% were of uncertain-term contracts. The table also shows a declining trend in the total of telework contracts from 0,09% in 2010 to 0,03% in 2016.

In conclusion, the available data about virtual work in the period of 2000 to 2005 and place of work, mobility of work, ICT usage and contracts of telework in the period of 2010 and 2016, suggests that virtual work was never very significant in Portugal. Furthermore, an analysis of period 2010 to 2015-6 reveals a declining trend in both contracts of telework and places of work. In the same period, increasing trends were detected in relation to the mobility of workers and their ICT-usage, which might indicate a potential to increase the use of virtual work.

The following table presents data about telework contracts broken by gender in 2016.

Table 2 – Number and distribution of contracts by type of contract and by gender in 2010 and 2016

Ano	Sex	Open-ended contract		Open-ended contract to provide subordinated telework		Fixed-term contract		Fixed-term contract to provide subordinated telework		Uncertain-term contract		Contrato de trabalho para prestação subordinada de teletrabalho com termo incerto		Total		Total of telework contract	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
2010	Female	888 785	46%	1 004	44%	233 595	48%	31	36%	28 698	36%	21	50%	1 194 727	46%	1 056	43%
	Male	1 044 115	54%	1 298	56%	250 172	52%	56	64%	50 524	64%	21	50%	1 404 782	54%	1 375	57%
2016	Female	861 285	49%	296	42%	309 176	49%	49	42%	58 208	40%	10	33%	1 274 214	49%	355	42%
	Male	896 499	51%	407	58%	324 454	51%	69	58%	86 946	60%	20	67%	1 367 705	52%	496	58%

Note: Data for continental Portugal

Source: Quadros do pessoal (Gabinete de Estratégia e Planeamento 2018)

The table shows that, in 2016, 42% of workers with telework contracts were females. The lowest percentage of females was found in uncertain-term contracts of telework with 33%, down from 40% in general uncertain-term contracts for females. Furthermore, the table also reveals a minor declining trend of females in telework contracts, as 43% of females had a telework contract in 2010 and, in 2016, 42% had this type of contracts. The following table presents data broken by contractual status in 2016.

Table 3- Number and distribution of contract by type of contracts in 2016

Type of contract	Total	
	Number	%
Open-ended contract	1 757 787	
Open-ended contract to provide subordinated telework	703	0,04%
Fixed-term contract	633 632	
Fixed-term contract to provide subordinated telework	118	0,02%
Uncertain-term contract	145 154	
Uncertain-term contract to provide subordinated telework	30	0,02%
Total	2 641 919	
Total of telework contract	851	0,03%

Note: Data for continental Portugal

Source: Quadros de pessoal (Gabinete de Estratégia e Planeamento 2018)

The table shows that the incidence of telework contracts in 2016 was 0,03%. In this year, the highest incidence of telework contracts was among the open-ended with 0,04%, followed by the fix-term and uncertain-term both with 0,02%.

As mentioned before, a Eurofound (2015) study identified a significant trend in ICT-based mobile work in Portugal (along with Belgium, Cyprus, Denmark, Lithuania, Spain and Sweden) generally involving the self-employed. However, this type of workers without the status of employees are outside the scope of Deep View.

The following table presents data about the incidence of work of those who engaged frequently in different work locations (other than employer's premises) where virtual work can occur broken by **occupation of workers** (ISCO classification) in Portugal.

Table 4 – Frequent work in other places than employers' premises by ISCO in 2015 in Portugal

Different work locations	Daily + Several times a week
Armed forces occupations, other ranks	52%
Drivers and mobile plant operators	35%
Production and specialised services managers	26%
Building and related trades workers, excluding electricians	26%
Market-oriented skilled agricultural workers	25%
Agricultural, forestry and fishery labourers	25%
Labourers in mining, construction, manufacturing and transpo	25%
Information and communications technicians	24%
Subsistence farmers, fishers, hunters and gatherers	22%
Refuse workers and other elementary workers	18%
Market-oriented skilled forestry, fishery and hunting worker	18%
Non-commissioned armed forces officers	15%
Metal, machinery and related trades workers	15%
Hospitality, retail and other services managers	14%
Cleaners and helpers	14%
Science and engineering professionals	13%
Legal, social and cultural professionals	12%
Science and engineering associate professionals	12%
Electrical and electronic trades workers	12%
Business and administration associate professionals	11%
Other clerical support workers	11%
Total	11%
Protective services workers	10%
Customer services clerks	9%
Personal service workers	8%
Health associate professionals	8%
Business and administration professionals	7%
Sales workers	7%
Numerical and material recording clerks	6%
Teaching professionals	2%
Information and communications technology professionals	2%
Assemblers	2%
Food processing, wood working, garment and other craft and r	2%
Stationary plant and machine operators	2%
Personal care workers	1%
Commissioned armed forces officers	0%
Chief executives, senior officials and legislators	0%
Administrative and commercial managers	0%
Health professionals	0%
Legal, social, cultural and related associate professionals	0%
General and keyboard clerks	0%
Handicraft and printing workers	0%
Food preparation assistants	0%
Street and related sales and service workers	0%

Source: European Working Conditions Survey 2015

The table shows the most prominent workers who reported having work frequently in other locations than the employers' premises in 2016 were the Armed forces occupations, other ranks (52%), Drivers and mobile plant operators (35%), Production and specialised services managers (26%), Building and related trades workers, excluding electricians (26%), Market-oriented skilled agricultural workers (25%), Agricultural, forestry and fishery labourers (25%), Labourers in mining, construction, manufacturing and transport (25%), Information and communications technicians (24%), Subsistence farmers, fishers, hunters and gatherers (22%), Refuse workers and other elementary workers (18%), Market-oriented skilled forestry, fishery and hunting worker (18%), Non-commissioned armed forces officers (15%), Metal, machinery and related trades workers (15%), Hospitality, retail and other services managers (14%), Cleaners and helpers (14%), Science and engineering professionals (13%), Legal, social and cultural professionals (12%), Science and engineering associate professionals (12%), Electrical and electronic trades workers (12%), Business and administration associate professionals (11%) and Other clerical support workers (11%).

The following table presents data for broken down by occupation (ISCO 08 classification) of workers who were frequently⁵ involved in work in other locations (than employer's premises) in Portugal.

⁵ Daily or several times a week, during the last 12 months in their main paid job / since they started their main paid job.

Table 5 – Distribution of work locations in 2015 by ISCO

	Clients premises	A car or another vehicle	An outside site (e.g. construction site, agricultural field, streets of a city)	Your own home	Public spaces such as coffee shops, airports etc.
ISCO_08 2 digit	%	%	%	%	%
Commissioned armed forces officers	-	-	-	-	-
Non-commissioned armed forces officers	0	0	60,8	0	0
Armed forces occupations, other ranks	0	69,8	69,7	0	69,8
Chief executives, senior officials and legislators	-	-	-	-	-
Administrative and commercial managers	0	0	0	0	0
Production and specialised services managers	60,8	26,5	8,1	36,2	8,1
Hospitality, retail and other services managers	10,2	10,2	11,9	10,2	22,1
Science and engineering professionals	19,6	9,8	13,3	24,1	7,3
Health professionals	0	0	0	0	0
Teaching professionals	2,7	2,6	1,6	37,4	2,9
Business and administration professionals	12,8	6,8	4,9	39,3	4,9
Information and communications technology professionals	8,4	0	0	10,7	0
Legal, social and cultural professionals	32,6	6,7	1,7	30,6	7,3
Science and engineering associate professionals	25,1	0	23	25,1	0
Health associate professionals	0	30,2	0	0	0
Business and administration associate professionals	14	7	16,3	7	7
Legal, social, cultural and related associate professionals	0	0	0	0	0
Information and communications technicians	24,1	24,1	24,1	0	24,1
General and keyboard clerks	0	0	0	0	0
Customer services clerks	8,6	8,6	8,6	8,6	8,6
Numerical and material recording clerks	13,6	8,3	0	6,1	2,6
Other clerical support workers	11,2	11,2	19,8	6,2	0
Personal service workers	2,3	0,8	1,9	8	28,8
Sales workers	5,3	5,9	3,2	5,1	13
Personal care workers	2,6	0	0	6,2	0
Protective services workers	24,3	0	4,1	4,1	13,5
Market-oriented skilled agricultural workers	20,1	6,8	66,4	9,3	5,6
Market-oriented skilled forestry, fishery and hunting worker	0	0	67,9	0	0
Subsistence farmers, fishers, hunters and gatherers	4,9	1,3	80,8	11,6	1
Building and related trades workers, excluding electricians	55,3	9,4	38,1	4,5	0
Metal, machinery and related trades workers	16,6	23,5	13,6	7,9	4,4
Handicraft and printing workers	0	0	0	5,2	0
Electrical and electronic trades workers	30,6	4,5	12,1	0	0
Food processing, wood working, garment and other craft and r	3,5	3,5	0	7,5	0
Stationary plant and machine operators	0	4,9	1,8	0	0
Assemblers	0	0	9,2	0	0
Drivers and mobile plant operators	21,5	81,1	39	0	0
Cleaners and helpers	41,7	0,7	9,6	7,9	1,9
Agricultural, forestry and fishery labourers	7,6	0	92,4	0	0
Labourers in mining, construction, manufacturing and transpo	20,3	40,4	19,4	0	18,6
Food preparation assistants	0	0	0	0	0
Street and related sales and service workers	-	-	-	-	-
Refuse workers and other elementary workers	0	43,4	28,5	0	0
Total	13,1	8,5	16,8	10,1	5,3

Notes: The literal question was "Please take a look at these locations. In a moment, I will ask you how often you have worked in each location [during the last 12 months in your main paid job / since you started your main paid job]." Values includes those who answered daily and several times a week. Answers were weight by w4_ (Country analysis).

Source: European Working Conditions Survey 2015

The last table reveals that 13,1% of workers were frequently⁶ involved in work in the client's premises; and 8,5% of workers were frequently involved in work in a car or another vehicle.

2. Information on the incidence and trends on virtual work from 2008 to 2017 in the three sectors covered in the study.

In 2015, the EWCS questioned Portuguese workers by sector about how often they have worked in each location, during the last 12 months in their main paid job and/or since they started their main paid job.⁷ The following table summarizes their answers and presents the percentage of the most frequent locations by sectors under analysis.

Table 6 – Distributions of other work locations and work in own home in the three sectors in 2010 and 2015

Question	Year	Country	Frequency	Computer programming, consultancy and related activities	Financial service activities, except insurance and pension funds	Human health activities
All other places (than employers' premises)	2015	PT	Daily	5%	0%	0%
			Several times a week	4%	4%	3%
		EU27	Daily	6%	2%	3%
			Several times a week	8%	3%	3%
Own home	2015	PT	Daily	14%	0%	0%
			Several times a week	0%	10%	6%
		EU27	Daily	11%	2%	3%
			Several times a week	12%	5%	3%

Notes: The literal question in 2010 was 'Have you worked in any other location in the past 3 months?' whereas in 2015 was "Please take a look at these locations. In a moment, I will ask you how often you have worked in each location [during the last 12 months in your main paid job / since you started your main paid job]". All answers were weight by w4 (Country Analysis).

Source: European Working Conditions Survey 2010 and 2015.

⁶ Daily or several times a week, during the last 12 months in their main paid job / since they started their main paid job.

⁷ The literal question was "Please take a look at these locations. In a moment, I will ask you how often you have worked in each location [during the last 12 months in your main paid job / since you started your main paid job]".

The table reveals that, in 2015, 5% and 4% of the workers in the sector of computer programming, consultancy and related activities engaged frequently (daily and several times a week) in work in locations where virtual work can occur (while the EU27 average was 6% and 8%, respectively); 0% and 4% in the sector of financial activities (while the EU27 average was 2% and 3%, respectively); and 0% and 3% in the sector of Human Health activities (while the EU27 average was 3% and 3%, respectively). The trend is not possible to determine due to differences in methodology.

The table also reveals that 14% and 0% of the workers in the sector of computer programming, consultancy and related activities engaged frequently (daily and several times a week) in work from their own home (while the EU27 average was 11% and 12%, respectively); 0% and 10% in the sector of financial activities (while the EU27 average was 2% and 5%, respectively); and 0% and 6% in the sector of human health activities (while the EU27 average was 3% and 3%, respectively). The trend is not possible to determine due to differences in methodology.

The following table presents sectoral data of contracts of telework broken down by sex in 2016.

Table 7 – Distribution of telework contracts in the three sector in 2016 by sex

NACE	Sex	Telework	
		Number	%
Computer programming, consultancy and related activities	Male	15	63%
	Female	9	38%
K Financial services activities	Male	10	50%
	Female	10	50%
Human health activities	Male	1	10%
	Female	9	90%

Note: Data for continental Portugal

Source: Quadros de Pessoal 2016 (Gabinete de Estratégia e Planeamento 2018)

The table show that the distribution of contracts of telework has a significant gender biases in computer programming, consultancy and related activities and human related activities. In fact, only 38% of the telework contracts are signed with females in the computer programming, consultancy and related activities; contrastingly, 90% of these contracts with females exist in the sector of Human related activities. The table also shows an even distribution of telework contracts in the sector of financial services activities.

The following table presents sectoral data broken down by contractual status of virtual workers.

Table 8- Number and distribution of contracts in the three sectors in 2010 and 2016 by type of contracts

Type of contract	2 010								2 016							
	Computer programming, consultancy and related activities		K Financial services activities		Human health activities		Total		Computer programming, consultancy and related activities		K Financial services activities		Human health activities		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Contrato Sem Termo	23 145		81 629		64 424		1 932 900		30 449		71 358		84 792		1 757 787	
Contrato de trabalho para prestação subordinada de teletrabalho sem termo	12	100%	10	100%	31	100%	2 302	95%	14	58%	5	25%	9	90%	703	83%
Contrato de trabalho com termo certo	5 630		5 243		14 507		483 767		10 436		4 205		16 031		633 632	
Contrato de trabalho para prestação subordinada de teletrabalho com termo certo		0%		0%		0%	87	4%	8	33%	11	55%	1	10%	118	14%
Contrato de trabalho com termo incerto	1 078		210		1 303		79 222		3 161		314		3 506		145 154	
Contrato de trabalho para prestação subordinada de teletrabalho com termo incerto		0%		0%		0%	42	2%	2	8%	4	20%		0%	30	4%
Total	30 136		87 317		80 943		2 599 599		44 378		76 880		104 888		2 641 919	
Total em teletrabalho	12	0,04%	10	0,01%	31	0,04%	2 431	0,09%	24	0,05%	20	0,03%	10	0,01%	851	0,03%

Note: Data for continental Portugal

Source: Quadros de Pessoal (Gabinete de Estratégia e Planeamento 2018)

The following table presents data for broken down by occupation (ISCO 08 classification) of workers who were frequently⁸ involved in work in other locations (than employer's premises) in the three sectors.

⁸ Daily or several times a week, during the last 12 months in their main paid job / since they started their main paid job.

Table 9 – Distribution of work locations by occupation in the three sectors in 2015

ISCO_08 2 digit / NACE Revision 2, 2 digit	Computer programming, consultancy and related activities	Financial service activities, except insurance and pension funds	Human health activities
Q35b+c+d+e+f	Daily + Several times a week	Daily + Several times a week	Daily + Several times a week
Commissioned armed forces officers	0%	0%	0%
Non-commissioned armed forces officers	0%	0%	0%
Armed forces occupations, other ranks	0%	0%	0%
Chief executives, senior officials and legislators	34%	15%	6%
Administrative and commercial managers	15%	6%	11%
Production and specialised services managers	23%	11%	9%
Hospitality, retail and other services managers	18%	17%	8%
Science and engineering professionals	14%	7%	2%
Health professionals	0%	0%	7%
Teaching professionals	25%	0%	9%
Business and administration professionals	14%	8%	10%
Information and communications technology professionals	13%	4%	0%
Legal, social and cultural professionals	18%	6%	10%
Science and engineering associate professionals	0%	0%	10%
Health associate professionals	0%	0%	6%
Business and administration associate professionals	10%	7%	2%
Legal, social, cultural and related associate professionals	0%	0%	21%
Information and communications technicians	12%	0%	5%
General and keyboard clerks	0%	2%	1%
Customer services clerks	18%	1%	3%
Numerical and material recording clerks	11%	4%	8%
Other clerical support workers	0%	9%	0%
Personal service workers	0%	10%	6%
Sales workers	0%	2%	5%
Personal care workers	0%	0%	8%
Protective services workers	20%	3%	3%
Market-oriented skilled agricultural workers	0%	0%	0%
Market-oriented skilled forestry, fishery and hunting worker	0%	0%	0%
Subsistence farmers, fishers, hunters and gatherers	0%	0%	0%
Building and related trades workers, excluding electricians	0%	0%	0%
Metal, machinery and related trades workers	0%	0%	0%
Handicraft and printing workers	0%	0%	0%
Electrical and electronic trades workers	31%	20%	1%
Food processing, wood working, garment and other craft and r	0%	0%	0%
Stationary plant and machine operators	0%	0%	0%
Assemblers	0%	0%	0%
Drivers and mobile plant operators	0%	20%	32%
Cleaners and helpers	0%	8%	3%
Agricultural, forestry and fishery labourers	0%	0%	0%
Labourers in mining, construction, manufacturing and transpo	0%	0%	5%
Food preparation assistants	0%	0%	0%
Street and related sales and service workers	0%	0%	0%
Refuse workers and other elementary workers	0%	40%	9%
N=	14%	5%	6%

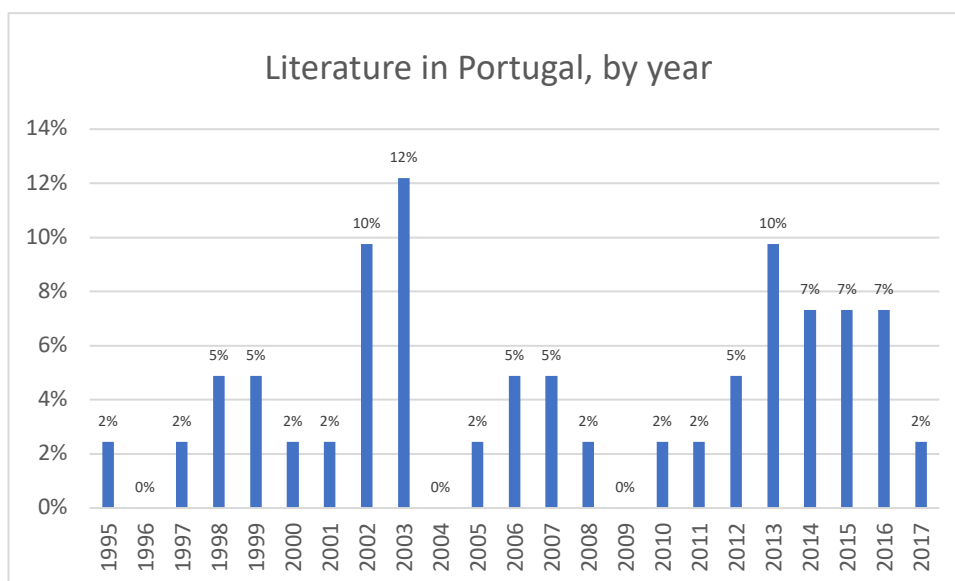
Notes: The literal question was "Please take a look at these locations. In a moment, I will ask you how often you have worked in each location [during the last 12 months in your main paid job / since you started your main paid job]." Values includes those who answered daily and several times a week. Answers were weight by w5_EU27

Source: European Working Conditions Survey 2015

3. Assessment of the incidence of virtual work in each sector

A brief quantitative analysis of the scientific literature can be useful to understand the state of the art of research about virtual work (see annex 1 – Methodological note). The following figure presents the amount of literature related to virtual work produced by year in Portugal.

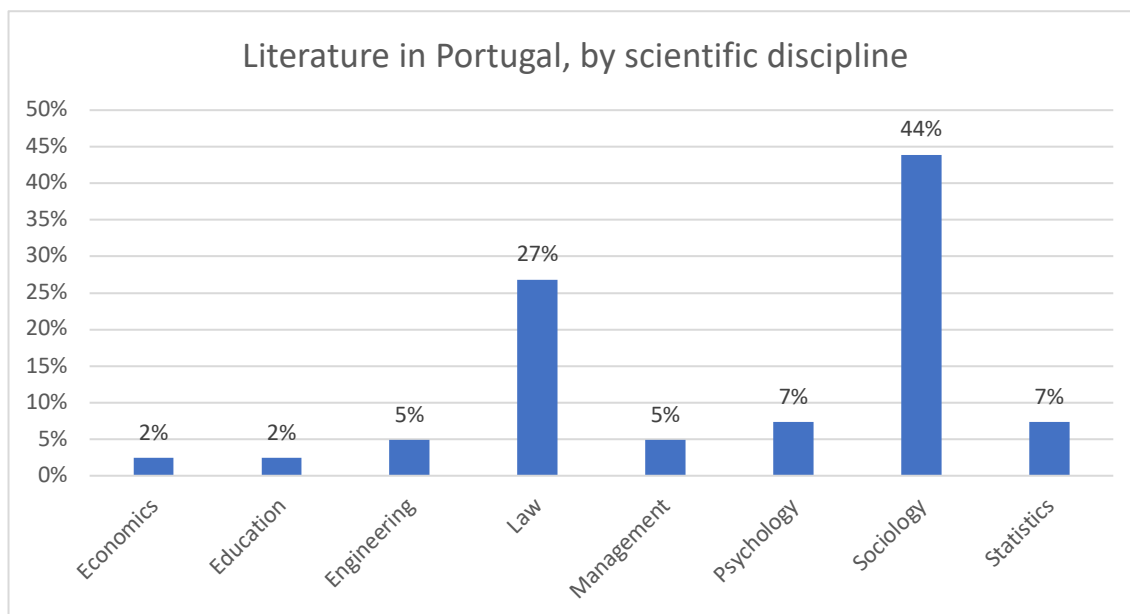
Figure 6 – Literature about virtual work in Portugal, by year



Source: Author's calculations

The figure shows that there was a peak in scientific outputs in 2002, 2003 and 2013. Since then the levels stabilized in lower levels (i.e. around 7%). The following figure shows the literature production by scientific discipline.

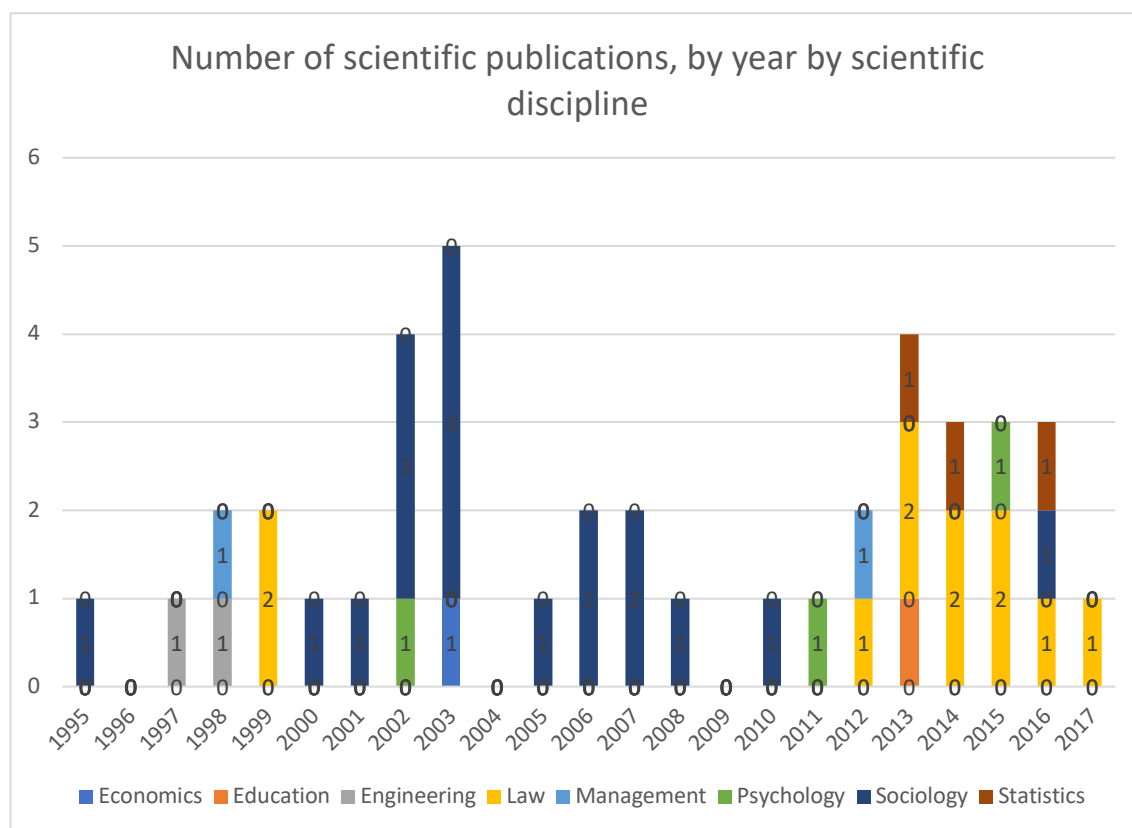
Figure 7 – Literature about virtual work in Portugal, by scientific discipline



Source: Author's calculations

The figure reveals that 44% of the scientific outputs are related to sociology, which is the main discipline dealing with virtual work in Portugal. There is also significant production in law with 27% of the literature, and the remaining disciplines with less significant percentages. The following figure presents the number of scientific publications, by year and by scientific disciplines (see annex for methodological notes).

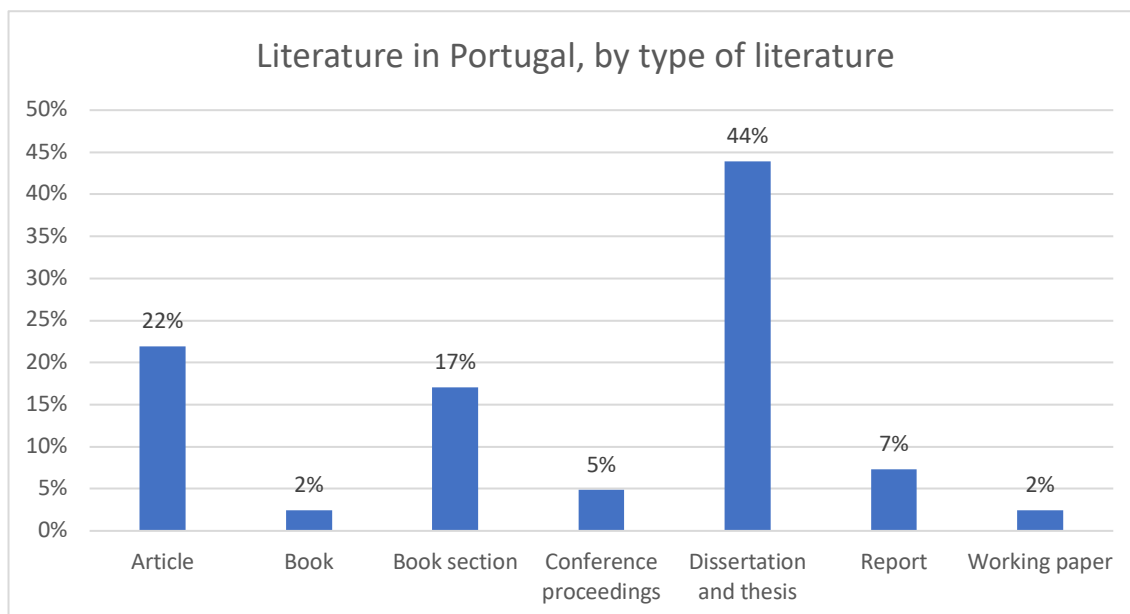
Figure 8 – Numer of publications about virtual work, by scientific disciplines and by year



Source: Author's calculations

The figure shows that, in the first decade of the new millennia, the most prolific discipline was sociology. After 2010, law and other disciplines were responsible for most literature about virtual work. The following figure presents the distribution of the literature by type of literature.

Figure 9 – Distribution of literature about virtual work in Portugal, by type of scientific publication

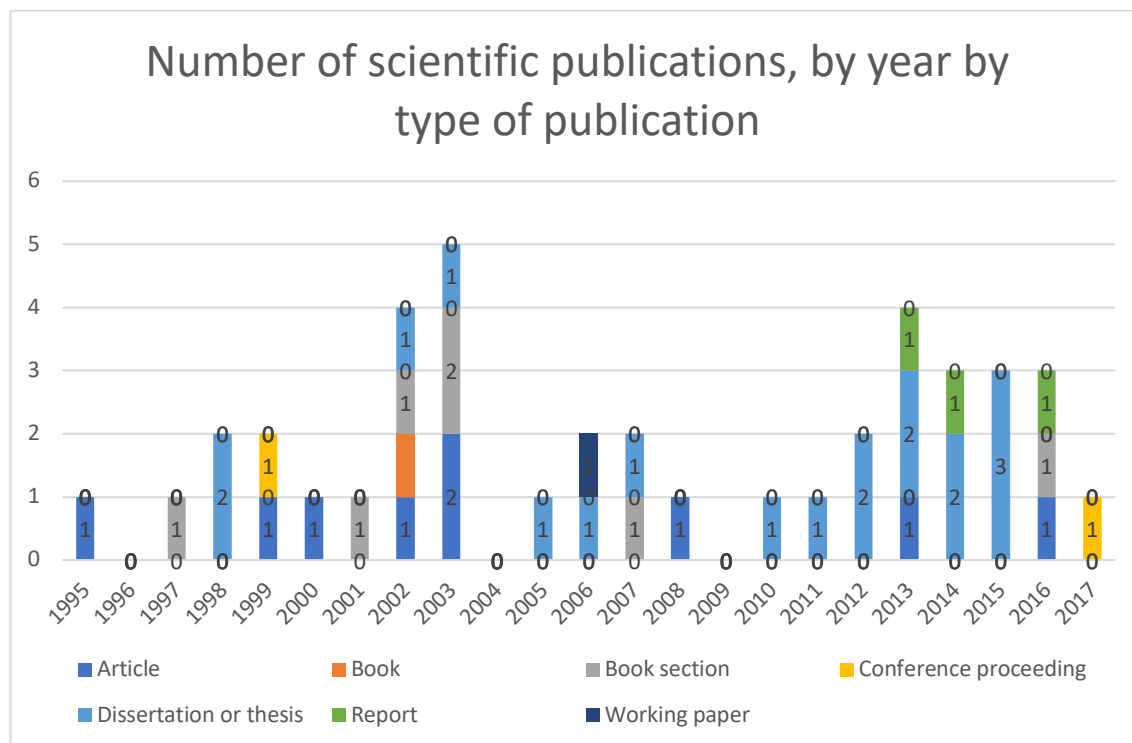


Source: Author's calculations

The main type of literature is Master dissertations and PhD theses with 44%, where Master dissertations are its main component. There are also 22% of articles and 17% of book sections. Reports account for 7%, conference proceedings for 5%, books and working papers represent 2%.

The following figure presents the number of scientific publications, by type of publication.

Figure 10 – Number of publications about virtual work in Portugal, by type of scientific publication and by year



Source: Author's calculations

The figure shows that there was a heterogeneous distribution of types of publications before 2010. From 2010 to 2015, the most significant types of scientific publications were dissertations or theses. After 2015, the heterogeneous distribution of types of publications returned.

4. Research on the effects on virtual work on working conditions

In this chapter we assess the state of the art of research on working conditions of virtual workers in Portugal summarising and defining the main categories or concepts used (telework, virtual work, etc.), the main methodological approaches and the most significant trends identified. The assessment is made for each of the following dimensions: working time; work-life balance; health and well-being; autonomy, job decision latitude and surveillance; skills; career advance.

The main concept used in research about virtual work in Portugal is telework (i.e. *teletrabalho*), usually defined as frequent work from other locations than the employer's premises involving ICT, but with some exceptions. Recent research about working conditions of teleworkers in the last decade was published as PhD thesis and Master thesis (see annex 1 for methodological note). There were five main studies:

- In her PhD thesis, S. dos S. Gil (2015) analysed telework mostly from a law perspective comparing Portugal and Spain. The definition of telework was the existence of three characteristics: work carried out at a distance; use of information and communication technologies; and a strong connection between employer and worker, revealing virtual subordination. The author considered four concepts regarding telework: Domestic telework, mobile telework, telecentres and cross-border teleworking. Gil concluded that the number of subordinate teleworkers has increased, albeit modestly, in recent years, not keeping pace with the growth of independent teleworkers. Interestingly, Portugal was the first European country to regulate the legal regime of teleworking for the private sector, introducing it into the first Portuguese Labour Code, which has since been repealed, in harmony with the main provisions of the European Framework Agreement on Teleworking. The Portuguese legal regime on teleworking is one of the most complete in the European legislative system. She considered that the motives that drove the development of teleworking will not disappear in the short or medium term, and envisaged a growth of this reality, although in a gradual way. The author pointed that the "chaotic" statistics about telework and the labour law need to deal with the tendency of many employers to hire service providers rather than subordinate workers. Gil concluded that telework will increase if organizations find: "a teleworker with the right profile, a hierarchical superior with the necessary characteristics and a dialogic and harmonious working relationship" (S. dos S. Gil 2015, 229).
- In her Master dissertation, Crugeira (2015) studied home-based teleworking from a work life balance perspective. The author defined it as a flexible form of work, performed at a distance, in this case at home, via computer networks and telecommunications and including tasks such as the translation of documents, consulting, web designer, teacher, computer, among others. According Crugeira (2015), Portugal is a country with a culture of presence at work, with no opening to teleworking. One of the main obstacles to the implementation of flexible work is the organizational culture, since the companies have traditional methods that defend the physical presence of the worker. Citing two studies (Lencastre 2006 and Mimoso 2013, not available), Crugeira (2015) defends that one of the main obstacles to the implementation of flexible work is the organizational culture, since the companies have traditional methods that defend the physical presence of the worker. This

culture embedded in the systems, hierarchies and mentalities of workers (Lencastre 2006 and Mimoso 2013, not available) leads to a difficult change, being one of the reasons why Portuguese companies do not adhere to telework.

- In his PhD thesis, Nunes (2007a) focused on the role of ICT in reformulating territorial dynamics, specifically with regard to its influence on work organisation and the emergence of the 'information society'. To question and ascertain the importance of ICT as a tool with the potential to redesign the pre-existing spatial patterns, an empirical survey was carried out of the Portuguese reality based on the analysis of the spatial coverage of broadband Internet access and interviews with a set of teleworkers. The author concluded that the greater autonomy and flexibility enjoyed by teleworkers in exercising their professional activity has led to distinct lifestyles, usage and appropriation of space and time, both in terms of their professional life and their private life (Nunes 2007).
- In her Masters dissertation, Aranda (2012) analysed teleworking from a job latitude and skills perspective. The author used interviews with eight dyads of teleworkers and their direct leadership. Aranda found that what led to the adoption of telework are the functions to be performed and that there appears to be a profile on that responsibility, organizational skills and self-discipline. The author concluded that, overall, teleworkers are satisfied with the telework and do not intend to go back to the traditional workplace. However, some workers have admitted feeling isolation and lack of structure of the company. In terms of intervention, it is important that companies provide working conditions adapted to the modality in question and that develop mechanisms of support and monitoring to the teleworker, to improve their integration into work teams. Workers also need tools to manage their time and work space (which often coincides with their residence), allowing adequate separation between professional and domestic sphere. In this sense, one of the study's findings relates to the need to invest in training for this type of modality, both as regards the preparation of workers as their direct leadership (Aranda 2012).
- In his PhD thesis, P. A. F. dos S. Almeida (2006a) analysed telework from a skills perspective and focused on constraints and necessities of telework, such as the need for suitable communication and management tools. The study applied a method that includes the evaluation of a prototype and research objectives, by users with different digital literacy in controlled sessions, followed by two written questionnaires and an interview, is presented. The results confirmed that digital literacy can be a constraint to the use of telematic services and also indicate that the global availability of a system, adapted to the needs of teleworkers can contribute to the adoption of telework practices (P. A. F. dos S. Almeida 2006a).

There are two other research outputs that briefly mentioned telework, although as a lateral topic. The first one is the annual statistical report on employment that addressed the limitation related to work and need of special care in the population with health problems and/or difficulties. According to Instituto Nacional de Estatística (2012, 40), in 2011, out of the special needs of care, the main activities (16,2%) referenced by the population with at least one long-term health problem and/or one difficulty in a basic activity, were the special types of work, such as development of sedentary activities, telework, flexible hours and less strenuous tasks. Second, in a conference proceeding Alexandre (2013) briefly analysed virtual work from the parenthood point of view. The author considered that the option of a parent to stop working, choose to do virtual work or to work part-time

does not seem to be the solution that respondents idealized, showing that they do not intend to give up their profession to the detriment of custody of their children, and they intended to entrust this task to family members (grandparents or others) or to the educational infrastructure.

Besides the five main studies mentioned above, there was a study about telework by sectors published in 2003 (Urze, Moniz, and Barroso 2003) that revealed information about the software sector, as well as the sectors of Textile, Shoemaking and Metal Engineering. The authors revealed the existence of **mobile work** in 65% of the textile sector, 80% of the metal engineering sector and 100% of the software sector. There are differences between the sectors: On average, the software sector has more mobile workers with over 50% of the total number of workers; the metal engineering sector has 6% to 20% of mobile workers; and the textile and shoemaking sector has 5% of mobile workers.

Urze, Moniz, and Barroso (2003) identified the location and geographical movements in these three sectors:

- In the textile and shoemaking sector, the mobile workers of most companies move around essentially within the area of the company (50%). However, the workers of a relevant percentage of companies also commute to other regions of the country (40.5%).
- In the case of the metal engineering sector, the workers that commute from most companies do it to other regions of the country (52.5%), even though in a significant percentage of companies they commute mainly within the area where the company is located (37.5%).
- In the software sector, the mobile workers of all companies in the sample commute only within the area where the company is located.

The authors identified the ICT usage in these three sectors:

- In the textile and shoe-manufacturing sector the ICTs do not play an important role in communications with mobile workers. These technologies play a very few important role in the communication with other players. In this sector, the stimulation of telework activity is limited, even though the network of strategic players can be geographically scattered.
- In the metal engineering sector, information and communication channels and terminals are considered the main tools for the relationships established with the different players. Only communication channels are mentioned in the case of mobile workers.
- The software sector is the one that shows a larger diversity of ICTs, some of which highly developed due to its specific characteristics. Terminals and information media are essential tools in the relationships with the whole network of strategic players. The importance of protocols in communicating with clients is also worth mentioning. On the other hand, channels are only important in the relationship with sub-contracted entities, whereas for the so-called traditional sectors it is an essential tool.

These same study of Urze, Moniz, and Barroso (2003) identified also the types of telework in these sectors:

- Teleworking practices are more visible in the software sector, as it is a sector that due to its characteristics is more open to this type of new ways to work. The network of strategic players is wide, even though at a geographical level these players are concentrated in the same area as the company. However, there is a high usage of ICT, with some innovation, such as protocols and information and communication media.

In the so-called traditional sectors, teleworking practices and dynamics are better hidden or covered up.

- In the textile and shoe manufacturing sector the network of strategic players is limited, but they are geographically scattered in the same area as the company, throughout the country and even in the EU. In spite of the scattering and geographical distance of the different players in the network, the use of ICT is low, basically limited to information and communication channels and terminals.

Based on the three large study groups, the textile and shoe manufacturing and software sectors are the ones that seem to be at the two extremes, showing different teleworking practices.

- In the metal engineering sector the network of strategic players is not so wide and heavy, being stronger than in the textile and shoe-manufacturing sector in terms of quantity of clients and mobile workers. However, the network is limited to a national level. As in the textile and shoe-manufacturing sector, it is still at an insufficient level, also limited to information and communication channels and terminals.

Considering the characteristics of each sector in relation to each group under study, an attempt was made to identify the types of telework, taking as the group (or groups) as the criterion noticeable in each sector due to its characteristics.

- In the software sector there is a greater tendency to develop telework practices, due to the vast network of strategic players, as well as to the solid use of ICT, hence the characterisation of this type of telework as intensive.
- The teleworking practices and dynamics in the textile and shoemaking sector are weaker. Nevertheless, there is a certain visible tendency towards the new forms of work, mainly due to the dimension of the network of strategic players, so that the types of telework are characterised as extensive.
- In the metal engineering sector, the prevailing factor in teleworking practices is the reasonable network of strategic players and its dimension at a national level, that is, the network of players limited to the country, which means that the types of telework are circumscribed.

5. Policy approach

We tried to identify and define the main concepts or categories used in Portugal in terms of legislation, media, policy debates, etc. Here we want to define work arrangements where workers use ICT – such as smartphones, tablets, laptops and desktop computers – for the purposes of work outside the employer's premises.

According to Article 165 of the Labour law, the concept of telework is the work performed with legal subordination, usually outside the company and through the use of information and communication technologies (Assembleia da República 2018). The law also stipulates the fixed-term contract for new virtual work, named '*Regime de contrato para prestação subordinada de teletrabalho*'. It is defined as a work contract in which the activity to which the employee is usually assigned is carried out outside the company and through the use of information and communication technologies, in which the end is not predictable when a future fact occurs.⁹ The labour code stipulates that the new teleworker can move to the same type of work as other employees of the company, either permanently or for a fixed period through a written agreement with the employer. In the case of a worker with a previously contract with the employer, the initial duration of the contract for subordinate teleworking service cannot exceed three years, or the term established in a collective labour regulation instrument. In the end of the contract, the employee retakes the previous work, under the terms agreed or provided for in an instrument of collective bargaining.

Besides the Labour law, the general law of public service work also foresees virtual work in its article 69.¹⁰ In this law, the status of virtual worker may be given by the public employer after a request from the worker. However, the extent of the coverage of telework in the public sector is largely unknown. It is unclear the spread of these regulations in the public sector, let alone their use. Most public collective agreements (i.e. ACEP) regulate the length and organization of working time (including, in some cases, adaptability, hour bank, part time and telework), as well as often occupational safety and health, composition and functioning of the Joint Commissions and the resolution of collective labour disputes (Centro de Relações Laborais 2016). Our research revealed two examples of public institutions with regulations about virtual work:

- The *Instituto de Informática* of the ministry of labour and employment approved a working-time regulation that stipulates virtual work as work carried out of the institute and using ICT.¹¹ It can only exist for less than a year. The

⁹ As mentioned in (Gabinete de Estratégia e Estudos do Ministério da Economia e do Emprego 2012).

¹⁰ Lei n.º 35/2014

¹¹ As mentioned in Diário da República (2016).

worker has the same rights as others. Control of the work can only be done from 9:00h to 19:00h. ICT related tools should be supplied by the employer, who is also responsible for medical exams and visual protection equipment. Virtual workers can only work as long as the other workers and can be exempted from working hours. The employer is responsible for upgrade of skills required to work as a virtual worker and needs to avoid the isolation of the worker. The virtual worker is obliged to maintain secrets about information and technics taught by the employer.

- The *Direção Geral de Estatísticas da Educação e Ciência* defined telework as the work performed with legal subordination, outside the service or public employer and through the use of ICT (Ministério da Educação e Ciência 2014). Although stipulated in the general labour law, the institution considered important to state in its regulations that the provision of work under a teleworking regime is preceded by written agreement, which shall include, among other formalities established in the law, the position or duties to be performed, expressly mentioning of the telework scheme. The regulation also stated that teleworkers are subject to compliance with the standards set out in regards to the normal and daily working hours.

There is a Portuguese Norm for Family-Responsible Organizations (Instituto Português da Qualidade 2013). The Norm defines virtual work as the provision of work that is usually carried out outside the company, using information and communication technologies. It is unclear the spread of this Norm among Portuguese companies.

The dominant approach to regulate virtual work in Portugal is through legislation and regulations. The minor incidence of telework led to political debates as mentioned above, but until now received little consideration from the social partners. For example, a Eurofound (2010) study revealed that European Framework Agreement on Telework¹² was implemented not through collective agreement as in most countries, but through legislative action by the Portuguese government with little or no participation by the social partners. No consultation of management and workers took place in Portugal and “the social partners were

¹² In 2005, the European Trade Union Confederation (ETUC), the Union of Industrial and Employers' Confederations of Europe / the European Union of Crafts and Small and Medium-Sized Enterprises (UNICE/UEAPME), and the Centre of Enterprises with Public Participation (ECPE) have signed a framework agreement on telework aimed at ensuring greater security for teleworkers employed in the EU. This agreement is of particular importance because it is the first European agreement put in place by the social partners themselves. The agreement aims at establishing a general framework at European level concerning the employment conditions of teleworkers and at reconciling the needs for flexibility and security shared by employers and workers. It grants teleworkers the same overall level of protection as workers who carry out their activities at the employer's premises.

reportedly not very in favour of the statutory implementation route” (Eurofound 2010, 14).

Collective agreements about virtual work were also meagre. Until 2009, virtual work was absent of the content of the collective agreements, despite the fact that several aspects of work mobility were very frequently included in these agreements (Dornelas et al. 2011). More recently, an analysis of content of collective bargaining revealed some treatment of issues associated with technological developments, such as those involving electronic communication, and the protection of personal data and regimes of teleworking (Centro de Relações Laborais 2018). This study identified, in 2017, 6 conventions mentioning telework contracts with different depths, in 1 collective agreement, 3 company agreements and 2 collective conventions.¹³ By contrast, only 2 collective agreements were identified in 2016. In more detail:

Table 10 – Conventions with telework in 2018

Acordos de Negociação Coletiva em Vigor com Cláusulas de Teletrabalho	Type of Conventions				Total
	Contrato Coletivo de Trabalho (CCT)	Acordo Coletivo de Trabalho (ACT)	Acordo de Empresa (AE)	Outros (ACTP, DA e PRT/PCT)	
ICT	3	1			4
Financial					0
Healthcare			2		2
Other	1	3	2	3	9
Total	4	4	4	3	15

Source: Autor's own accounting based on the online search engines of DGERT (<https://www.dgert.gov.pt/ferramenta-para-pesquisa-de-convencoes-coletivas>), Boletim do Trabalho e do Emprego (bte.gep.msess.gov.pt) and information provided by trade unions of the insurance sector

¹³ AE SCML/SFP and AE SCML/SDPGL – both BTE 18/2017 (cl.9.^a); CC AGEFE/FEPCEs - BTE 5/2017 (cl. 15.^a - B); AE CMPEA/SINTAP – BTE 30/2017 (cl.37^a); CC FENAME/SITESE and others - BTE 34/2017 (cl.16^a-A); and AC Ageas Portugal /SINAPSA – BTE 37/2017 (cl. 16.^a).

Healthcare

In the healthcare sector, there were two company agreements with the same charity and two trade unions in 2017 (AE SCML/SFP e AE SCML/SDPGL, both in BTE 18/2017 (cl.9.^a)). This collective convention is relevant to DEEP VIEW because "the charity that promoted it has 4001 employees and has significant activities in the healthcare sector, particularly in the Lisbon region. Allegedly, this charity sets employment standards for many other similar organisations in the sector". Furthermore, the content of the company agreement includes mainly the repetition of the telework clauses existent in the labour code.

The agreement emphasised the improvement of working conditions in terms of the rights and requirements of workers to telework. The workers' rights regulated in the agreement included: time of contract (maximum 5 years); the right to return at least for a week every 6 months to reinforce workers integration in the structure and culture of the charity; the right to finish telework within the initial 30 days with the right to return to previous post or equivalent; the right to return to previous post or equivalent after telework; the preference to workers with disability, chronic disease and parents with children under 12 years old or family.

Computing activities

In the metal sector, there was one collective convention between the metal federation and several trade unions in 2017 (CC FENAME/SITese e outros, in BTE 34/2017 (cl.16^a-A)). This collective convention is relevant to DEEP VIEW because it includes agreements regulating informatics analyst, informatics operators, preparative of informatics data and information technicians (Boletim do Trabalho e Emprego 2016b). Furthermore, the content of the collective convention includes mainly the repetition of the telework clauses existent in the labour code. The collective convention stipulated that virtual workers were exemption from having defined working hours through a written agreement. It can be argued that non-defined working hours was a right regulated in this collective convention.

In the electric sector, there was one collective convention between the employers' association and the federation of trade unions in 2017 (CC AGEFE/FEPACES - BTE 5/2017 (cl. 15.^a - B)). This collective convention is relevant to DEEP VIEW because it includes agreements that regulating principal analysts of informatics, professional analysts of informatics and professional operators of informatics (Boletim do Trabalho e Emprego 2016a). Furthermore, the content of the collective convention includes mainly the repetition of the telework clauses existent in the labour code.

The agreement emphasised the improvement of working conditions in terms of the rights and requirements of workers to telework. The collective convention stipulated that virtual workers should have a written "contract in telework", which should include, among other things, a defined activity, working hours, workers' activity after telework, ownership of equipments and their costs and the department of activity and its hierarchical dependence.

In the insurance sector, there was a company agreement in 2017 (AC Ageas Portugal /SINAPSA, in BTE 37/2017 (cl. 16.^a)). This company agreement is relevant to DEEP VIEW sectors because it includes agreements regulating the work of director of informatics and of informatics coordinators (Boletim do Trabalho e Emprego 2017b). Furthermore, the content of the company agreement includes mainly the repetition of the telework clauses existent in the labour code. The agreement emphasised the improvement of working conditions in terms of the rights and requirements of workers to telework.

The company agreement stipulated that the contracted activity may be carried out outside the company through the use of information and communication technologies, by means of a written contract for the subordinated teleworking service, with all the rights and guarantees guaranteed by law. Furthermore, in the case of a worker who was previously linked to the employer, the initial duration for teleworking is a maximum of 3 years, considering the contract automatically and successively renewed for periods of 1 year if not denounced by any of the parties with at least 3 months' notice in advance of the initial term or any renewal. In addition, terminating the teleworking contract referred before, and maintaining the contractual link to the employer, the employee will resume the functions previously exercised, or other equivalent, unless otherwise agreed in writing.

In summary, there are three Portuguese conventions in force with telework clauses for workers involved in computer programming activities, consultancy and related activities. The conventions were signed by organizations originated from the metal, electric and insurance sectors and also covered the sector of NACE 62.

There was one collective contract in 2017¹⁴ that mentions telework between the metal federation and several trade unions and also regulates salaries of informatics analyst, informatics operators, preparative of informatics data and information technicians. The convention mainly repeats the telework clauses existent in the labour code and stipulates that teleworkers are exempted from having defined working hours through a written agreement. Second, there were two collective contract in 2016 and 2017¹⁵ that mentions telework with an employers' association and trade unions of the electric sector that stipulates salaries of principal analysts of informatics, professional analysts of informatics and professional operators of informatics. Third and last, there was a company agreement of the insurance sector in 2017¹⁶ that includes clauses regulating telework and salaries of director of informatics and of informatics coordinators. It

¹⁴ Contrato Coletivo FENAME/SITESE e outros, in BTE 36/2017 (cl.29.^a- C).

¹⁵ Contrato Coletivo 2016 (ANIMEE/FETESSE – BTE 19/2016 (cl.27-34) and Contrato Coletivo 2017 AGEFE/FEPSES - BTE 5/2017 (cl. 15.^a - B).

¹⁶ Acordo de Empresa Ageas Portugal /SINAPSA, in BTE 37/2017 (cl. 16.^a).

mainly repeats the telework clauses existent in the labour code, and emphasis the improvement of working conditions in terms of the rights and requirements of workers to telework.

It stipulates that the contracted activity may be carried out outside the company through the use of information and communication technologies, by means of a written contract for the subordinated teleworking service, with all the rights and guarantees guaranteed by law. In the case of a worker who was previously linked to the employer, the agreement stipulates that the initial duration for teleworking is a maximum of 3 years, considering the contract automatically and successively renewed for periods of 1 year, if not denounced by any of the parties with at least 3 months' notice in advance of the initial term or any renewal.

Terminating the teleworking contract referred before, and maintaining the contractual link to the employer, the agreement stipulates that the employee will resume the functions previously exercised, or other equivalent, unless otherwise agreed in writing.

Other sectors:

There are 5 other conventions regulating telework in Portugal. Four of them concern the public sector and one is limited to one city:

1. There was a company agreement in 2017 between a public company and a trade union of the public sector (AE CMPEA/SINTAP, in BTE 30/2017 (cl.37^a)). This company agreement is not relevant to DEEP VIEW sectors. Furthermore, the content of the company agreement includes mainly the repetition of the telework clauses existent in the labour code. The collective convention stipulated that virtual workers were exemptioned from having defined working hours through a written agreement. It can be argued that non-defined working hours was a right regulated in this collective convention.
2. There was a collective work agreement in 2016 between one county and a trade union of the public sector (ACT 2016 entre a União de Freguesias Santa Clara e Castelo Viegas e o SINTAP). This collective work agreement is not relevant to DEEP VIEW sectors. Furthermore, the content of the collective agreement includes mainly the repetition of the telework clauses existent in the labour code. The collective convention defined particularly the execution of tasks with technical autonomy such as the preparation of studies, opinions and technical and scientific information. The initial duration of the written agreement may not exceed one year and may cease during the first thirty days of execution. The employee has the right to resume the work after the end of the contract, as he was doing it before performing teleworking duties, and can not be prejudiced in his rights. In addition, the agreement stipulated that when a worker is admitted to perform duties in the telework scheme, the respective contract shall include the activity that he will carry out at the time of his termination.
3. There was a collective work agreement in 2016 between a city council and a trade union of the public sector (ACT 2016 CM Praia da Vitória e SINTAP).

This collective work agreement is not relevant to DEEP VIEW sectors. Furthermore, the content of the collective agreement includes mainly the repetition of the telework clauses existent in the labour code. The collective convention defined particularly the execution of tasks with technical autonomy such as the preparation of studies, opinions and technical and scientific information. The initial duration of the written agreement may not exceed one year and may cease during the first thirty days of execution. The employee has the right to resume the work after the end of the contract, as he was doing it before performing teleworking duties, and cannot be prejudiced in his rights. In addition, the agreement stipulated that when a worker is admitted to perform duties in the telework scheme, the respective contract shall include the activity that he will carry out at the time of his termination.

4. There was a collective work agreement in 2016 between a city council and a trade union of the public sector (ACT 2017 CM Mangualde com SINTAP). This collective work agreement is not relevant to DEEP VIEW sectors. Furthermore, the content of the collective agreement includes mainly the repetition of the telework clauses existent in the labour code. The collective convention defined particularly the execution of tasks with technical autonomy such as the preparation of studies, opinions and technical and scientific information. The initial duration of the written agreement may not exceed one year and may cease during the first thirty days of execution. The employee has the right to resume the work after the end of the contract, as he was doing it before performing teleworking duties, and cannot be prejudiced in his rights. In addition, the agreement stipulated that when a worker is admitted to perform duties in the telework scheme, the respective contract shall include the activity that he will carry out at the time of his termination.
5. There was one more convention agreed outside Deep View's sectors and the public sector. There was a collective work convention in 2016 between an commercial and industrial association of a city and a small confederation of trade unions (CCT para o teletrabalho entre a Associação Comercial e Industrial do Fundão e a Confederação dos Sindicatos Independentes). The agreement focused specifically on telework but it covered only 7 workers in 2008 and 17 in 2016 (Gabinete de Estratégia e Planeamento 2008, 2018).

There is little information about the impact of these conventions. For example, in the sector of Health care sector, there is 1 company agreement (i.e. *Acordo de Empresa*) that mentions virtual work, signed in 2009 and in 2017. There is no information about the percentage of employees it covers, however. The charity that promoted it has 4001 employees and has significant activities in the

healthcare sector¹⁷, particularly in the Lisbon region. Allegedly, this charity sets employment standards for many other similar organisations in the sector. Contrastingly, there was one collective convention of work (i.e. *Convenção Colectiva de Trabalho*) focused specifically on telework elaborated by Associação Comercial e Industrial do Fundão, but it covered only 7 workers in 2008 and 17 in 2016 (Gabinete de Estratégia e Planeamento 2008, 2018).

The main work arrangement considered to regulate virtual work was telework (i.e. *teletrabalho*) in general. The legal recognition of teleworking and its first regulation in the Labour Code dates back to 2003. This regulation was limited to the context of a relationship of legal subordination resulting from a contract of employment and not in any other similar contractual relationship (Sousa 2016). Presently, telework is defined in article 165 of the labour code as the work performance performed in fulfilment of the following three apparently cumulative requirements: i) legal subordination regime; ii) usually outside the company; and (iii) using information and communication technologies.

In addition, the residual practice of teleworking means that there is no relevant Portuguese jurisprudence on this type of work (Sousa 2016).

In general, the focus of these legislative initiatives tend to be related to the improvement of working conditions. The labour law stipulates since 2009 that not all teleworking situations have to be consensual between the parties. It is possible that telework can be imposed to the employer in cases of domestic violence and workers with kids up to the age of three years, as long as the work is compatible with telework and the employer has the means to develop telework (Sousa 2016). Furthermore, the issue of social isolation for remote workers is dealt within the labour code, which obliges the employer to “promote regular contact between the remote worker and the company and other workers, in order to prevent isolation” (Eurofound 2010, 16). In an example about the oil and petroleum company BP in Portugal, a health and safety inspection was carried out by the company before any telework begins – issues examined include, in particular, space, ergonomics and safety, as well as ensuring compliance with health and safety standards (Eurofound 2010, 16 citing Broughton, 2007). In addition, the collective agreements of 2017 defined specific regimes for handicap workers stating the waiver of additional work, broader management of flexible working hours for disabled workers, application of part-time work and telework scheme (Centro de Relações Laborais 2018).

However, sometimes the law tends to the improvement of job performance. For example, the labour code does not specify the location of the work other than the

¹⁷ The charity Santa Casa da Misericórdia de Lisboa is registered in NACE Q88.99 - Other social work activities without accommodation n.e.c.

employer's premises, although Article 170 of the labour code elaborates on home-based telework. The number 2 of this article states that whenever teleworking takes place at the worker's home, the visit to the place of work should only concern the control of the work activity and the instruments of work and can only be carried out between 9 am and 7 pm with the assistance the worker or the person designated by him. The general tendency of the law has been stable in the last decade.

The focus of most policies and measures regard the improvements of working conditions. Despite the laws that already exist to regulate virtual work, political parties stated the intention to promote and regulate virtual work directly. The governmental programme of the Socialist Party (presently in government) also stated the intention to adopt a "more flexible model in the provision of work under the General Labour Law in Public Functions, namely through the promotion of telework, part-time and autonomy for the worker in the management of his weekly and monthly schedule" (Governo de Portugal 2015, 78). The text also stated the intention to "create a label of good practice to be given to companies demonstrating policies to promote reconciliation, where men and women are in a balanced way to use shared parental leave, flexible hours and telework" (Governo de Portugal 2015, 122).

Later, in 2017, the right-wing conservative party CDS made a legislative proposal to regulate virtual work in the national parliament (CDS 2017). This initiative was a comprehensive resolution on telework to "include new admissible situations for the exercise of telework" and also to regulate "the exercise of telework in the civil service for the worker with child up to 3 years old".¹⁸ However, the government of the Socialist Party opposed this initiative stating that this topic should be negotiated in collective bargaining and discussed by social partners in social dialogue.¹⁹

However, there are also policies and measures aimed at job performance improvement. All governments in the last decade agreed that the lack of e-skills is one of the greatest challenges of the ICT-related work in Portugal. The programme of the present government, for example, identified a specific lack of skills in programming to support companies to attract more foreign investment in emerging sectors (Governo de Portugal 2015). The implementation programme should be done in partnership with universities and companies, covering all districts of the country (Governo de Portugal 2015). The governmental programme also considered a lack of human resources of the justice information

¹⁸ Marujo, M. (2018, June 8). Direito ao desligamento: Governo remete para negociação coletiva. *Diário de Notícias*, pp. 2017–2018.

¹⁹ Pestana, D. (2017). PS quer negociação coletiva em questões laborais. *PS Notícias*, pp. 1–5.

system (Governo de Portugal 2015). The outcomes of these governmental intentions are still to be evaluated, nevertheless.

These measures are of significant importance to the labour market. Although Portugal is a highly connected country, and e-commerce is widespread among trading companies (Eurofound 2016), the proportion of ICT employees is at the lower end of the scale (2.5% of employed people) compared to the EU27 average (3.7%) (Eurofound 2016). Moreover, 28% of Portuguese people never use the internet, and 45% of its labour force has few or no digital skills (Eurofound 2016). It is expected that in 2020, there will be 15 000 vacant positions in Portugal (about five times more than projected for 2012), for which it will be difficult to find suitable candidates (Eurofound 2016).

6. Industrial relations' context

6.1 Main social partners and degree of social partners' fragmentation

The Portuguese system of industrial relations and its actors emerged in the revolutionary process 1974-75 and the following years. Their structures and strategies are still today influenced by this specific historical context. Furthermore, trade union density is down from 21,7% in 2004 to 16,3% in 2016, according to the ILO (2018). Portugal has a significant low level of employees reporting existence of trade union, works council or similar body (Eurofound 2017b). In addition, collective bargaining coverage²⁰ has declined from 80,2% in 2004 to 72,3% in 2015, according to the ILO (2018). The current generational change within the organisations is opening new horizons for cooperation, according to Naumann (2017). But the financial crisis and the Memorandum of Understanding with the Troika (2011-2014) resulted in a deep and still existing crisis in collective bargaining (Naumann 2017).

The Portuguese industrial relations system has been consistently categorized as 'state-centred' regime and within the South cluster (along with Greece, France, Italy and Spain) (Eurofound 2017a). The state plays a significant role stimulating cooperation among social partners. The main social partners are, from the labour side, the CGTP - Confederação Geral dos Trabalhadores Portugueses Intersindical and the UGT - União Geral de Trabalhadores; and, from the employers' side, CIP - Confederação Empresarial de Portugal, CCP - Confederação do Comércio e Serviços de Portugal, CAP - Confederação dos Agricultores de Portugal and CTP - Confederação do Turismo Português.

²⁰ The collective bargaining coverage rate conveys the number of employees whose pay and/or conditions of employment are determined by one or more collective agreement(s) as a percentage of the total number of employees. Collective bargaining coverage includes, to the extent possible, workers covered by collective agreements in virtue of their extension. Collective bargaining coverage rates are adjusted for the possibility that some workers do not have the right to bargain collectively over wages (e.g. workers in the public services who have their wages determined by state regulation or other methods involving consultation), unless otherwise stated in the notes. The statistics presented result from an ILO data compilation effort (including an annual questionnaire and numerous special enquiries), with contributions from J. Visser.

6.2 Main social dialogue bipartite or tripartite institutions and existing sectoral collective agreements

The main social dialogue institution is the *Conselho Económico e Social* (CES). CES is a constitutional body for consultation and social agreement between the Government, the social partners and other representatives of organized civil society. It aims to promote the participation of economic and social agents in the decision-making processes of sovereign bodies in socio-economic matters.

In terms of topics and outcomes of social dialogue at CES, Eurofound (2016b) reported that a Tripartite agreement was reached about Taxation and non-wage related labour costs and the implementation of minimum wage for 2016. The Tripartite Commitment for a Mid-term Concertation Agreement and Amendment to the Tripartite Commitment Agreement included the Definition of Minimum wage for increase in 2017.

There was also the Tripartite Commitment for a Mid-term Concertation Agreement Bipartite agreement between trade union and employer confederations (extended also to the state as an employer) to compromise their constituencies (unions, employer associations, single employers) not to require unilaterally the expiry of collective agreements during a period of 18 months (starting January 2017).

There was legislation passed after debate about Pension reforms, Working time regulations and Work-life balance related themes, incl. family leaves and Resetting the benchmark for the Social Integration Income (*Rendimento Social de Inserção, RSI*) and the replacement of equivalence scale. The social dialogue also debated topics related to Job creation, reduction of unemployment, Active labour market policies, Benefits (unemployment, sickness schemes) and Labour market participation of different groups.

Within CES, there is an organization with only a tripartite composition. It is named the Standing Committee on Social Concertation (CPCS), and is composed by 13 members: 5 members of Government²¹, 2 representatives of the 2 Confederations of Trade Unions and 1 member per each of the 4 Employers' Confederations. The main task of CPCS is to promote social dialogue and consultation with a view to concluding agreements with these partners.

The list of matters discussed includes public policies for employment, vocational training, social security, taxation and public administration, among others. The CPCS is not very prolific in reaching agreements. In fact, since 2012, the

²¹ The Prime Minister, Minister of Finance, Minister for Labour, Solidarity and Social Security (President, on delegation of powers), Economy minister and Minister for Agriculture, Forestry and Rural Development

committee produced only five agreements, with a relatively small impact in labour relations.

The tripartite social dialogue in Portugal was challenged during the crisis, but the tripartite institutions played an important role in revitalizing it afterwards (International Labour Organization 2017). Although the CPCS continued to meet during the economic crisis, it served to provide a platform for disagreement between the tripartite constituents (International Labour Organization 2017). The existing sectoral collective agreements will be detailed in the next question.

6.3 Collective bargaining structure in each sector

Collective agreements coverage in Portugal declined from 80,2% in 2004 to 72,3% in 2015, according to the ILO (2018). There was a significant decline in collective agreement extensions during the crisis, despite some evidence of a recent increase in coverage (European Commission 2016; International Labour Organization 2017).

During the crisis, the Government maintained a blockage on around 500 local-level Government collective agreements (Eurofound 2018; International Labour Organization 2017). The structure of collective bargaining in other sectors of the economy is decentralized and left to the will of employers' associations (or respective federations) and trade unions (or respective federations).

The agreements reached by these organizations, named *Instrumentos de Regulamentação Coletiva de Trabalho* (IRCT), are conventions concluded by one or more trade union association of a particular sector of activity with the corresponding employer association. The conventions can include different topics and cover different sectors of economic activity. Furthermore, the IRCT can be either negotiable and non-negotiable. The Negotiable IRCT include Collective bargaining agreement (CCT), Collective agreement (ACT) or Business agreement (AE); Membership Agreement (AA); and Arbitration decision (voluntary arbitration).

The Non-negotiable IRCT type are: Extension Cabinet; Ordinance of working conditions; and Arbitration decision (mandatory arbitration and arbitration required). The following table presents recent data about the negotiable collective and company agreements published and workers potentially covered by these conventions.

Table 11 – Main actors, structure and coverage of collective bargaining in the three sectors considered

Portugal	Finance sector	ICT programming and consultancy	Home care
Unions	FEBASE - Federação do Sector Financeiro FSIB - Federação dos Sindicatos Independentes da Banca	FE - Federação dos Engenheiros FETESE - Federação dos Sindicatos da Indústria e Serviços FEPACES - Federação Portuguesa dos Sindicatos do Comércio, Escritórios e Serviços FECTRANS - Federação dos Sindicatos de Transportes e Comunicações SINDEL - Sindicato Nacional da Indústria e da Energia SINDETELCO - Sindicato Democrático dos Trabalhadores das Comunicações e dos Media SITESE - Sindicato dos Trabalhadores e Técnicos de Serviços, Comércio, Restauração e Turismo SNEET - Sindicato Nacional dos Engenheiros, Engenheiros Técnicos e Arquitetos SERS - Sindicato dos Engenheiros	FEPACES - Federação Portuguesa dos Sindicatos do Comércio, Escritórios e Serviços e outros FNSTFPS - Federação Nacional dos Sindicatos dos Trabalhadores em Funções Públicas e Sociais FENPROF - Federação Nacional dos Professores SINTAP - Sindicato dos Trabalhadores da Administração Pública e de Entidade com fins públicos SINDITE - Sindicato dos Técnicos Superiores de Diagnóstico e Terapêutica SEP - Sindicato dos Enfermeiros Portugueses SIM - Sindicato Independente dos Médicos
Employers' Ass.	APB - Associação Portuguesa de Bancos	ANEME - Associação Nacional das Empresas Metalúrgicas e Eletromecânica AGEFE - Associação Empresarial dos Sectores Eléctrico, Electrodoméstico, Fotográfico e Electrónico ANIMEE - Associação Nacional dos Industriais de Material Eléctrico e Electrónico	CNIS - Confederação Nacional das Instituições de Solidariedade
CB structure / coverage	Company level / 89%	Sectoral, multiemployer and company agreements / 65%	Sectoral, multiemployer and company agreements / 77%
	FEBASE - Federação do Sector Financeiro FSIB - Federação dos Sindicatos Independentes da Banca SNQTB - Sindicato Nacional dos Quadros e Técnicos Bancários SBSI - Sindicato dos Bancários do Sul e Ilhas STEC - Sindicato de Trabalhadores das Empresas do grupo Caixa Geral de Depósitos	FE - Federação dos Engenheiros FEPACES - Federação Portuguesa dos Sindicatos do Comércio, Escritórios e Serviços FETESE - Federação dos Sindicatos da Indústria e Serviços FECTRANS - Federação dos Sindicatos de Transportes e Comunicações SINDEL - Sindicato Nacional da Indústria e da Energia SINDETELCO - Sindicato Democrático dos Trabalhadores das Comunicações e dos Media SITESE - Sindicato dos Trabalhadores e Técnicos de Serviços, Comércio, Restauração e Turismo SNEET - Sindicato Nacional dos Engenheiros, Engenheiros Técnicos e Arquitetos SERS - Sindicato dos Engenheiros SIMA - Sindicato das Indústrias Metalúrgicas e Afins	FEPACES - Federação Portuguesa dos Sindicatos do Comércio, Escritórios e Serviços e outros SINTAP - Sindicato dos Trabalhadores da Administração Pública e de Entidade com fins públicos SINDITE - Sindicato dos Técnicos Superiores de Diagnóstico e Terapêutica SEP - Sindicato dos Enfermeiros Portugueses FENPROF - Federação Nacional dos Professores FNSTFPS - Federação Nacional dos Sindicatos dos Trabalhadores em Funções Públicas e Sociais SIM - Sindicato Independente dos Médicos

Unions	FEBASE - Federação do Sector Financeiro FSIB - Federação dos Sindicatos Independentes da Banca	FE - Federação dos Engenheiros FETESE - Federação dos Sindicatos da Indústria e Serviços FEPCES - Federação Portuguesa dos Sindicatos do Comércio, Escritórios e Serviços FECTRANS - Federação dos Sindicatos de Transportes e Comunicações SINDEL - Sindicato Nacional da Indústria e da Energia SINDETELCO - Sindicato Democrático dos Trabalhadores das Comunicações e dos Media SITESE - Sindicato dos Trabalhadores e Técnicos de Serviços, Comércio, Restauração e Turismo SNEET - Sindicato Nacional dos Engenheiros, Engenheiros Técnicos e Arquitectos SERS - Sindicato dos Engenheiros	FEPCES - Federação Portuguesa dos Sindicatos do Comércio, Escritórios e Serviços e outros FNSTFPS - Federação Nacional dos Sindicatos dos Trabalhadores em Funções Públicas e Sociais FENPROF - Federação Nacional dos Professores SINTAP - Sindicato dos Trabalhadores da Administração Pública e de Entidade com fins públicos SINDITE - Sindicato dos Técnicos Superiores de Diagnóstico e Terapêutica SEP - Sindicato dos Enfermeiros Portugueses SIM - Sindicato Independente dos Médicos
Employers' Ass.	APB - Associação Portuguesa de Bancos	ANEME - Associação Nacional das Empresas Metalúrgicas e Eletromecânica AGEFE - Associação Empresarial dos Sectores Eléctrico, Electrodoméstico, Fotográfico e Electrónico ANIMEE - Associação Nacional dos Industriais de Material Eléctrico e Electrónico	CNIS - Confederação Nacional das Instituições de Solidariedade
CB structure / coverage	Company level / 89%	Sectoral, multiemployer and company agreements / 65%	Sectoral, multiemployer and company agreements / 77%

Note: Only the organizations that signed a significant number of conventions were listed.

Source: Author, based on search in DGERT (Ferramenta para pesquisa de convenções colectivas), 14/November/2018 Link: https://www.dgert.gov.pt/ferramenta-para-pesquisa-de-convencoes-coletivas#irt_form, and GEP/MTSS, Quadros de Pessoal 2016

Table 12 - Coverage of conventions in 2016

	Total coverage	Coverage of multi-employer agreements	Coverage of single-employer agreements
J Actividades de informação e de comunicação	65%	62%	3%
K Actividades financeiras e de seguros	89%	73%	15%
Q Actividades de saúde humana e apoio social	77%	74%	3%
Total	88%	84%	3%

Fonte: GEP - Quadros do Pessoal 2016

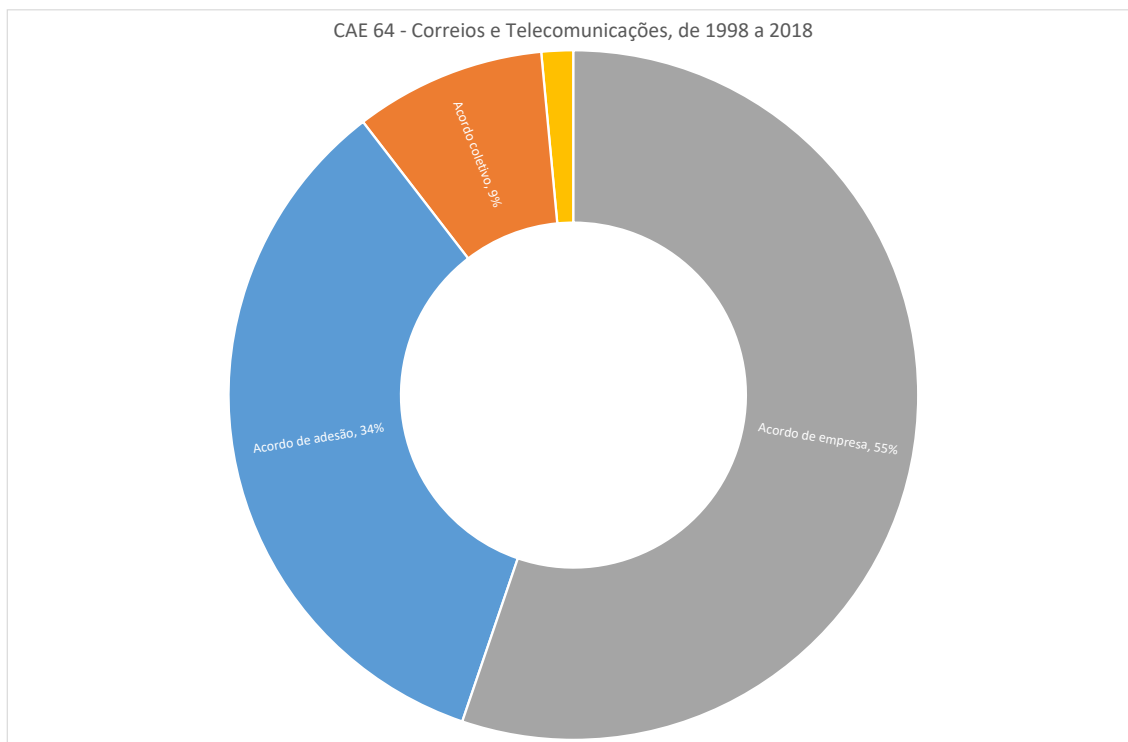
Table 13 – Percentage of conventions in force

Sectors	CCT - Contrato coletivo de trabalho	ACT - Acordo coletivo de trabalho	AE - Acordo de empresa	DA - Decisão Arbitral
ICT (CAE 62)	33%	61%	6%	0%
Financial (CAE 64)	0%	50%	50%	0%
Healthcare (CAE 85)	28%	35%	35%	2%

Source: Author, based on search in DGERT (Ferramenta para pesquisa de convenções colectivas), 14/November/2018 Link: https://www.dgert.gov.pt/ferramenta-para-pesquisa-de-convencoes-coletivas#iact_form

The following graphs present the distribution of conventions in the three sectors under analysis signed in the period of 1998 to 2018.

Table 12 – Percentage of conventions published in the ICT sector from 1998 to 2018

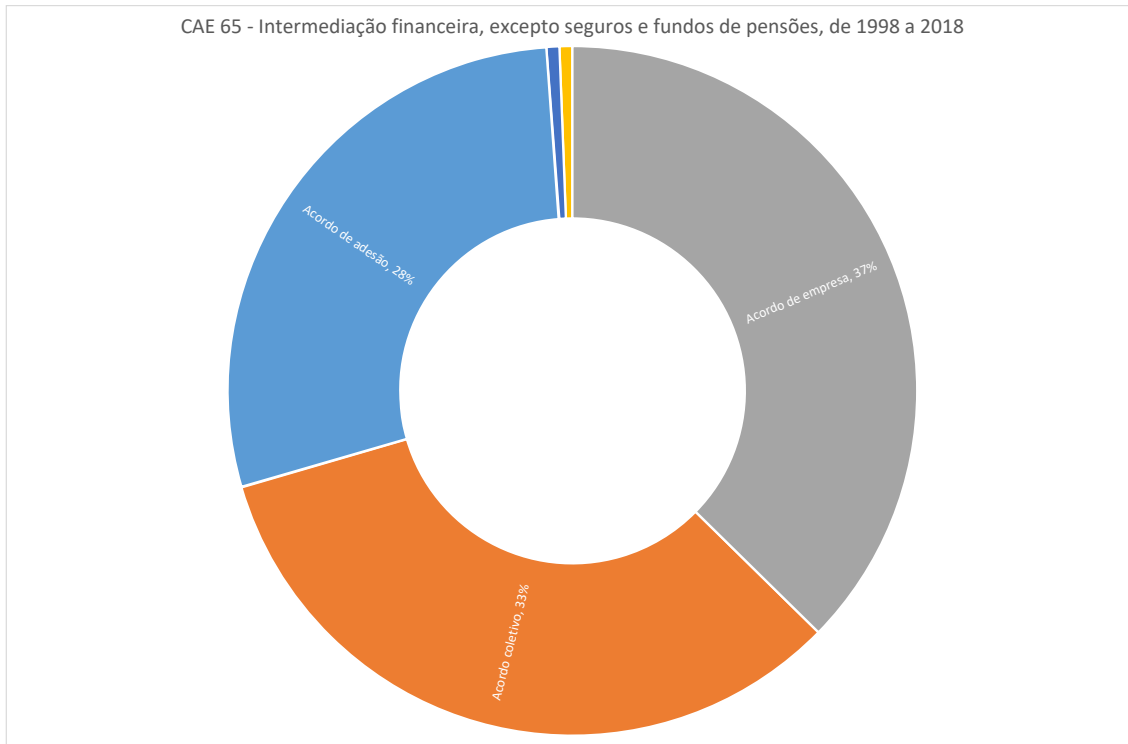


Notes: "Acordo de Empresa" or Company agreements (AEs) are agreements between trade union associations and an employer for a single company. "Acordo coletivo" or Collective agreements (ACs) are conventions concluded between a plurality of employers for a plurality of companies and trade unions. "Contrato colectivo de trabalho" or Collective bargaining agreements (CCCs) are conventions concluded between employers' and trade union associations. "Portaria de extensão" or Extension orders (PE) are governmental decisions to extend the conditions of a collective agreement to employers and workers throughout the industry/sector as well. "Acordo de adesão" or adhesion agreements are agreements between trade union associations, employers' associations and employers to adhere to collective agreements or arbitration decisions in force.

Source: Authors' calculations based on Boletim do Trabalho e do Emprego (<http://bte.gep.msess.gov.pt/>)

The ICT sector signed 67 conventions between 1998 to 2018. The majority (55%) were company agreements, followed by 34% of adhesion agreements and 9% of collective agreements.

Table 13 – Percentage of conventions published in the financial sector from 1998 to 2018

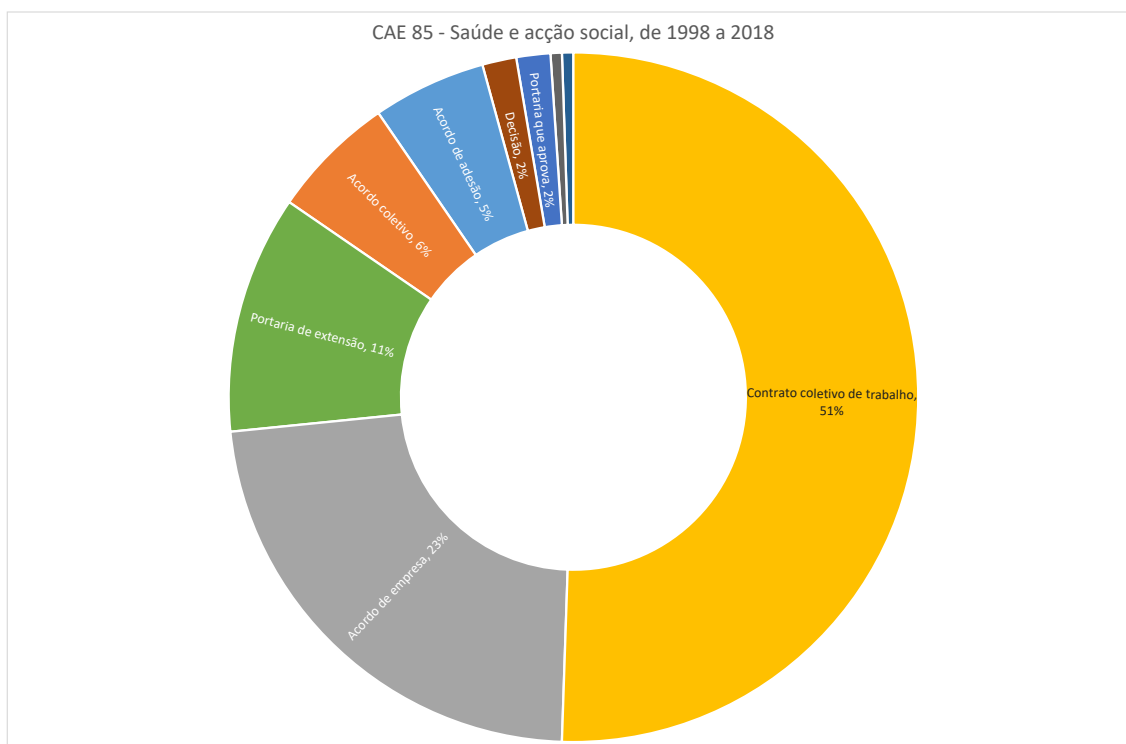


Notes: "Acordo de Empresa" or Company agreements (AEs) are agreements between trade union associations and an employer for a single company. "Acordo coletivo" or Collective agreements (ACs) are conventions concluded between a plurality of employers for a plurality of companies and trade unions. "Contrato colectivo de trabalho" or Collective bargaining agreements (CCCs) are conventions concluded between employers' and trade union associations. "Portaria de extensão" or Extension orders (PE) are governmental decisions to extend the conditions of a collective agreement to employers and workers throughout the industry/sector as well. "Acordo de adesão" or adhesion agreements are agreements between trade union associations, employers' associations and employers to adhere to collective agreements or arbitration decisions in force.

Source: Authors' calculations based on Boletim do Trabalho e do Emprego (<http://bte.gep.msess.gov.pt/>)

The financial sector signed 166 conventions between 1998 to 2018. There were 37% of company agreements, followed by 33% of collective agreements and 28% of adhesion agreements.

Table 14 – Percentage of conventions published in the ICT sector from 1998 to 2018



Notes: "Acordo de Empresa" or Company agreements (AEs) are agreements between trade union associations and an employer for a single company. "Acordo coletivo" or Collective agreements (ACs) are conventions concluded between a plurality of employers for a plurality of companies and trade unions. "Contrato colectivo de trabalho" or Collective bargaining agreements (CCCs) are conventions concluded between employers' and trade union associations. "Portaria de extensão" or Extension orders (PE) are governmental decisions to extend the conditions of a collective agreement to employers and workers throughout the industry/sector as well. "Acordo de adesão" or adhesion agreements are agreements between trade union associations, employers' associations and employers to adhere to collective agreements or arbitration decisions in force.

Source: Authors' calculations based on Boletim do Trabalho e do Emprego (<http://bte.gep.msess.gov.pt/>)

The healthcare sector signed 188 conventions between 1998 to 2018. The majority of the conventions (51%) were collective bargaining contracts, followed by 23% of company agreements, 11% of (non-voluntary) extension orders, 7% of collective agreements and 5% of adhesion agreements.

It should be notice that until the troika arrived in Portugal, extension orders²² were published regularly, which meant that most of the workers were covered by

²² Silva, C. O. da. (2017). O que é a contratação coletiva? ECO. Retrieved from <https://eco.pt/2017/02/10/o-que-e-a-contratacao-coletiva-leia-este-texto/>

collective agreements. But by the end of 2012, the Government approved a resolution that indicated a set of criteria to take into account for the publication. Only extension orders would be issued if, among other conditions, the employer subscribing to the agreement represented more than half of the workers in the sector, which severely restricted the publication of orders. After some time, the contestation of unions and affiliated employers produced results. In fact, in 2014, the extension orders could be published also if the employer signing the agreement was constituted in at least 30% by micro, small and medium-sized enterprises.

Table 14 – Number and percentage of negotiable collective agreements published and of workers potentially covered by conventions published in each sector in 2016 and their total in 2015

	Sector de Atividade	2016							2015
		Collective conventions		Company agreements		Total		% of NACE	Total
		Number	%	Number	%	Number	%		Number
Negotiable conventions (including AA)	J - Information and Communication Activities	2	100%	0	0%	2	100%	1,1%	2
	K - Financial and Insurance Activities	13	81%	3	19%	16	100%	9,1%	3
	Q - Human Health and Social Work Activities	6	75%	2	25%	8	100%	4,6%	3
	Total	117	67%	58	33%	175	100%	100%	145

Note: According to Eurofound (2016b), the number of initiatives/agreements by trade unions to join existing collective agreements (acordos de adesão - AA) they had not previously signed increased significantly in 2016.

Source: (Centro de Relações Laborais 2016)

The table shows that there was an increase from 145 in 2015 to 175 conventions in 2016. The number of conventions in K Financial and insurance activities sector increased significantly from 3 to 16, from 2015 to 2016. Furthermore, in 2016, there were 117 (or 67%) sectoral agreements and 58 (or 33%) company agreements. Among the sectoral conventions, there were 2 sectoral agreements in the NACE J Information and communication activities; 13 in K Financial and insurance activities; and 6 in Q Human Health and Social Work Activities. There were 5 company agreements in 2016, 3 made in the K Financial and insurance activities and 2 in Q Human Health and Social Work Activities.

The following table presents the number and percentage of employees covered by multi-employer and single-employer collective agreements.

Table 15 – Number and percentage of workers potentially covered by collective conventions and company agreements published in each sector in 2016 and total in 2015

	Sector de Atividade	2016								2015
		Collective conventions		Company agreements		Total				Total
		Number	%	Number	%	Number	%	% of NACE	Δ 2015	Number
Workers potential covered by published conventions	J - Information and Communication Activities	9 931	100%	0	0%	9 931	100%	1,3%	482%	2 061
	K - Financial and Insurance Activities	23 486	71%	9 370	29%	32 856	100%	4,4%	1749%	1 879
	Q - Human Health and Social Work Activities	88 226	100%	378	0%	88 604	100%	11,8%	258%	34 364
	Total	714 818	95%	34 530	5%	749 348	100%	100%	153%	490 377

Note: According to Eurofound (2016b), the number of multi-employer initiatives/agreements by trade unions to join existing collective agreements (acordos de adesão - AA) they had not previously signed increased significantly in 2016.

Source: Centro de Relações Laborais (2016)

The table reveals that multiple-employer collective agreements (or collective conventions) potentially covered 95% of all workers in 2016. They also covered 100% of the workers of J Information and communication activities and Q Human Health and Social Work Activities in the same year. In the sector K Financial and insurance activities, only 71% of employees were covered by single-employer collective agreements.

6.4 Collective bargaining coverage in each sector

The following table presents the national and sectoral collective bargaining coverage, according to Author's calculations.

Table 16 – Number and coverage of workers potentially covered by conventions published in 2016

NACE	2016				2015
	Number of workers potentially covered by conventions published	Total of workers	Coverage	Variation	Total
	Number	Number	%	Δ 2015	Number
J - Information and Communication Activities	9 931	72 936	14%	482%	2 061
K - Financial and Insurance Activities	32 856	76 080	43%	1749%	1 879
Q - Human Health and Social Work Activities	88 604	246 800	36%	258%	34 364
Total	749 348	2 641 919	28%	153%	490 377

Source: Own calculations based on data from Centro de Relações Laborais (2016) and Gabinete de Estratégia e Planeamento (2018)

The table shows a national potential coverage of workers of 28% in all sectors and different coverages in the three sectors. There is a potential coverage of 14% in sector J Information and communication activities, 43% in K Financial and insurance activities and 36% in Q Human Health and Social Work Activities. Furthermore, there was an increase of 153% in the national number of workers potentially covered by conventions, from 490377 workers in 2015 to 749348 in 2016. Although raising from smaller numbers, the coverage of the conventions increased more in the three sectors: 482% in J Information and communication activities, an impressive 1749% in K Financial and insurance activities and 258% in Q Human Health and Social Work Activities.

There are three main reasons that help explain the significant increase in the coverage of workers in conventions from 2015 to 2016. First, there was a significant growth of the number of initiatives/agreements by trade unions to join existing collective agreements (Acordos de Adesão) they had not previously signed (Eurofound 2016b). In addition, when compared to 2015, some new sector agreements encompassed a large population. The most outstanding activities in terms of collective bargaining (representing 81% of the total) were the Manufacturing industries (35.4%), followed by Wholesale and retail trade, motor vehicles and motorcycles (20.2%), Construction (13.7%) and Human health activities and social support (11.8%) (DGERT 2016).

The growth in 2016 is also the result of the impact of austerity policies implemented since 2011 and their impact in collective bargaining during the following three years, which led to a drop in coverage down to 10% in 2013 and 2014, according to the expert Campos Lima (Directorate-General for Internal Policies 2016). Nevertheless, present coverage is still far from the levels a decade ago when coverage was more than the double, 65,5% in 2008 to 28% in 2016 (Eurofound 2016b).

7. Social dialogue and collective bargaining

Telework was discussed by political parties, as mentioned above. In 2017, the right-wing opposition party CDS submitted a proposal to regulate telework that was rejected by the government.²³ The current labour minister stated that the government encourages the topic to be discussed through social dialogue and collective bargaining.²⁴ Our research was not able to identify any social dialogue in CES about telework.

In the past, the state promoted telework through legislative actions disregarding the role of social partners. For example, a Eurofound (2010) study revealed that European Framework Agreement on Telework²⁵ was implemented not through collective agreement as in most countries, but through legislative action by the Portuguese government with little or no participation by the social partners. No consultation of management and workers took place in Portugal and “the social partners were reportedly not very in favour of the statutory implementation route” (Eurofound 2010, 14).

As mentioned before, the main work arrangement is telework typically defined in collective agreements as work performed with legal subordination, usually outside the company and through the use of information and communication technologies (Boletim do Trabalho e Emprego 2001, 2003, 2004, 2005, 2009a, 2009b, 2017a)

Collective agreements about virtual work have been meagre. Until 2009, telework was absent of the content of the collective agreements (Dornelas et al. 2011). More recently, an analysis of content of collective bargaining revealed some treatment of issues associated with technological developments, such as those involving electronic communication, and the protection of personal data and regimes of teleworking (Centro de Relações Laborais 2018). This study identified

²³ Reported in (CDS 2017).

²⁴ Reported in (Pestana 2017).

²⁵ In 2005, the European Trade Union Confederation (ETUC), the Union of Industrial and Employers' Confederations of Europe / the European Union of Crafts and Small and Medium-Sized Enterprises (UNICE/UEAPME), and the Centre of Enterprises with Public Participation (ECPE) have signed a framework agreement on telework aimed at ensuring greater security for teleworkers employed in the EU. This agreement is of particular importance because it is the first European agreement put in place by the social partners themselves. The agreement aims at establishing a general framework at European level concerning the employment conditions of teleworkers and at reconciling the needs for flexibility and security shared by employers and workers. It grants teleworkers the same overall level of protection as workers who carry out their activities at the employer's premises.

6 conventions mentioning telework in 2017, although with different depths.²⁶ It detected telework mentions in 1 collective labour agreement, 3 company agreements and 2 collective conventions of work in 2017. Furthermore, we found in our research, covering the 20-year period of 1998 to 2018, that 18 conventions mentioned virtual work in all sectors of the economy and 7 in the three sectors considered, although they presented different depths and coverages. The overall distribution of the 18 conventions in the last 20 years was 37% of company agreements, 26% of collective labour contracts, 26% of collective agreements and 11% of collective labour conventions.

Importantly, the focus of the conventions emphasized the improvement of working conditions mainly through the repetition of the telework clauses existent in the labour code in terms of the rights and requirements of workers to telework. Furthermore, there is very little information about the real impact of these collective agreements. For example, in the health care sector, there is one regulatory instrument (i.e. *Acordo de Empresa*) that mentions virtual work. There is no information about the percentage of employees it covers, however. The charity that promoted it has 4001 employees and has significant activities in the healthcare sector, particularly in the Lisbon region. Allegedly, this charity sets employment standards for many other similar organisations in the sector²⁷. Contrastingly, there is one *Convenção Colectiva de Trabalho* (CCT) focused specifically on telework elaborated by Comércio do Fundão, but it covered only 7 workers in 2008 and 17 in 2016 (Gabinete de Estratégia e Planeamento 2008, 2018). There is no evidence of changes in the focus of these initiatives in the last decade.

Our research did not show any social partners' outcomes through social dialogue. We detected some social partners' outputs through collective bargaining at both sectoral and company level.

In the Computer programming sector, we found conventions of four economic sectors that regulated computer programming workers and mentioned telework:

- In the insurance sector, we found 1 collective contract in 2016 regulating the work of director of informatics and of informatics coordinators (Boletim do Trabalho e Emprego 2017b).
- In the electric & electronics sector, we found mentions of telework in 3 collective contracts in 2011, 2016 and 2017 as follows: 1 collective contract made to

²⁶ AE SCML/SFP e AE SCML/SDPGL – ambos BTE 18/2017 (cl.9.^a); CC AGEFE/FEPCES - BTE 5/2017 (cl. 15.^a - B); AE CMPEA/SINTAP – BTE 30/2017 (cl.37^a); CC FENAME/SITESE e outros - BTE 34/2017 (cl.16^a-A); AC Ageas Portugal /SINAPSA – BTE 37/2017 (cl. 16.^a).

²⁷ The charity Santa Casa da Misericórdia de Lisboa is registered in NACE Q88.99 - Other social work activities without accommodation n.e.c.

regulate, among other workers, the directors of informatics, informatics coordinators and responsible for informatics (Boletim do Trabalho e Emprego 2011); 1 collective contract made to regulate principal analysts of informatics, professional analysts of informatics and professional operators of informatics (Boletim do Trabalho e Emprego 2016a); and 1 collective contract made to regulate informatics analysts and informatics technicians (Boletim do Trabalho e Emprego 2017b).

- In the metal sector, we found 1 collective contract in 2016 regulating informatics analyst, informatics operators, preparative of informatics data and information technicians (Boletim do Trabalho e Emprego 2016b).

Furthermore, in the telecommunications sector, we found 4 company agreements regulating telework in the sectoral regulator Anacom in 2001, 2003, 2005 and 2009 (Boletim do Trabalho e Emprego 2009b, 2005, 2003, 2001). In the finance sector, we did not find any convention mentioning telework. In the health care sector, we found 2 company agreements referring to telework signed between by the charity SCML and unions in 2009 and in 2017.

As mentioned before, the main work arrangement is telework in the three sectors considered. Telework is defined as work performed with legal subordination, usually outside the company/charity and through the use of information and communication technologies (Boletim do Trabalho e Emprego 2001, 2003, 2004, 2005, 2009a, 2009b, 2017a).

The focus of the conventions found in the three sectors tend more to the improvement of working conditions than the improvement of job performance. On one hand, the texts sometimes repeat details of the labour law regarding property of equipment, clients, passwords and software the property of the equipment, costs to the employer. On the other hand, the texts mostly repeat parts of the labour law in terms of how to elaborate a virtual work contract, the rights and duties of workers in virtual work, the volunteer character of telework, equality in treatment between teleworkers and regular workers, provisions about working time, provisions to return the previous work and provisions about work representation.

When analysed in more detail, we detected the same tendency to the improvement of working conditions. In the computer programming sector, in three consecutive company agreements of Anacom, the conventions includes telework for workers with children under 12 years old or workers who are responsible for disabled family (Boletim do Trabalho e Emprego 2001, 2003, 2005). In a later company agreement, the convention adds also telework for Workers with reduced working capacity (Boletim do Trabalho e Emprego 2009b). In the finance sector, no convention mentioning telework was found. In the sector of Health care, there was a similar convention in which the charity SCML granted telework to workers with disabilities, chronic illness or who have children up to 12 years of age or family members with disabilities or chronic illness in their charge (Boletim do Trabalho e Emprego 2009a). The same convention also includes a provision to allow visits to home by the employer to control work and equipment (Boletim

do Trabalho e Emprego 2009a). Curiously, in 2017, the same charity signed a convention with the trade union of physiotherapists stating that SCML will provide the worker, at the end of each six-month period, the possibility of remaining at least one week in the charity, with the objective of reinforcing their integration into the SCML structure and culture (Boletim do Trabalho e Emprego 2017a).

The analysis of the conventions that mention telework and, in particular, those regulating the three sectors reveals a generalized orientation to repeat the labour code, without any perceived difference between multi or single-employer agreements.

8. Incidence and main working conditions of virtual workers in Portugal

The incidence of virtual workers in Portugal is difficult to determine for several reasons. The most recent forms of telework are found in self-employment²⁸ and in standard labour contracts of subordinate workers who work in mix-locations (Gil 2015; Sousa 2016). These forms of telework are not well captured in statistics of employees and telework contracts. Furthermore, despite early provisions in Portuguese labour law, legal telework contracts are not frequent in the labour market (Gil 2015). Thus, the most reliable quantitative source is the EWCS, notwithstanding its problems capturing a long-term view of the phenomena.

In 2005, there were 1,8% workers involved virtual work in at least 25% or more of their worktime and 0,5% % involved 'almost all of the time' in Portugal (Eurofound 2010). In 2010, there was a declining trend in virtual work with less than 3% involved in virtual work (Eurofound 2010). In 2015, the sector of computer programming, consultancy and related activities had 5% and 4% of the workers engaging daily and several times a week in work in locations where virtual work can occur (EU27 average was 6% and 8%, respectively); in the sector of Financial activities, 0% and 4% of the workers engaged daily and several times a week (EU27 was 2% and 3%); and in the sector of human health activities, 0% and 3% of the workers engaging daily and several times a week (EU27 was 3% and 3%).

The proportion of workers indicating to have more than one work location was significantly low in 2015, as it declined further from 2010 to 2015. There was a significantly high proportion of Portuguese workers considering that their work did not involve visiting customers, patients, clients or working at their premises or in their home in 2015. However, there was a growing trend in mobility of workers from 2010 to 2015. Portuguese workers revealed a low percentage of work with ICT (when compared to their European Union colleagues) but with a growing trend in ICT-usage from 2010 to 2015.

The Portuguese industrial relations system has been consistently categorized as 'state-centred' regime and within the South cluster (along with Greece, France, Italy and Spain) (Eurofound 2017a). The state plays a significant role stimulating cooperation among social partners. Thus, the main approach to virtual work was naturally detected in legislative acts. Despite the early legislation on virtual work, this form of employment is not common in the Portuguese labour market.

Virtual work was discussed recently by political parties, but received little consideration from the social partners through social dialogue. In 2017, the right-

²⁸ Self-employment as a proportion of total employment in Portugal is high (Eurofound 2017b).

wing opposition party CDS submitted a proposal to regulate telework that was rejected by the government.²⁹ The current labour minister stated that the government encourages the topic to be discussed through social dialogue and collective bargaining. We found no evidence of debates in social dialogue.

Our analysis showed that collective agreements about virtual work were meagre. In our research covering the 20-year period of 1998 to 2018, we found that 18 conventions that mentioned virtual work in all sectors of the economy and 7 in the three sectors considered, although they presented different depths and coverages. The focus of these conventions was mostly to repeat what the labour law states about the rights and requirements of workers to telework and with a tendency to improve working conditions. There is very little information about the real impact of these collective agreements, however.

There are several factors affecting the low engagement of social partners with virtual work. First, the country has recently come out of a difficult economic crisis marked by trends of company and job destruction, skilled emigration, industrial conflict and poor social dialogue. Second, trade unions face significant difficulties. At the national level, trade union's density is down from 21,7% in 2004 to 16,3% in 2016.³⁰ Portugal has a significant low level of employees reporting the existence of trade union, works council or similar body (Eurofound 2017b). Collective bargaining coverage³¹ is low and declining from 80,2% in 2004 to 72,3% in 2015.^{32,33} Trade unions are not particularly strong in the three sectors

²⁹ Reported in CDS (2017).

³⁰ according to ILO statistics extracted in 3/8/2018 based on Administrative records of the Directorate for labour and labour relations.

³¹ According to the ILO statistics (extracted on 3/8/2018), this collective bargaining coverage rate conveys the number of employees whose pay and/or conditions of employment are determined by one or more collective agreement(s) as a percentage of the total number of employees. Collective bargaining coverage includes, to the extent possible, workers covered by collective agreements in virtue of their extension. Collective bargaining coverage rates are adjusted for the possibility that some workers do not have the right to bargain collectively over wages (e.g. workers in the public services who have their wages determined by state regulation or other methods involving consultation), unless otherwise stated in the notes. The statistics presented result from an ILO data compilation effort (including an annual questionnaire and numerous special enquiries), with contributions from J. Visser.

³² according to ILO statistics extracted in 3/8/2018 based on Administrative records of the Directorate for labour and labour relations.

³³ Until the troika arrived in Portugal, extension orders were published regularly, which meant that most of the workers were covered by collective agreements. But by the end of 2012, the Government led by Passos Coelho approved a resolution that indicated a set of criteria to take into account for the publication. Only extension orders would be issued if, among other conditions, the employer subscribing to the agreement represented more than half of the workers in the sector. And this severely restricted the publication of ordinances. After some time, the union and employer contestation that was affiliated was able to produce results: in 2014, the extension orders could be published also if the employer signing the agreement was constituted in at least 30% by micro, small and medium-sized enterprises. In Silva, C. O. da. (2017). O que é a contratação coletiva? ECO. Retrieved from <https://eco.pt/2017/02/10/o-que-e-a-contratacao-coletiva-leia-este-texto/>

under analysis. Last, there are cultural aspects of the Portuguese labour market that further limit the rise of virtual work. One of the main obstacles to the implementation of forms of flexible work is the organizational culture, since the companies have traditional methods that defend the physical presence of the worker (Crueira 2015). This culture embedded in the systems, hierarchies and mentalities of workers leads to a difficult change, being one of the reasons why Portuguese companies do not adhere to telework (Crueira 2015). Digital illiteracy can also be constraining the spread of telework (P. A. F. dos S. Almeida 2006a).

Our research did not show any social partners' outcomes through social dialogue on virtual work. However, we detected some social partners' outputs through collective bargaining at both sectoral and company level. In the computer programming sector, we found conventions that mentioned telework in four economic sectors (insurance, electric & electronic, metal and telecommunications) that regulated computer programming workers. We did not find any convention mentioning telework in the finance sector. In the health care sector, nevertheless, we found two company agreements referring to telework signed between by a relevant charity and unions in 2009 and in 2017.

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Annex - Methodological note

This report presents the results of the desk research conducted to systematize and review the literature existent about virtual work in Portugal. The report provides a clear picture of the state of the art in Portugal, regarding the incidence and features of virtual work at national and sectoral level; previous research outcomes on the effects of virtual work on working conditions, national/sectoral policy approach on virtual work; and the role played by social dialogue and collective bargaining at national, sectoral and company level to regulate working conditions of virtual workers.

The report focused on three sectors: Computer programming, consultancy and related activities; Financial activities; and Health care activities. The work was carried out from March to July 2018. It included extensive online searches using the strings “teletrabalho”, “tele-trabalho”, “tele trabalho”, “trabalho à distância”, “trabalho-à-distância”, “virtual work Portugal”, “virtual work Portuguese”, “digital work Portugal” and “digital work Portuguese”. The searches were conducted in three different sites: First, the work compiled scientific literature existing in national and international databases using the search engine Nova Discovery, which aggregates: the main databases of scientific articles, B-On (the main scientific engine in Portugal), institutional repositories and catalogues of all libraries of Universidade Nova de Lisboa, as well as ScienceDirect. Second, the work included searches in *Boletim do Trabalho e Emprego*, the official publication of labour conventions. Last, other searches were conducted in Google Search engine to assure a widest coverage possible of documents related to the topic. The typology of documents considered in the systematic review included: articles, theses, dissertations, books, book sections, conference proceedings, reports, bills, statutes, working papers, newspapers and magazines.

Our review of the literature compiled of 150 publications of all types about virtual work or industrial relations. We analysed 58 international scientific publications and 14 grey publications concerning virtual work, industrial relations and/or Portugal. We also considered 77 publications written about Portugal that mentioned the string *teletrabalho*, out of which 61 publications were selected for detailed analyses. The scientific publications selected consisted of 3 PhD Thesis, 19 Master Thesis, 10 Journal Articles, 6 book chapters, 3 books, 4 conference proceedings and 16 reports. We also examined 14 grey publications.

8/11/2018