The Positive Legacy of the Pandemic on Labor Productivity: the European Experience

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Abstract

What were the pandemic's main effects on labor productivity? Which European countries made the best use of remote working even after the health emergency ended? This paper aims to highlight, through a simple analysis of OECD and Eurostat data, that the benefits of teleworking during the pandemic have not persistedwith the same intensity in all European countries, already since 2021. For this reason, the causes that may have determined this result were investigated. In the final section of the paper, some interventions were proposed to evaluate, seize, and capitalize the positive opportunities offered by even a dramatic situation like the Covid-19 pandemic.

Keywords: labor productivity,smart working, teleworking, ICT investment, human capital, pandemic

1. Introductıon

From the OECD data, which indicates a fluctuating trend in labor productivity in some European countries, it can be deduced that the pandemic has also generated some positive consequences on labor productivity through teleworking[1]. In fact, ome European countries have had to face, due to the pandemic, a considerable use of telework. For this reason, it is important to analyse the positive and negative effects of remote work in terms of labour input efficiency.

Of course, the work performance, imposed by the health emergency, does not exactly coincide with smart work but, without a doubt, the phases following the lockdowns have shown that more autonomous, flexible, and decentralized employment relationships can significantly contribute to improving work performance. In other words, there are two questions to be answered: given that the use of remote work was a constraint for companies during 2020, what effects were observed in terms of labour productivity? Not only that: in 2021, when the constraints on social distancing were relaxed and a lot of remote work returned to presence, what happened to labor productivity?
The economic, social, and demographic challenges do not signal a need for a complete transformation of "office" work to "home" work but, rather, drive to a better-quality job.

After the pandemic, each firm can decide to increase the use of teleworking or return to the pre-pandemic situation but, in any case, this involves different strategic decisions: in the first case, the company will invest in ICT and in a suitable human capital, which will have obvious transformations in work organization. In the second case, each company will be able to maintain traditional strategy and work organization. This choice will also have consequences in relation to *implicit* costs[2].

The paper is organized as follows: after a preliminary observation of the international macroeconomicframework, some OECDand Eurostatdata will be analyzed tohighlightwhich European countries have most benefited in terms of productivity from teleworking. The main drawbacksof this new way of working will also be summarized (section 2). In the section 3, some policy observations, although not definitive, will concludethe brief picture analyzed.

2. Labor productivity and the pandemic tsunami

[1]In this paper the expressions *telework,remote work,* and *smart work* will be used as synonymous. For an interesting exploration to the definition and concept of teleworking, see Eurofound (2022), Telework in the EU: Regulatory frameworks and recent updates, Publications Office of the European Union, Luxembourg.

[2]An implicit cost is any cost that has already occurred but not necessarily shown or reported as a separate expense. It represents an opportunity cost that arises when a company uses internal resources toward a project without any explicit compensation for the utilization of resources. This means that, when a company allocates its resources, it always forgoes the ability to earn money off the use of the resources elsewhere, so there's no exchange of cash. Put simply, an implicit cost comes from the use of an asset, rather than renting or buying it.

In some European countries, particularly Italy, political authorities, economists, and sociologists[3]have long faced a problem about low labor productivity. One of the possibilities to stimulate labor productivity could be to increase multifactor productivity[4].

To stimulate labor productivity growth through multifactor productivity, particular account must be taken of the effects of technological progress and human capital growth. As far as technological progress is concerned, every improvement has positive effects on labor productivity: more and/or better is produced for the same hours worked. In relation to human capital growth, many authors[5] confirm the positive relationship between human capital and labor productivity. In general, however, the companies will have to invest in R&D and in specific human capital; but, to increase the specific human capital, is also necessary an increase of generic human capital[6] by a structure of compulsory school education well oriented to the needs of the economic system. As far as Italy is concerned, for example, it is therefore now unavoidable to face with awareness a stable reform of the education system. Furthermore, thinking above all of the Italian economic system, it was considered essential to suggest a deep and widespread digitalization of the public administration to allow greater efficiency of the public sector which would have obvious positive effects on the private sector.

Of course, it is also necessary to act on the aggregate demand side because the real wages, closely linked to labor productivity, are frozen by economic stagnation and do not stimulate the substitution between labor and capital. In the past we reasoned on two elements[7]: on the one hand, the need for greater investment in ICT capital with strong support by the financial sector; from another perspective, a public and private investment in generic and specific human capital to obtain a better educational and a more professional training.

From 2019 to 2021[8], however, international production conditions suffered a strong tsunami followed, in recent months, by further exogenous shocks that lead to new considerations.

Since the beginning of 2020, China faced with Covid-19 virus. A few weeks later, the World Health Organization (WHO) declared a Public Health Emergency of International concern on 30 January 2020, and to characterize the outbreak as a pandemic on 11 March 2020. In the first weeks of the pandemic, international production activity fell but, immediately afterwards, each country had to deal with its own degree of ICT to allow economic activities to take place despite social distancing measures.

To better observe the degree of growth in ICT in some European countries, we used, as a proxy of the ICT degree of the population, the data about the internet access and usage by individuals during each year (between 2010 and 2021).As Table 1 shows, there was an increase in ICT degree in all the countries considered. Even Italy, while remaining in last place, shows an important increase in the ICT degree (+30.2 percentage points), thus reducing the gap with EU 27. It should be noted that Sweden and Norway show a smaller increase, but this is reasonably due to the already high ICT population degree since 2010.

[3]Parravicini, P. and Graffi, A. (2019) The Labor Productivity Slowdown: The True Issue of the Italian Economy. *American Journal of Industrial and Business Management*, 9, 253-266.

[4]Multifactor productivity (MFP) reflects the overall efficiency with which labor and capital inputs are used together in the production process. Changes in MFP reflect the effects of changes in management practices, brand names, organizational change, general knowledge, network effects, spillovers from production factors, adjustment costs, economies of scale, the effects of imperfect competition and measurement errors. Growth in MFP is measured as a residual, i.e., that part of GDP growth that cannot be explained by changes in labour and capital inputs. In simple terms therefore, if labor and capital inputs remained unchanged between two periods, any changes in output would reflect changes in MFP. This Indicators is measured as an index and in annual growth rates (OECD Data, https://data.oecd.org/lprdty/multifactor-productivity.htm)

[5]SeeGerhart, B., & Feng, J. (2021). The resource-based view of the firm, human resources, and human capital: Progress and prospects. *Journal of Management*, *47*(7), 1796-1819; Osiobe, E. U. (2019). A literature review of human capital and economic growth. *Business and Economic Research*, *9*(4), 179-196; Bahr, M., &Laszig, L. (2021). Productivity development in the construction industry and human capital: a literature review. *arXiv preprint arXiv:2104.00129*; Gallardo- Albarrán, D., &Inklaar, R. (2021). The role of capital and productivity in accounting for income differences since 1913. *Journal of Economic Surveys*, *35*(3), 952-974.

[6]Thehuman capital economic literature distinguishes between the forms it can take andthe acquisition ways. Wecallthe knowledge as "generic" human capital and the skills "specific" or "technical" human capital. This distinction is relevant because it is linked to the further distinction between transferable and non-transferable human capital. The knowledges are transferable (from one company to anotherthrough workers transfer), but specific human capital is not transferable, or much less transferable. In any case, the transferability implies the nature of generic human capital as a public good. This justifies a public intervention in general education.

[7]Parravicini, P. and Graffi, A. (2019) The Labor Productivity Slowdown: The True Issue of the Italian Economy. *American Journal of Industrial and Business Management*, 9, 253-266

[8]The 2022 data are not yet available.

Tab. 1: Individuals aged 16 and 74 using the **Internetin the last 12month (% of population)**

	2010	2014	2017	2019	2020	2021
Italy	53,68	63,89	73,35	78,34	80,83	83,92
EU27	68,73	77,88	83,59	87,38	89,10	90,21
Denmark	88,72	96,37	97,32	97,43	98,82	98,99
Finland	86,89	93,16	93,94	95,50	97,17	96,98
France	77,28	85,69	88,20	90,65	..	92,63
Germany	81,96	87,69	91,40	93,98	95,05	92,24
Norway	93,39	96,75	98,10	98,89	98,06	99,50
Spain	66,11	77,34	85,11	91,00	93,46	94,49
Sweden	92,01	93,24	96,54	97,73	97,46	97,16
U.K.	85,00	92,42	95,08	95,85	97,76	..

Source: our elaborations on OECD data.

As a proxy of ICT diffusion in companies (with 10 persons employed or more)we can also refer to the percentage of persons employed using a computer with Internet access to work. Even in this case, the Scandinavian countries show a smaller increase in the ICT degree, but this is due to a higher initial value. In general, all countries show an increase of the ICT degree. Italy, remaining in last place and below the EU average, shows a sharp narrowing of the gap with other countries. Except for France and Germany, the impact of the pandemic on the ICT degree is clear. However, it should be noted that the data relating to companies with at least 10 employees does not allow to clearly highlight the impact of the pandemic on the ICT degree for the countries, as Italy, characterized by a small companies' production structure.

Tab. 2: Persons employed using a computer with Internet access (%)- All business (10 persons employed or more)

	2010	2014	2017	2019	2020	2021
Italy	33,22	39,30	45,05	49,92	53,24	54,01
EU27	41,70	46,35	50,23	54,05	56,45	58,02
Denmark	64,32	70,65	73,35	76,90	77,36	76,11
Finland	64,11	69,67	70,07	73,96	80,37	84,74
France	44,34	50,54	54,77	61,84	61,33	62,80
Germany	48,78	52,05	54,21	59,26	58,55	59,98
Norway	62,76	64,46	70,65	71,69	82,40	82,99
Spain	44,12	47,13	50,59	52,03	55,67	57,97
Sweden	62,99	70,05	74,91	81,66	83,33	82,98
U.K.	47,25	54,08	57,32	60,87	61,97	..

Source: our elaborations on OECD data.

The health emergency forced families and companies to new ways of relationships, more oriented to the use of new technologies, but also led to a new way of working that has been realized, especially in 2020, by teleworking. This entaileda radical change, especially for some countries as Italy.

Tab. 3: Employed persons working from home as a percentage of the total employment, by sex, age and professional status (%)

	2010	2014	2017	2019	2020	2021
Euro Area- 19 Countries (from 2015)	5,6	5,3	5,7	6,0	13,8	15,0
Belgium	9,7	8,7	6,9	6,9	17,2	26,2
Denmark	10,9	9,9	8,8	7,8	17,0	18,1
Germany	3,3	3,2	4,8	5,2	13,6	17,0
Ireland	7,0	3,6	5,0	7,0	21,5	32,0
Greece	1,8	2,7	2,3	1,9	7,0	6,7
Spain	3,7	4,3	4,3	4,8	10,9	9,5
France	10,9	6,8	6,7	7,0	15,7	17,0
Italy	3,1	3,2	3,5	3,6	12,2	8,3
Netherlands	11,0	13,1	13,7	14,1	17,8	22,5
Austria	10,3	10,7	9,5	9,9	18,1	15,9
Portugal	0,9	6,6	5,9	6,5	13,9	14,5
Finland	9,1	10,6	12,3	14,1	25,1	24,8
Sweden	4,2	4,9	5,0	5,9	:	27,0
Norway	4,6	4,4	5,1	5,0	4,7	16,4
Switzerland	4,0	4,0	4,0	3,9	4,9	16,0

Source: our elaborations on EUROSTAT data.

As Table 3 shows, the employed persons working from home as a percentage of the total employmentincreased since 2010, with a further increase between 2019 and 2020.

The most interesting data refers to the differences among countries between 2020 and 2021. For example, Denmark, Greece, France, Portugal, and Finland have no further increase in the use of teleworking; others, however, as Belgium, Netherlands, Ireland, Germany, and Switzerland have greatly increased the teleworking showing that they particularly appreciate the teleworking benefits obtained during the first pandemic year. Finally, Greece, Spain and, above all, Italy, havea reduction in teleworking, suggesting that this way of working isintended to be used in emergency situations only.

The reasons for this "return to the past" may be different. As far as Italy is concerned,this could be due to the peculiar production systemmade of small-medium manufacturing companies and service companies. Both can hardly offer remotely. In addition, the particularly bloody impact generated by the pandemic may have had an influence. In these countries,the need to get back to normal has been very strong also in terms of work[9].

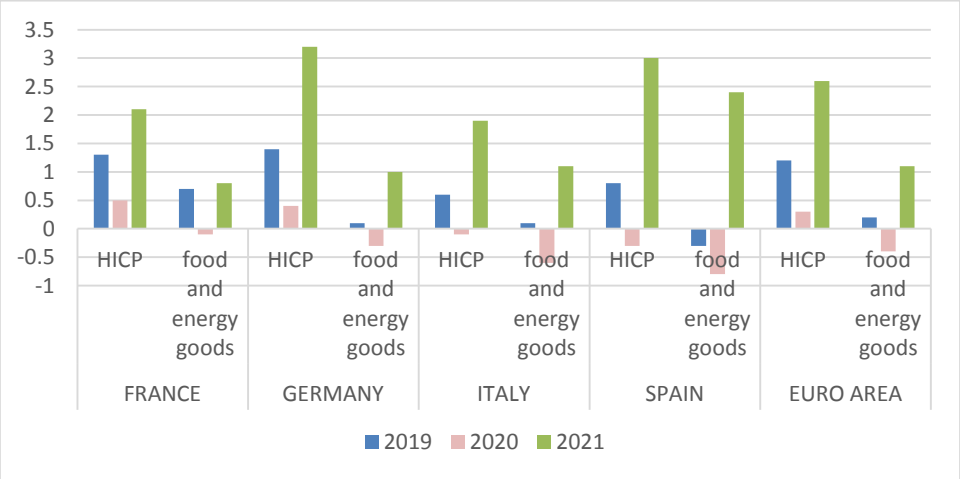
But other challenges added to the economy after the first year of the pandemic: inflation, which has been under control for a long time, is on fire in almost every country in the world from the beginning of 2021.As evidenced by data from the International Monetary Fund (IMF)[10], consumer prices rose 4.9% year on year in advanced economies and 6% in emerging economies in Q4 2021.The only two exceptions are Japan and China, where there was a drop in consumer prices.For Japan, one explanation might be related to the reduction in tariffs for telephone operators, while for Chinato the reduction in overall consumption due to strict policies to contain virus infections.

[9]For the Italian case, see Inapp, Report 2021 (2021), *Work, training, and society in Italy in the transition to the post-Covid 19 era, 2021*, Rome.

[10]Bank of Italy, *Annual report, Appendix, 2021*, 2022, Rome.

Graph 1 shows, for the years 2019, 2020 and 2021, the percentage changes in consumer prices for all goods and services and the food and energy component only.In other words, Graph 1 shows inflation for the three years in question, in the four main urozone countries and the share of inflation due to changes in food and energy prices[11]. The analysis of the Graph 1 shows a marked reduction in inflation between 2019 and 2020, whereas in 2021 there is a significant increase in prices.

Graph.1 Harmonized Index of Consumer Prices – percentage changes



Source: our elaborations on Bank of Italy data, Bank of Italy,*Appendix to the Annual Report 2021, 2022*, Rome, Italy

Changes in inflation are caused by factors that can be detected on the supply and demand side.Indeed, pandemic lockdowns have reduced the consumption of many goods and services, resulting in lower aggregate demand.This led to a slowdown in inflation in 2020 with negative values for Italy and Spain.The fall in aggregate demand pushed companies to reduce their output.In 2021, the gradual return from the health emergency was accompanied by an increase in aggregate demand which, however, does not seem to have been completely absorbed by supply; it may also have been caused, for example, by an increase in transport costs that contributed to higher prices.

This time gap between the recovery in demand and the recovery in supply is especially evident from the data on energy prices (see Table 4). As itcan be seen, the rise in the prices of energy goods (a significant component of firms' production costs) is, for all the countries considered, already present from the second half of 2021. This means that higher energy prices were already present long before the conflict between Russia and Ukraine began. In the fourth quarter of 2021, the rise in energy prices was further driven by the outbreak of the war started from the first quarter of 2022. Except for Italy, between the third (Q3) and fourth (Q4) quarters of 2022, energy prices fell. One of the reasons for the different Italian trend can be found in the political instability that led to political elections and the formation of a new government in the first quarter of 2022.

Table 4. Consumer price index: energy percentage change

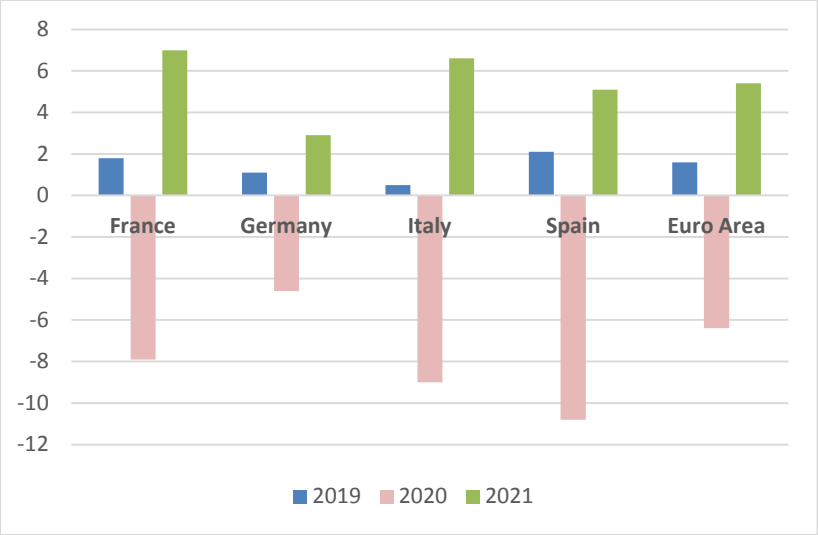
	Annual data				Quarterly data							
	2019	2020	2021	2022	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022
France	1,8	-6	10,5	23,6	-1	10,2	13,1	20,2	23,9	29,6	23,4	18
Germany	1,4	-4,2	10,8	30,2	1,2	9,9	13	19,6	25,3	33,8	31,4	30,1
Italy	0,5	-8,4	14,1	50,8	-2,5	12,6	19,5	28,3	45,3	43,5	44,1	67,7
Spain	-1,2	-9,6	21,2	27,9	0,6	23	24,3	38,6	46,1	36,3	33,5	*
Euro Area (19 Countries)	1,1	-6,8	13	36,9	-0,6	12	15,7	25,6	34,9	39,5	39,5	33,8
EU27	1,2	-6,1	12,6	35,2	-0,1	11,9	15,2	24,4	32,1	38,1	38,4	32,4

Source: our elaborations on OECD data

As a result, the current inflation is not entirely attributable to the outbreak of war between Russia and Ukraine, as it has its roots in the previous period because of the economic crisis, linked to the pandemic shock.

Graph. 2: Real GDP, percentage changes

[11]Available data do not distinguish between food and energy goods.



Source: our elaborations on Banca d'Italia data, *Appendix to the Annual Report 2021, 2022*, Rome, Italy

However, GDP trends must also be considered.Graph 2 depicts the economic recovery in 2021 following a significant reduction in output in all countries considered in 2020.

This recovery is primarily due to an increase in aggregate demand which, as is often the case in the aftermath of economic crises, may have contributed to the emergence of inflation.

A look at the labor productivity trend can help to clarify the link between increased teleworking use and increased productivity. The ratio of GDP to the overall number of hours worked in a year, which is specifically used as a proxy for labor productivity, is shown in tab.5. A preliminary examination of the data reveals that labor productivity increased from 2010 to 2019, albeit in different ways across countries. The only exception is Greece; this result could be attributed to the country's situation since autumn 2009. At the time, Prime Minister George Papandreou publicly declared that previous Greek governments had falsified economic balances transmitted to the European Union to facilitate the country's entry into the Eurozone. However, the subsequent rescue maneuvers do not appear to have had a positive effect on labor productivity.

Tab. 5: Labor productivity: percentage changes

	2010 - 2019	2019 - 2020	2020 - 2021
Euro Area (19 Countries)	7.6	1.9	-0.2
Austria	6.3	2.4	-0.5
Belgium	4.6	3.1	0.9
Denmark	12.7	1	1
Finland	4.8	0.3	0.3
France	7.9	0.5	-1.5
Germany	9.7	1	0.9
Greece	-14	2	-0.3
Ireland	39	17.5	6.6
Italy	1.9	3	-1.3
Netherlands	2.4	-1.1	1.5
Norway	4.1	1.4	1.4
Portugal	5.3	1.1	1
Spain	7.4	-0.3	-1.8
Sweden	8.3	1.1	2.5
Switzerland	7.9	1.4	1.2

Source: our elaborations on OECD data

In contrast, productivity increased by approximately 40% in Ireland between 2010 and 2019. A reminder of the Irish situation is helpful once more. Between 2007 and 2008, Ireland had a severe financial crisis brought on by a real estate bubble (the Irish Property Bubble), which had a severe impact on the banking sector. Yet since 2014, Ireland has demonstrated that it has escaped the crisis thanks to a drive for exports to the United States and Great Britain as well as a rebound in domestic demand.

In France and in Germany,the productivity growthis higher than the Euro Area between 2010 and 2019.
Italy, on the contrary, shows a very reduced increase in labor productivity (1.9%) and ranks, once again, at the bottom of the European ranking. This confirms that the low Italian labor productivity has a negative impact on the production system competitiveness.

Duringthe pandemic, Italy has nevertheless managed to increase labour productivity, confirming thatthe entrepreneurial ability emerges above all in time of crisis[12]. Indeed, in 2020 Italyperformed better (+3%) than France, Germany, and Spain and even than Euro Area average. The Italian result is due to the percentage reduction in hours worked (-11.7%) which was greater than the reduction in GDP (-9%). No other European country demonstrated such a significant percentage fall in hours worked, which may be related to the pandemic's strong effects on Italian people's health.

The scenario changed once more in 2021, following the pandemic's most dire stage. The European countries considered paint a diversified picture: there are decreases in labor productivity in Austria (-0.48%), Greece (-0.31%), France (-1.49%), Spain (-1.76%), and Italy (-1.25%). Except for Ireland (+6.6%), the growth in labor productivity appears to be restrained in all other European nations.

According to tables 3 and 5, there appears to be a positive correlation between teleworking and labor productivity during the pandemic. Considering this, it might be concluded that increasing teleworking has helped to boost labor productivity. On the contrary,the countries that reduced teleworking in 2021 are the same ones where productivity dropped. This assumption is verified for Italy as well: in 2020, the rise in remote work was positive correlated to the increase in labor productivity. On the other side, in 2021, the decrease in remote work was connected to a decrease in productivity. Economic literature has long focused on the consequences of teleworking on labor productivity[13], but the studies that have more explored this issue, also taking the effects of the pandemic, are still few[14] and based on statistical samples collected by impressionistic techniques[15].

On the other hand, some OECD surveys seem to confirm the existence of a positive correlation between teleworking and labor productivity. According to the OECD[16], remote work can contribute to improving workers' performance through two elements.Thefirst element is the impact of new knowledge and better motivation on remote work. The second is due instead to the reduction of costs for the company that can be obtained through teleworking. To obtain benefits from this cost reduction, however, it is necessary to invest in ICT and in a better firm organization. Furthermore, teleworking can increase worker satisfaction and thus improve their efficiency also through greater concentration, less absenteeism, and a better work-life balance. However, it could also happen thatteleworking increases the feeling of loneliness of the worker or prevents him from properly separating private

[12]Schumpeter, J. A., (1976), *Capitalism, Socialism and Democracy*, Routledge, London.

[13]For example, BeckmannM., Cornelissen T., KräkelM., (2017), Self-managed working time and Employee effort: theory and Evidence, *Journal of Economic Behavior and Organization*, Vol.133, pp.285-302; BloomN., Kretschmer T., Reenen J., Work-Life Balance, (2009), Management Practices, and Productivity, in FreemanR., Shaw K., (Eds.), *International Differences in the Business Practices and Productivity of Firms*,University of Chicago Press; Eurofound and International Labour Office, *Working Anytime, anywhere: the effects on the world of work*, (2017), Publications Office of the European Union, Luxembourg; HolmstromB., Milgrom P., (1994),The firm as an incentive system,*American Economic Review*, Vol.84/4, pp.972-991; MonteiroN.P., Straume OR., Valente M., (2019),Does Remote Work Improve or Impair Firm Labour productivity? Longitudinal Evidence from Portugal, *NIPE Working Paper*, No.14/2019, Universidad do Minho; Viete S., Erdsiek D., (2018), Trust-Based Work Time and the Productivity Effects of Mobile Information Technologies in the Workplace, *ZEW Discussion Paper*, No.18-013.

[14]These studies fail to highlight with certainty the positive effects of teleworking on productivity as they use statistical samples of this type.

[15]See,Angelici M., ProfetaP., (2020), Smart-Working: Work Flexibility without Constraints, *CESifo Working Paper*, No. 8165, March; Boltz, M., Cockx, B., Diaz, A. M., & Salas, L. M. (2023), How does working- time flexibility affect workers' productivity ina routine job? Evidence from a field experiment, *British Journal of Industrial Relations*, 61(1), 159-187; Gibbs, M., Mengel, F., &Siemroth, C. (2023), Work from Home and Productivity: Evidence from Personnel and Analytics Data on Information Technology Professionals. *Journal of Political Economy Microeconomics*, *1*(1), 7-41; Awada M., L. Gale, Becerik-Gerber B., Roll S., (2021),Working from home during the COVID-19 pandemic: Impact on office worker productivity and work experience, *Work*, vol. 69, no. 4, pp. 1171-1189.

[16] OECD (2020),*Productivity gains from teleworking in the post COVID-19 was: How can public policies make it happen?*,September.

and professional life. In addition, it must be considered, again according to the OECD, that the worker may not have an adequate working environment at home. All this could lead to a reduction in labor productivity.

3. The positive legacy of the pandemic: opportunities to be seized

Analysis of the economic literature seems to suggest that teleworking can have both positive and negative effects on labor productivity. The OECD data show that pandemic stress, with the requirement to work remotely, had positive effects on productivity; these effects were greatly reduced when the health emergency subsided.
Labor productivity increased as teleworking expanded during a period of high worker stress and, moreover, when ICT infrastructures for remote work were not particularly developed.

During the first months of the pandemic, the countries under consideration began a rapid process of technological adaptation and, in terms of health, gradually benefited from vaccines that speeded up return to normality.All of this should have resulted in a homogeneous cultural change in labor organization but, as Table 5 shows, this has not occurred in a homogeneous way, and,in some countries, the trend of productivity growth has reversed.
In particular, it appears that a culture and an adequate infrastructure have not developed in Greece, Austria, Italy, France, and Spain to fully exploit the positive effects of teleworking.

Moreover, it is likely that using telework in conditions other than those experienced by workers during the health emergency, will increase efficiency and, thus, effectiveness of labor.
When discussing cultural revolutions that involve, among other things, significant investments in ICT and specific human capital, we must think long term.

There is no doubt that legislators must reflect further to review the regulatory aspects of the employment relationship considering the changes and the challenges that occurred, with strength, in 2020.

Workers and businesses in 2023 are unquestionably prepared for and aware of the benefits of remote work.A new legal regulation aimed at considering the positive effects of remote work could benefit both labor standards and wages[17]. In addition, adequate equipment and environmental conditions must be provided while maintaining workers privacy and rights and duties of workers and companies[18].

Furthermore, new ICT investments by private and public companies are required to improve the use of fiber and broadband to increase the capacity and resilience of the communication infrastructure[19]. The new investments will require, of course, financial support by the credit system.

Of course, central banks will haveto balance the goal of price containment, which may include accepting higher than optimal levels of inflation, with the economic growth, which is also achieved by keeping interest rates low.
Once adequate ICT infrastructure investments have been made, it is crucial to ensure that management and employee skill sets are developed[20]. Managementwill need more ICT skills and, most importantly, new industrial organization skills.

Teleworking is still not widely used in some countries, such as Italy, particularly in public sector companies.Indeed, the Italian case demonstrates how difficult it is to calculate the teleworking effects on public-sector labor productivity[21]. As a result, Italian public firms must invest heavily in ICT and develop more performance evaluation skills. The pandemic caused significant changes in the global economic context, as well as in the Italian one, but these changes will only have an impact in the longterm.

The analyzes carried out lead us to believe that the opportunities that have emerged during the pandemic must be capitalized, also because they have not even been fully explored yet. It is therefore necessary to take full advantage of the opportunities that the pandemic has forced to seek while also removing the negative consequences of teleworking on the worker's life. In this way, it is reasonable to believe that a better way of working will have a positive impact on social well-being. Of course, moregeneral and convincing conclusions will be possible only over time through a robust statical analysis based on complete and extensive time series data.

[17]Baldwin R.,*TheGlobotics Upheaval*, 2019, Oxford University Press.
[18]Alon T. et al., *The impact of COVID-19 on Gender Equality*, 2020, NBER Working Paper, n.26947, June; Eurofound (2022), Telework in the EU: Regulatory frameworks and recent updates, Publications Office of the European Union, Luxembourg.
[19]OECD 2020, cited work.
[20]Clancy M., *The Case for Remote Work*, Economics Working Papers, n.20007, 2020, Iowa State University, Department of Economics.
[21]Istat, *Permanent census of public institutions: preliminary results 2020, the year of Smart Working*, 2021, December 15, Rome.

REFERENCES

Alon T. et al., (2020), The impact of COVID-19 on Gender Equality, *NBER Working Paper*, n.26947, June.

Angelici M., Profeta P., (2020), Smart-Working: Work Flexibility without Constraints, CESifo Working Paper, No. 8165, March.

Awada M., Gale L., Becerik-Gerber B., Roll S., (2021), Working from home during the COVID-19 pandemic: Impact on office worker productivity and work experience,*Work*, vol. 69, no. 4, pp. 1171-1189

Bahr M., Laszig L. (2021), Productivity development in the construction industry and human capital: a literature review. *arXiv preprint arXiv:*2104.00129.

Baldwin R., (2019), T*he Globotics Upheaval*,Oxford University Press

Bank of Italy, (2022),*Annual report, Appendix, 2021*, Rome.

BeckmannM., Cornelissen T., Kräkel M., (2017), Self-managed working time and employee effort: Theory and evidence,*Journal of Economic Behavior and Organization*, Vol.133, pp.285-302.

BloomN., KretschmerT., Reenen J., (2009), Work-Life Balance, Management Practices, and Productivity, in FreemanR. and Shaw K. (eds.), *International Differences in the Business Practices and Productivity of Firms*, University of Chicago Press

Boltz M., Cockx B., Diaz A. M., Salas L. M. (2023),How does working- time flexibility affect workers' productivity in a routine job? Evidence from a field experiment, *British Journal of Industrial Relations*, *61*(1), 159-187

Clancy M., (2020), The Case for Remote Work, *Economics Working Papers*, n.20007, Iowa State University, Department of Economics

Eurofound (2022), *Telework in the EU: Regulatory frameworks and recent updates*, Publications Office of the European Union, Luxembourg.

Eurofound and the International Labour Office (2017), *Working anytime, anywhere: The effects on the world of work*, Publications Office of the European Union, Luxembourg, and the International Labour Office, Geneva.

Gallardo- Albarrán D., Inklaar R. (2021), The role of capital and productivity in accounting for income differences since 1913, *Journal of Economic Surveys*, *35*(3), 952-974.

Gerhart B., Feng J. (2021), The resource-based view of the firm, human resources, and human capital: Progress and prospects. *Journal of Management*, *47*(7), 1796-1819.

Gibbs M., Mengel F., Siemroth C. (2023), Work from Home and Productivity: Evidence from Personnel and Analytics Data on Information Technology Professionals, *Journal of Political Economy Microeconomics*, (1), 7-41.

Holmstrom B., Milgrom P., (1994), The firm as an incentive system, *American Economic Review*, Vol.84/4, pp.972-991.

Inapp, Report 2021 (2021), *Work, training and society in Italy in the transition to the post-Covid 19 era*,Rome.

Istat, (2021), *Permanent census of public institutions: preliminary results 2020, the year of Smart Working,* 15, December, Rome.

Monteiro N.P., Straume O.R., Valente M., (2019), Does remote work improve or impair firm labour productivity? Longitudinal evidence from Portugal, *NIPE Working Paper*, No.14/2019, Universidad do Minho.

OECD, (2020), *Productivity gains from teleworking in the post COVID-19 era: How can public policies make it happen?*,September.

Osiobe E. U. (2019), A literature review of human capital and economic growth, *Business and Economic Research*, *9*(4), 179-196.

Parravicini P., Graffi A., (2019), The labor productivity slowdown: the true issue of the Italian Economy, *American Journal of Industrial and Business Management*, 2019, Vol.9, N.1, pp.253-266.

Schumpeter J. A., (1976),*Capitalism, Socialism and Democracy*, Routledge, London.

Viete S.,Erdsiek D., (2018), Trust-Based Work Time and the Productivity Effects of Mobile Information Technologies in the Workplace, 2018, *ZEW Discussion Paper*, No.18-013.

Weinert C., Weitzel, T., (2023), Teleworking in the Covid-19 Pandemic: The Effects of Life-Work Conflict on Job Outcomes and the Role of the IT Telework Environment, *Business & Information Systems Engineering*, 1-20.