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Extended Abstract

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TELEWORK: FROM PROSPECTS TO THE ACTUAL TRENDS, AND FROM SECTORS TO REGIONS

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Abstract.

As highlighted in the introduction, telework, as a complex phenomenon, can be studied from different perspectives. In this paper we will focus exclusively on its economic and territorial dimensions, exploring the differences that exist when comparing the numbers of teleworkers by country and their recent evolution. The sectoral structure of each economy is a major determinant of telework potential, both now and in the future. But the level of ICT development and the education level play also an important role, as well as the type of jobs. The factors that seem to determine the reduction of their growth expectations in the medium-long term are particularly considered.

Key words: telework, sectors, countries, regions.

JEL: J2, O3, D2

1. Introduction

Since the 1990s, the development of new information and communication technologies (ICT) has significantly expanded the possibilities for remote work. This is not only because they facilitate intercommunication and remote access to data sources and documents but also because they enable virtual meetings and interviews. All of this has increased the ability of many professionals and workers to perform their tasks from a location other than their workplace. In fact, the integration of ICT has been and continues to be a key element of what we now call "telework," which Eurofound and the ILO define in their reports as work carried out outside the premises provided by the respective companies (and organizations) through the use of information and communication technologies.

Available studies show that, since the year 2000, the number of people engaged in some form of telework has been growing increasingly significantly, particularly in some advanced European countries such as the United Kingdom, Germany, Sweden, and, of course, the United States. Some statistical estimates by the European Labour Authority (ELA) indicate that, by 2010, the percentage of employed individuals working from home, either continuously or on certain days of the week, had already reached considerable levels in countries such as the Netherlands (14%), Sweden (13%), Finland (12%), Denmark (11%), and Belgium (10-11%).

There is no doubt, however, that the emergence of COVID-19 and the regulations that forced a large portion of the population to remain at home gave an extraordinary boost to telework and allowed its vast possibilities to be more clearly recognized. In fact, in all countries, including those where ICT and the internet were less developed, telework increased rapidly (2019-2020) at remarkably high rates. It reached up to 38% of the working population and even higher in some cases, as we will see in the following sections.

However, before presenting some data and highlighting certain aspects of the expansion and geography of ‘telework,’ it is necessary to clarify that telework is a highly multifaceted topic, offering possibilities for study from a wide range of perspectives. It is evident, for example, that telework provides, or can provide, advantages in terms of improving individual and family well-being (e.g., by reducing daily commuting time or facilitating work-life balance). However, it is equally true that its practice also generates significant challenges for families, particularly regarding the need for space at home, changes in daily life, or expenses that are not always covered by employers.

Telework also affects social relationships, leading to a certain degree of isolation among those who practice it, which can result in personal and medical issues. Additionally, there are potential difficulties and conflicts related to work supervision, distrust regarding work pace and productivity, the possible loss of teamwork benefits, and other socioeconomic aspects, including the need for changes in labor legislation.

The study of teleworking can be approached from a broad range of aspects, many of which also face a clear shortage of data and detailed information necessary to analyze its evolution, advantages, and practical challenges. In this regard, the available data remains very limited and/or highly specific (covering only a particular year or a case study). There are no long-term data series, and in many cases, they rely exclusively on surveys.

Based on the above, it is important to clarify the approach we will take here. Specifically, we will not assess whether telework contributes to improving the well-being of those who practice it, nor its advantages and challenges from a household perspective, nor its evaluation from a business or public administration standpoint. As the title of this article suggests, our focus will be on presenting and discussing the changes that have occurred in the expansion of telework, highlighting the advantages and limitations different sectors face in its implementation, the disparities observed across the EU, and the situation in Spain and its autonomous communities.

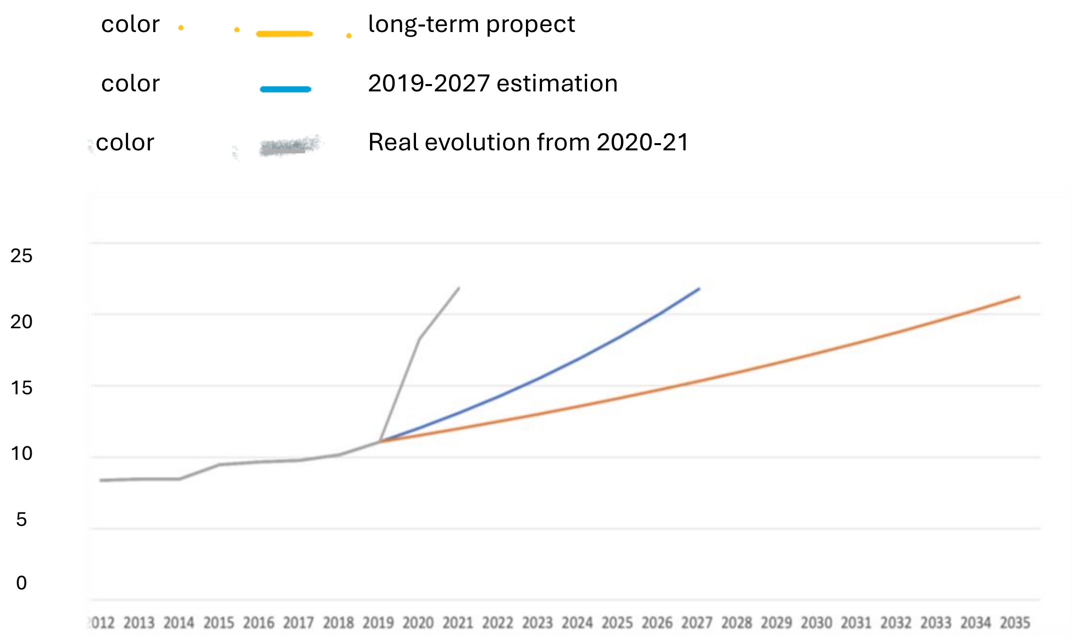
2. The Covid and the expected trends

The outbreak of the Covid-19 pandemic undoubtedly acted as an extraordinary driving force for remote work. One of the first reports from Eurofound highlighted, for example, that around 38% of employed individuals in EU-27 had been working from home during the pandemic. Some surveys conducted in 2020 indicated that this percentage may have even risen to 48%, with 34% of employed individuals working exclusively from home several days a week and 14% combining their work at other locations or at the premises of the companies or organizations they were affiliated with.

Moreover, appreciation for the apparent advantages of remote work also increased. In fact, when the restrictions imposed due to the pandemic began to ease, leading to an increase in in-person workdays at companies, 78% of respondents expressed a preference for having the possibility of working from home, at least partially.

Figure n. 1

PROSPECTS AND REAL EVOLUTION OF TELEWORKING (in %)



Source: Data from *European Labour Authority* 2023 – *Eurofound*.

The expansion of remote work during the pandemic created the expectation that, in the future, its level would remain high and could even increase. However, when mobility restrictions began to relax, what actually happened was a decline in the number of people working remotely or, in many cases, a reduction in the number of weekly or monthly days employees were allowed to work from home or locations outside their companies or institutions. Despite this, some studies predicted that the prevalence of remote work would rise again in the following years, although under more flexible arrangements than those experienced during the pandemic.

This prediction has not been fully realized or, at least, not yet in the expected terms and pace. At the European level, some studies promoted by

Eurofound and others focused on specific cases maintain that remote work continues to grow, albeit gradually and in a hybrid form. That is, with some days of work from home and others at the workplace, but with some additional noteworthy changes: work meetings have tended to be held almost exclusively online, and business travel for executives and key staff members to maintain contact with branch teams, clients, and suppliers has decreased. This trend is evident in large multinational companies but also in smaller firms that, for commercial or technical reasons, have significant international activity.

As a result of all these factors, medium-to-long-term estimates generally suggest that the proportion of people engaging in remote work will continue to increase gradually but steadily in the coming years. However, this will always take place under hybrid remote work arrangements, meaning a combination of in-person work at offices with a few days per week working from home or another external location.

(to be extended)

3. Telework and sectors

The sectoral structure of each economy is a major determinant of telework potential, both now and in the future. But the level of ICT development and education also play an important role, as well as the type of jobs. The factors that seem to determine the reduction of their growth expectations in the medium-long term must be also considered.

Some authors (Adams-Prassi et al., 2022; and Adrijan et al., 2023) have contributed to this topic, as has the OECD (2023). They have all emphasized an evident fact: there are sectors and industries where remote work is feasible and others where it is hardly practicable. The latter is the case for industries that require direct contact with those who visit shopping centers and other establishments, such as retail, healthcare, or the previously mentioned tourism sector. However, this does not exclude the possibility that some employees in companies operating in these industries may telework partially, generally depending on their specific job roles (e.g., accounting, management, planning, etc.).

A similar situation occurs in sectors where manual labor is predominant, such as various manufacturing, extractive, and energy production industries, as well as agriculture, livestock, and fishing. However, certain positions in these industries may still allow for remote work through hybrid arrangements.

There are already contributions that analyze remote work not so much in terms of 'sectors' and 'industries' but rather in relation to the specific job positions within a company. See, for example, Dingel and Neiman (2020) or CEPII (2022).

Regarding the previously mentioned commerce sector, the increase in mail-order sales may lead to a rise in the number of remote workers responsible for monitoring and tracking shipments. However, it is also important to note that, at the same time, many in-person jobs are being created in the distribution centers of large companies—such as Amazon—that specialize in this activity.

(To be revised)

Table n. 1

Sectoral distribution of teleworking

(% of employees teleworking. Figures 2021-23

Outsdtanding sectors (> 10% of workers teleworking)		**Sectors having lower %** (less than 10% teleworking)	
Información y Comunicaciones	(29%)	Ind. Manufactureras	(7%)
Organismos extraterritoriales.	(28%)	Salud y serv. sociales	(5%)
Bancarias, seguros y finanzas	(22,5%)	Comercio (mayor y detall)	(4,5%)
Profesionales, investig. y otros	(21,5%)	Transporte y Almacº.	(4,5%)
Activ. inmobiliarias	(15%)	Suministro agua y simil.	(4%)
Energía (electric., gas, ...)	(14%)	Construcción y Au.	(3,5%)
Administraciones Publicas	(13,5%	Minería y derivad	(3%)
Entretenimº. y cultura	(10,5%)	Agricult., Ganad. Y Forest.	(2%)
Otras actividades servicios	(10%)	Hostelería y restauración	(2%)

Fuente: Elab. con datos de los Informes 2021 y 2023 de *Labour Force Survey.* (*) Los datos de base incluyen los empleados que teletrabajan usualmente (desde 2 días o más por semana) y quienes lo hacen de forma más irregular (8 días al mes o menos

Table No. 1 shows the industries that reached the highest levels of remote work in the EU-27 during 2021-2023, as well as those that recorded minimal or nearly nonexistent percentages. The data are based on our analysis of the Labour Force Survey (ELA, 2023) reports, and the percentages for each sector include not only individuals who telework regularly but also those who do so on a weekly or monthly basis.

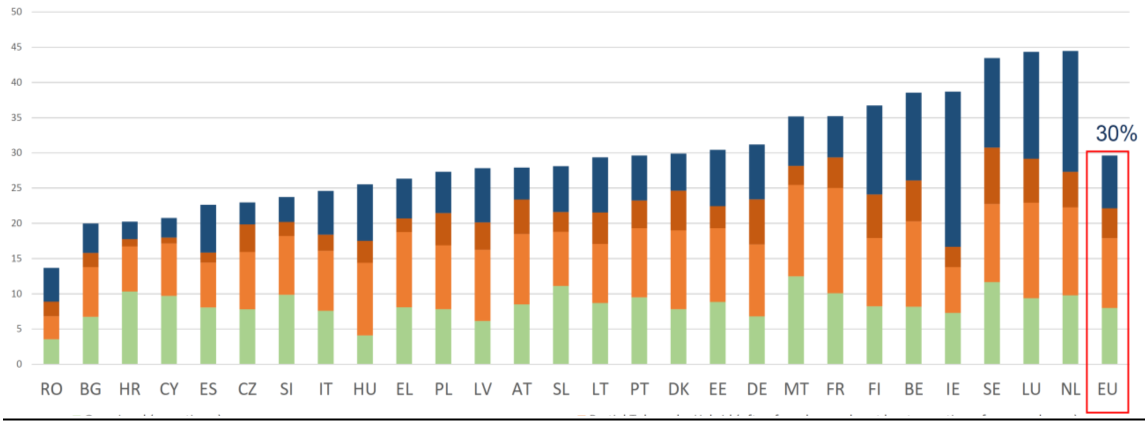
4. Telework by countries - EU-27

The 'geography' of teleworking in Europe shows that there are significant differences in the prevalence of teleworking among EU member states. It is important to note, first and foremost, that there are no reliable historical data series, and that the available data are either based on surveys that are not entirely comparable or come from case studies (a country, a region, a city), whose methodology and timeframe do not allow for the identification of trends or medium/long-term consequences. However, information contained in a recent OECD document and some studies conducted at the initiative of Eurofound provide an approximation of what has happened with teleworking at the European level.

As mentioned in the introduction, in 2010, the number of people who regularly combined their work with teleworking exceeded 10% of total employees in countries such as the Netherlands, Sweden, Finland, Denmark, and Belgium. The remaining European countries were below this threshold, with some showing particularly low levels of telework, especially in Central and Eastern European countries and several Southern European nations such as Italy, Greece, and Spain. Let us take this reference as a starting point.

Data on the impact of the pandemic and mobility restrictions are more abundant and demonstrate that in all European countries, there was a significant shift in both the number and intensity of teleworking. However, there were some clear exceptions, such as Bulgaria, Romania, Poland, and the Czech Republic, where telework saw only limited increases during the pandemic. Conversely, some countries experienced dramatic growth, both in the number of people teleworking and in the level of weekly or monthly engagement. This was the case in Malta, Ireland, and Luxembourg, which can likely be explained—at least in part—by the development of ICT infrastructure in these countries and the dominant sectors in their economic structure.

Figure n. 2
EU-27, Employees Teleworking by Country and by Type of Engagement (%)



Source: From data by ELA, 2023-2024

Figure n. 2 shows the share of telework in all EU member states in 2021. The EU-27 average was around 30% of total employees, but the differences between countries were quite significant. Among the top-ranking countries, three surpassed 40% of total employees teleworking in 2021 (the Netherlands, Luxembourg, and Sweden). As previously mentioned, these countries already had a strong telework tradition (more than 10% of employees in 2010), which continued to grow in the following years and especially after the pandemic. These three countries were followed by five others where teleworking exceeded 35% of total employees: Ireland, Belgium, Finland, France, and Malta. On the lower end of the scale were Romania, Bulgaria, Hungary, and Cyprus, where the percentage of employees teleworking was well below 20%. The remaining EU-27 countries ranged between 20% and 35%. Spain ranked fifth from the bottom in 2021.

Any case, the main conclusion from the data is that the pandemic significantly boosted telework across the EU, although the differences between countries remain substantial. Graph 2 also highlights some differences regarding the prevalence of various levels of telework in each country: occasional telework, partial telework from home, partial telework from locations other than home, and full-time telework. The most dominant mode is partial teleworking, either from home or from locations outside the workplace.

4. The Spanish case and a first approach to telework by regions.

(to be enlarged)

In the context of the EU-27, Spain was, prior to the pandemic, one of the countries where teleworking registered the lowest percentages. And it still is, although data from some sources—reliable or not—have assigned to Spain a much higher level. The latest survey conducted by the European Labor Authority concluded that, in 2021, 21.8%/22% of the employed population in the country worked remotely, albeit under various modalities: full-time; part-time, at home or another location; or only occasionally. However, the Active Population Survey (EPA, 2nd quarter of 2023) provides data indicating that only 7.3% of the employed population had teleworked from their home "more than half of the mandatory working days."

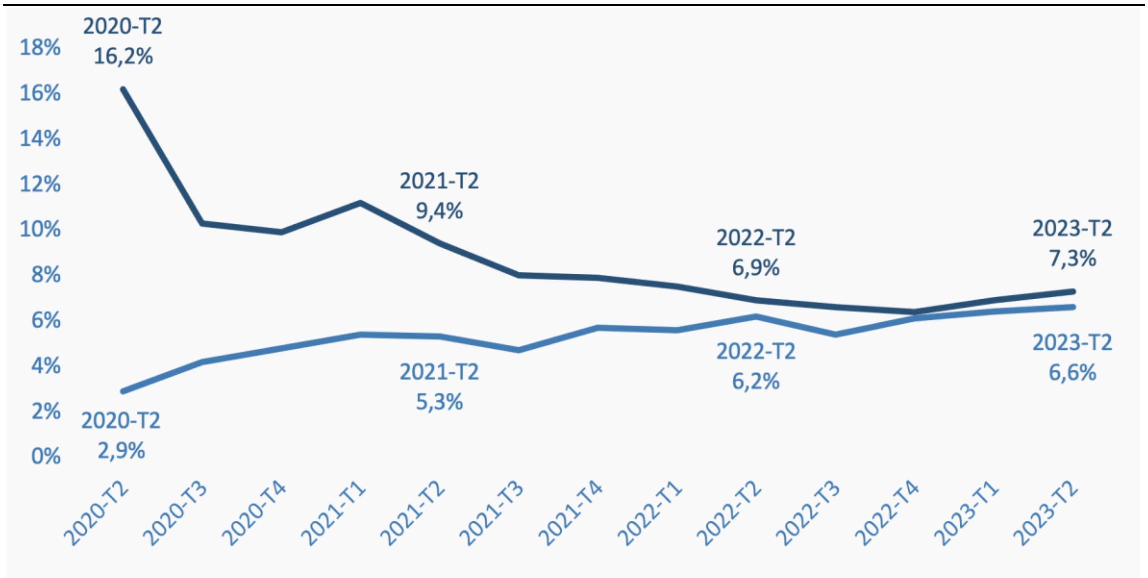
This significant difference requires some sort of explanation, and we believe there are several factors to consider. The first is that the reference years of both surveys are different (2021 and mid-2023, respectively) and that, in Spain, as in other countries, once the most dramatic phase of Covid-19 was overcome, a return to working on company premises occurred. The second factor to take into account is that the base figures and resulting percentages of the population come from surveys whose approaches are not necessarily consistent. In the case of the EPA, what is considered is the employed population that carried out their activity "from/at their home, half of the days they worked"; whereas, in the ELA's (2021) estimates, both those who teleworked every day and those who only did so some days were included, as well as those who only teleworked "occasionally." In reality, if we exclude the latter group, the percentage of those—according to ELA—who practiced teleworking reduces to about 14-15% of the employed population.

The analysis of both sources helps to clarify the differences that exist somewhat further. According to the EPA, the number of people teleworking at least half the working days as of mid-2023 was 1,527,800, to which we should add those who teleworked occasionally: 1,381,200 people. The percentage represented by both figures raises the number of employed people teleworking in the 2nd quarter of 2023 to 13.9%. A percentage close to, although lower than, that estimated by the ELA in 2021. Furthermore, if it were possible to add those who teleworked 'occasionally' in 2023, the difference between 2021 and 2023 would already be quite narrow and reasonable. Especially if we bear in mind that—as we have noted—when the most dramatic phase of Covid-19 was overcome in Spain, there was a reduction in the number of people teleworking.

The data and assumptions we have considered are clearly reflective of the lack of consistent data and homogeneous series facilitating the analysis of teleworking in Spain. Possibly, an in-depth exploration of the information provided by the EPA, using its microdata, will allow for better refinement of the figures and their evolution.

Figure n. 3

Spain. Evolution of teleworkers (occasionally and teleworking more than days working. (Quarters data 2020-2023)



Source: Infojobs (2023). Data from EPA, National Institute of Statistics, own revision.

Blue/black line: teleworking more than half of days worked.

Blue line: Teleworking occasionally.

Is it possible to provide figures that show the differences in teleworking levels by Autonomous Communities (regions)?

The topic is particularly relevant in a country like Spain, where interregional differences receive considerable attention. However, the answer to this question can only be negative because, as we have emphasized, the available information on teleworking is quite limited at the national level and is based on survey data. Furthermore, there are no data series on teleworking by region. Perhaps the most reliable figures could be extracted from the Active Population Survey (EPA); of course, through significant research efforts which we have not carried out yet.

Added to this is the fact that some data disseminated about Spanish cities and coastal areas can hardly be considered reliable due to how they were obtained. To provide an adequate response regarding differences among Autonomous Communities, it would, in any case, be necessary to conduct specific and sufficiently in-depth research.

Using data from the National Statistics Institute (INE), Table n.3 shows the number of people employed in 2021-22 by regions, and the possibilities of teleworking by region (totally and only partially). It is only a first approach to a regional overview, which we expect to analyze more carefully from the EPA (Encuesta de Población Activa) series.

Table n. 3 offers an interesting overview on the employed and the possibilities of teleworking by regions, using data from the National Statistics Institute (INE).

Percentage values give a clear advantage to Catalonia, the Community of Madrid, and the Basque Country, both for full-time and partial teleworking. On the other hand, if we consider the regions where the job allows for 'partial' teleworking (several days a week, for example), the three aforementioned communities are joined by: Aragon, the Valencian Community, Galicia, the Region of Murcia, Navarre, and La Rioja. Conversely, the regions with the lowest possibilities for teleworking (full or partial) are Asturias, the Canary Islands, Castilla-La Mancha, Extremadura, and even Andalusia.

Table n. 3

Possibilities of teleworking by regions.

The employment post should permit to telework:

	Total of workers	Yes	Only Partially	No
Personas ocupadas				
Total nacional	20.498.176	13,8	19,1	67,1
Andalucía	3.410.920	11,8	15,4	72,8
Aragón	578.091	7,7	18,3	74,0
Asturias, Principado de	387.874	8,4	16,7	74,9
Balears, Illes	623.256	6,1	17,4	76,5
Canarias	992.323	10,2	13,6	76,2
Cantabria	262.434	10,0	16,1	73,9
Castilla y León	994.298	11,7	16,4	71,9
Castilla-La Mancha	921.228	8,3	12,9	78,8
Cataluña	3.543.506	20,8	23,1	56,1
Comunitat Valenciana	2.147.792	11,6	22,8	65,5
Extremadura	409.191	8,4	15,5	76,1
Galicia	1.034.810	10,3	18,8	70,9
Madrid, Comunidad de	3.150.283	18,5	22,5	59,0
Murcia, Región de	621.262	11,3	19,5	69,3
Navarra, Comunidad Foral de	305.313	12,0	23,6	64,4
País Vasco	904.769	17,4	16,3	66,3
Rioja, La	147.106	8,4	18,1	73,4
Ceuta	28.382	15,9	8,6	75,4
Melilla	35.337	13,0	6,9	80,1

Source:

It seems rather clear that sectorial structure of region's economies constitutes a key to understanding the importance of teleworking. Regions having relevant agricultural activities, plus conventional services (commerce, health, education, transport and other similar) plus the construction sector, for example, don't have many possibilities for teleworking. On the contrary, regions having high levels of employment in advanced services activities (banking and finances; consulting; communications; etc.) may have many more possibilities for people to telework.

(This section is going to be clearly improved)

5. **Conclusions and some final remarks**

(There is a draft, but it will be revised once the previous text is improved)

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