WORKING PAPER

Eurofound

Working conditions and sustainable work

Working time reduction with a focus on the four-day week: Literature review

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Acknowledgements: The author would like to thank Anita Halasz and Annachiara Tanzarella of the European Commission Directorate-General for Employment, Social Affairs and Inclusion.

Eurofound reference number: WPEF24029

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency established in 1975. Its role is to provide knowledge in the area of social, employment and work-related policies according to Regulation (EU) 2019/127.

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Executive summary

Introduction

While the last two decades of the 20th century were characterized by a movement to reduce working hours in many European countries, primarily with the aim of "job sharing," the first decade of the 2000s saw an intensification of the process of flexibilization of working time, along with a trend towards increasing working hours. These changes have gradually led to making the issue of well-being and the balance between professional and personal life a key concern of working time policies, in the context of the growing affirmation of women's work. This context has restored legitimacy to working time reduction policies, which have seen a resurgence since the mid-2010s.

Experiments in reducing working hours have multiplied since 2015 in several countries and in different ways. The 30-hour week with a daily duration of 6 hours per day over 5 days (referred to as the 6/30 model hereafter) has been experimented with, primarily in the healthcare sector, in Sweden. The case of the Sverteladen retirement home in Gothenburg has received particular media attention. Meanwhile, the city of Reykjavik and several entities of the central Icelandic government have experimented with various formulas for reducing working hours, the positive effects of which have prompted social partners to conclude agreements on reducing working hours covering almost the entire active population of the country.

If the four-day workweek with reduced working hours (hereinafter referred to as the 4/32 model) has been the subject of experiments since 2018 with emblematic cases such as Perpetual Guardian in New Zealand, and sometimes very short-lived ones like Microsoft in Japan, it is mainly after the various lockdown periods caused by the Covid-19 pandemic that this model has been the subject of several pilot projects and has been included in the political agenda of several governments.

Policy context

If work remains a central value in the eyes of most individuals, the recent years, notably marked by lockdowns and the expansion of remote working related to the Covid pandemic, may have changed employees' expectations vis a vis work. Now, more and more people aspire to a better balance between their personal and professional lives, which may rely on different modes of work organization and/or a reduction in working hours. These policies are also driven by other factors such as labour shortage in certain sectors, prompting employers to initiate new work organizations supposed to be more attractive for future employees or as a form of compensation for those who cannot work remotely. Developments in AI are raising concerns about employment in other sectors, leading some trade unions to revive the notion of work-sharing. Finally, the four-day workweek, with or without a reduction in working hours, is also seen as potentially having positive effects in addressing the climate crisis.

Key findings

While the reduction of working hours is perceived in academic literature as a positive factor in terms of worker well-being and health, the effects on employment, productivity, and the environment are more uncertain. Additionally, interactions between these various dimensions, along with the level of wage compensation, can amplify the effects in either a positive or negative direction.

- Two working time organization models are considered: the 6/30 model, mainly limited to Scandinavia, and the four-day week, which has a more universal character and more varied implementation modalities. In both cases, wages are maintained at their previous level.
- Experiments with the 6/30 model show very positive results in terms of absenteeism, productivity (particularly in terms of service quality), employee well-being and health, as well as employment, as all the experiments included compensatory hirings.
- The 4/32 model is the ideal typical figure of the four-day week, which has been subject to experiments initiated either by think tanks (4-Day Week Global, Autonomy) or by governments (Portugal, Spain, Belgium).
- Evaluations of the 4/32 model show positive results for both companies (increase in turnover, decrease in absenteeism and resignations, increase in productivity) and employees (positive impact on perceived well-being through indicators of burnout, job satisfaction, mental and physical health, work-life balance).
- Since the structuring principle of the 4/32 model is a reduction in working hours while maintaining salary and production levels, the effects on employment are contingent.
- The few evaluations regarding the compressed workweek show more mixed results in terms of both productivity and employee satisfaction.
- Whether it is the 4/32 model, the compressed workweek, or the 6/30 model, a triple difference compared to previous periods is observable.
    - Firstly, the main driver of this change is the employer. Unions and, more broadly, employees, who were the main drivers of working time reduction since the 19th century, are, at best, consulted, and at worst, completely ignored. However, in some cases employees are required to reflect on the potential new work organisations.
    - A second difference compared to the 1980s/90s is that employment is no longer a central issue in these experiments: it is at best a positive externality.
    - A third difference compared to previous periods is the fragmented nature characterizing the 6/30 and 4/32 experiences. While working time reductions during the 1980s/90s were conducted at the national level (France, Portugal) or sectoral level (Germany), they are now implemented at the company level.

Recommendations for future work

These working time reduction experiments gather strong support from both employees and the companies/organizations implementing them: around 90% of employees and companies want to make these new arrangements permanent a year later. This encourages further evaluation work, building on the critics on methods by which previous evaluations have been carried out

· The duration of the experiments (6 months) as well as the method of recruiting companies participating in them (volunteering, which implies that they have specific characteristics) raise numerous criticisms. Therefore, it would be advisable to conduct evaluations with more perspective to better assess the sustainability of the results for both companies and employees.

· While evaluations of the 6/30 model always include a control group, this is not the case for the 4/32 model. As far as possible, future case studies should include control groups.

·The compressed workweek has so far been the subject of few evaluations. Since several governments (Belgium, France) are encouraging companies and public organizations to adopt this model, its evaluation seems essential. A comparison of the social, economic, and environmental impacts of the two models would be relevant.

1 - Introduction

Analyses in the field of working time policies agree that the trend of reducing working hours, which had been in progress since the mid-19th century, gradually stalled around the turn of the 21st century in EU countries (OECD, 2022; Veal, 2023; Lepinteur, 2018).

During the first decade of the 2000s, a reverse movement compared to the one that characterised the last decade of the 20th century crystallised in countries that had introduced the 35-hour workweek, either on a sectoral scale as in Germany or on a national scale as in France. In both countries, there was an observable widening gap between the legal or contractual working hours and the actual working hours. By the end of this period, this gap was around 4 to 4,5 hours in the German Metal industry (Lehndorff, 2014). Lehndorff observed that, in France, between 1998 and 2008, the reduction of the legal working hours by 4 hours per week resulted in an actual decrease of approximatively 1,5 hour. This trend for France has been analysed in detail in Lesnard and Boulin (2023).

It was only from the mid-2010s that the intensification (working faster) and densification of work (doing more and often different tasks in the same time) , partly due to the digitalisation of economy, but also to these trends towards longer working hours and the proliferation of non-standard schedules which had dramatically increased after the financial crisis (Lehndorff, 2014; de Spiegelaere and Piasna, 2017), revived the debate around the importance of reducing working time, but this time as a lever to improve working conditions and well-being and facilitate work-life balance. This is, not least, reflected in the EU Work-Life Balance Directive (2019/1158), but did not lead immediately to national policies for reducing or rearranging working hours.

In recent years, new initiatives to reduce and/or reorganise working hours in several European Countries are being discussed. A relatively new phenomenon, these initiatives are often driven by business leaders or think tanks, although some governments or unions also support them.

Two forms of reducing/reorganising working hours have been particularly publicised and analysed in recent years:

- the model originating in Scandinavia of shortening the workday to 6 hours over 5 days leading to a 30-hour work week (referred to as the 6/30 model in the rest of this report)
- and the 4-day workweek, with or without a reduction in working hours.

While the first model is largely limited to Nordic countries, the four-day workweek is gaining popularity across Europe and even beyond, particularly after the COVID-19 related periods of restrictions.

While some cases received significant media attention before the Covid-19 pandemic (Perpetual Guardian and Unilever in New Zealand, Microsoft in Japan, Welcome to the Jungle in France), it seems that the lockdowns acted as an accelerator, prompting several European governments and, especially, think tanks to initiate experiments. Similarly, faced with increasing difficulties in recruiting and retaining scarce or new skills, or convinced of the need to improve their employees' well-being, some employers have implemented a four-day workweek with a working time reduction or offered the possibility to work four days a week with the same working time duration (compressed work week).

In this context of growing attention to the four-day workweek, the European Commission has initiated a pilot project on working time reduction, with a focus on the four-day workweek, with the objective to collect evidence on working time reduction practices implemented by companies in the European Union.

The first step of this pilot project, which is implemented by Eurofound, is a literature review. The goal of this review is to provide an overview of the different models of implementing working time reduction and of the socio-economic research on the impact of working time reduction, with a special focus on the 4-day working week. Assessments of the impact should encompass the individual, firms and society levels and needs to disentangle the respective role of the different actors (company, employee representative or trade union, government, civil society).

The report, a review of the literature, is structured as follows:

Following this introduction, Chapter 2 reports on developments related to working time policies, considering, on the one hand, the evolution of the key issues shaping these policies, and on the other hand, their level of implementation. This section aims to understand the emergence of new approaches encompassing working time policies today, notably the 6/30 model and the various 4-day workweek arrangements. The analyses of the Icelandic case, although outside the EU, will receive special attention as it is often (if, in some cases, incorrectly) presented as the origin of the renewed interest in working time reduction, specifically the 4-day workweek.

Chapter 3 analyses the impact of working time reduction on employment, productivity, health and well-being and the natural environment.

Chapter 4 focus on recent initiatives of working time reduction/reorganisation initiatives, the 6/30 model and the 4-day workweek. The review will consider actors initiating these policies, the modalities of implementation, as well as the impact on – on the one hand - the companies and/or public organisations implementing them, and, on the other hand, the employees affected by these changes. We will seek to account for both the impacts on work itself - its content, nature, and methods of execution - and those related to the well-being of employees, the balance between their professional and personal lives, and their use of freed-up time through the analysis of the literature.

Chapter 5 consists in a critical review of the literature dealing with the evaluation of the 4-day workweek, attempting to synthesize both the potential benefits of the 4-day workweek and its social, economic, and environmental scope, as well as the inherent limitations it encompasses. Drawing on the literature and analyses conducted on the 4-day workweek, we will endeavour to propose a conceptual framework for an objective analysis of this form of working time reduction/reorganisation in the EU.

Finally, we conclude this report by highlighting a triple break from the last decades of the previous century, observable in the methods and conditions of implementation of the new forms of reduction and adjustment of working time.

2 - Main evolutions in working time policies in Europe and other regions of the world

The issue of working hours, in most industrialized countries during the 19th century, was the subject of the very first social laws aimed at limiting child labor, as exemplified in France with the 1841 law (Fridenson and Reynaud, 2004). Subsequently, social movements initiated a secular reduction in working hours, often discontinuous depending on economic conditions or historical events such as world wars, reducing the duration of working time by almost half (Lehndorff, 2014; Bosch and Lehndorff, 2001).

Starting initially with the day (the 8-hour workday that became effective around the turn of the 20th century in most industrialised countries) and then the week with the gradual introduction of the free weekend, the reduction of working hours later applied to broader timeframes, including the year with the establishment of paid vacations, as well as the life span with the definition of a minimum age for entering the labour market and the retirement age.

This resulted in the sedimentation of a standard model based on widely shared collective schedules (8 am/9 am - 5 pm/6 pm) and a three-phase life cycle (education-work-retirement). This model, resulting from a Fordist organization of work, relied on a separation between work spaces and work temporalities on one side and family and social life spaces/temporalities outside of work on the other, as well as on a gendered division of tasks (Boulin, 2019).

In the following developments, we first witness a destabilization of this homogeneous model starting in the 1980s through policies aimed at developing employer's-oriented working time flexibility in compensation for working time reduction policies initiated with the goal of fighting unemployment. In a second step, we will highlight the succession of issues underlying working time policies, notably the emergence of the issue of better articulation between professional and personal life and improvement of employee's well-being. The final section in this chapter revisits the conditions leading to the current enthusiasm for the four-day workweek.

The 1980/90s: Tensions between working time reduction (as a measure to reduce unemployment) and productive flexibility ("employer friendly" flexibility)

One of the structuring issues of working time policies discussed during the 1980/90 was job sharing in a context of high unemployment. This led to significant reductions in working hours in several European countries.

For example, in France in 1982, the working week duration was reduced from 40 to 39 hours, and then in 1997 and 2000, two laws further decreased the legal working hours from 39 to 35 hours per week. Denmark also decreased its working hours from 39 to 37 hours per week through sectoral collective agreements between 1987 and 1990. Similarly, the Netherlands saw most branches of activity reducing their working hours from 40h to 38 hours (and some others from 40h to 36 hours) consecutively to the Wassenaar agreements in 1981. In Germany, the metal industry, after a long 7-week strike in 1984, reached an agreement to reduce the collectively agreed working hours from

40h to 35 hours, step by step by 1993. In 1993, Volkswagen concluded an agreement to reduce weekly working hours to 28 in order to preserve jobs.

Alongside these policies of sharing working hours - which were strongly advocated by trade unions and generally implemented by left-leaning governments - employers and right-wing governments emphasised the pursuit of productive flexibility (or employer driven flexibility) with the objective of enhancing business competitiveness. In most European countries, there has been an observed tension, not to say an opposition, and in most cases a sort of trade-off between working time reduction and the implementation of measures aimed at increasing “employer driven” working time flexibility. This resulted in the development of atypical schedules (weekend work, fragmented schedules, early morning or late evening shifts, modulation/annualization of working hours) (Lehndorff, op.cit.). This was the case in France in 1982, for example, with the establishment of weekend teams, meaning the possibility of implementing, for technical and/or economic reasons, teams working on Friday, Saturday, and Sunday, with a duration of 24 hours paid equivalent to full-time work. In the 1990s, with the Loi Quinquennale (1993) and the Aubry laws (1998 and 2 000), annualised working hours and the "forfait-jour" system for managerial and professional staff were introduced. “Forfait jours” can be translated in “annualized working days” or “annual agreed number of working days”. This means that for professional and managerial staff who have autonomy in their working hours, it is possible to count their working time in days per year instead of number of hours per week. The legal maximum is 218 days which could be extended to 228 days by collective agreement. In this case the employee is entitled to an additional 10 annual days of rest. The employee is therefore not subject to compliance with the maximum daily and weekly working hours within the limits of the Working Time European Directive. An individual agreement should be established.

Similarly, in the German metal industry, the "corridor of working hours” which is a form of annualisation of working time, was introduced. But unlike in France, this corridor can only apply to a portion of employees. For example, 18% of the workforce may have working hours exceeding the collective agreement (35 hours a week in metallurgy) for 6 months. However, it's essential to maintain an average of 35 hours over the entire year. In Portugal, the reduction of mandatory working time duration from 44h to 40h implemented between 1996 and 2 000 was accompanied by measures to make the organization of working time more flexible (Lepinteur, 2018; Asai, 2022).

New drivers in working time policies.

The trend towards increases in actual working hours and the development of atypical schedules during the first decade of the 2 000s have coincided with structural changes in the labour market: an increasing proportion of women entering the workforce, a rise in the percentage of managerial positions, and a predominance of service activities (Lehndorff, op.cit.; Lesnard, Boulin, op.cit.). These structural changes in the labour market are also highlighted in De Spiegelaere and Piasna (2017) who point out at the EU level for the 2005-2015 period, an increase in households where all adults work, as well as households with children where both parents work full-time and those with one and a half earners. These changes have gradually led to making the issue of well-being, particularly health issues due to increasing cases of burn out and psychosocial risks,and the balance between professional and personal life a central concerns in the working time policies (OECD, 2022).

Spiegelaere and Piasna (op.cit.) also emphasise, as does Müller (2023), the role of digitalisation and AI, which reintroduce the question of work sharing due to its impact on employment, particularly in certain sectors. Müller (op.cit.), who specifically examines the situation in the manufacturing sector, sees a reduction in working hours as a means to ensure the twin digital and green transition.

Beyond the question of employment, the widespread adoption of technological tools in the workspace contributes to a trend of work intensification, the continuous growth of which is well-documented by the European Working Conditions Surveys (Eurofound, 2012 and 2016, 2022): for example, the latest survey conducted in 2021 indicates that nearly half of European employees report they work at a high speed (49%) or face tight deadlines (54.8%, they were 37% in the EWCS 2015) (Eurofound, 2022). The report also indicates that about 30% of workers were in "strained jobs" (job demands outweigh job resources). As highlighted in the 2022 report, "*strained jobs are associated with poorer well-being, poorer work-life balance, less ability to make ends meet, lower levels of work engagement, and less trust in the workplace*". Information and telecommunication technologies also contribute to a blurring of the boundaries between the professional and personal spheres, which can lead to long or irregular working hours, as is the case with telework, for example (De Spiegelaere, op.cit.; Müller, op.cit.; OECD, 2022, Eurofound, 2022b). These various developments which may negatively impact employees' well-being and work-life balance have contributed to the adoption of the European Pillar of Social Rights during the European Summit in Gothenburg in 2017, and subsequently to the adoption of a European Directive (2019/1158) on work-life balance for parents and carers. In the same vein, there is a desire for the reactivation of the right to disconnect, which even when legislated, as is the case in France since 2016, struggles to find real implementation in companies. Other countries have followed the French example, including Italy, Spain, Ireland, more recently Portugal, and currently Canada and Belgium. In Portugal, the law states that, except in cases of *force majeure*: "*the employer must refrain from contacting workers during their rest period*" which more coercively holds the employer responsible. European Parliament members have called on the Commission to present a European directive on the right to disconnect.

Two key experiments have catalysed the movement for a reduction in working hours.

Two experiments, one of which did not truly spread while the other seems to have been extended nationwide, have reignited interest in reducing working hours from 2015 onwards. These two initiatives, whose results have been widely discussed in the medias and academic papers, have indeed provided arguments for proponents of a reduction in working hours, particularly for the four-day workweek even if neither of these two experiments was focused on the 4-day work week (Coote, 2021; Harraldson and Kellam, 2021; Soojung-Kim Pang, 2023; Stronge and Harper, 2019; De Spiegelaere and Piasna, 2017).

A six-hour a day trial at the Svartedalen retirement home

The experiment took place in Gothenburg, Sweden, and involved a nursing home for dependent elderly individuals. Employees had their daily working hours reduced from 8 to 6 hours a day while continuing with the standard 5 days a week schedule, resulting in a weekly working time of 30 hours. This model, which we refer to as the "6/30 model" appears to be a Scandinavian specificity.

The experiment conducted at Svartedalen Home in Gothenburg took place between 2015 and 2017. Its aims were twofold:

- to improve the living and working conditions of the 68 employees,
- and secondly, to enhance the quality of care provided to the residents.

Unlike the four-day workweek cases, this experiment, initiated and funded by the municipality of Gothenburg, was designed from the start to be accompanied by compensatory hirings (17 new care workers) to avoid increasing the workload of the employees. However, it was discontinued after 23 months, primarily due to a change in political leadership in the municipal team, which deemed the costs too high.

Several similar experiments took place in Sweden before the Svartedalen retirement home's one. This model was experimented at the turn of the 2000s, involving healthcare personnel (Äkerstedt et al. 2001), as well as in a Norwegian factory from 2001 to 2012 (Enehaug, 2017). De Spiegelaere and Piasna (2017) report that the 6/30 model had already been experimented in the mines of Kiruna in 1989, as well as in the healthcare sector in several Nordic cities (Oslo, Stockholm, Helsingborg, Malmö). However, a sign that the issue of reducing working hours was becoming a social or even societal issue in the mid-2010s, the case of the Svartedalen retirement home had a huge media impact in many European countries and beyond, to the extent that some newspapers headlined that Sweden was moving to a 30-hour workweek !

Similarly, during the 1990s, Finland introduced the 6+6 model, which involved implementing two successive teams working 6 hours a day for 5 days, also resulting in a 30-hour workweek for employees. This model was primarily tested by local authorities, particularly with the aim of extending the opening hours of various administrations and services. For a more in-depth understanding of this model, which appears to have been abandoned around the turn of the 2000s as it was too expensive as new hirings were necessary, one can refer to Antila et al. (2005). In 2001, a garage owned by the Toyota company located in Gothenburg implemented this 6+6 model. This was also aimed at extending the opening hours and operation of the garage in order to reduce customer waiting times.

In contrast to the four-day workweek, this 6/30 model does not appear to have spread beyond the Scandinavian countries nor at country level. It is not a coincidence that the choice of this method of reducing working hours is more widespread in these countries where the female employment rate is very high compared to continental European countries. For a long time, women's movements in the Scandinavian countries have emphasized the double burden of work and the need to reduce the daily duration of working time to improve daily life.
Nevertheless, it has been the subject of some studies outside of Sweden, seeking to assess whether this model could be replicated in other countries (Latour, 2018). We will see further in this report that it inspired an experiment in Belgium (Mullens and Glorieux, 2022 and 2023).

Working time reduction trials in Iceland

The second experiment, which has also been heavily publicised by proponents of reduced working hours and the four-day workweek (Haraldsson and Kellam, 2021; Soojung-Kim Pang, 2023; Stronge and Harper, 2019 and De Spiegelaere and Piasna, 2017), is the one conducted in Iceland between 2015 and 2019.

The first experiments in Iceland were carried out by the Reykjavik municipality in 2015 and 2017 in response to a campaign led by trade unions (mainly the Confederation of Municipal and State Employees - BSRB) and NGOs. The initial trial took place in services of the Reykjavik municipality in 2015, followed by subsequent trials by government services in Iceland in 2017. The aim of these experiments was to assess whether working time reduction could improve the well-being and work life balance of Icelandic workers. Another goal of these experiments was to assess whether a reduction in working hours could increase productivity.

At that time, the average effective working hours for full-time employees were around 44 hours per week, one of the highest among OECD countries, and productivity was relatively low (OECD, 2017). A survey conducted in 2005 revealed that a quarter of Icelandic workers were regularly too tired to engage in household tasks after their workday or workweek (Stefansson, 2008). As highlighted by Haraldsson and Kellam (2021), such a situation was not really in line with the fact that Iceland is one of the richest countries in terms of GDP per capita, with high incomes, low unemployment rates, but very low productivity.

The initial experiments were conducted between 2015 and 2017 in two departments of the Reykjavik municipality (a service centre and a child protection service), involving 66 employees whose working hours were reduced from 40 hours to either 35 or 36 hours while maintaining their original salary. An evaluation was carried out by comparing the evolution of various socio-economic indicators in these two departments with those of a control group. The positive results, both economically (performance and service quality) and socially (well-being and work-life balance), prompted the municipality and the BSRB to expand the scope of the experiments. This expansion included employees working in teams with atypical hours and a greater diversity of services. At the end of these experiments on September 1st, 2019, negotiations were initiated between social partners to conclude collective agreements ensuring a permanent reduction in working hours. Concurrently, the Icelandic government embarked on a similar initiative involving approximately 400 employees in various services, including a police station. In total, these two experiments, which spanned from 2015 to 2019, affected 2500 employees. Between 2020 and 2021, agreements were reached within various departments of the Reykjavik municipality and government's departments, officially reducing the standard working hours from 40 to 36h.

The only available report in English (Haraldsson and Kellam, 2021), published by Autonomy - a British think tank heavily involved in promoting reduced working hours, particularly in the form of the four-day workweek - is somewhat vague regarding the extent of the reduction in working hours, both in the public and private sectors. According to the authors, at the time of writing in June 2021, 86% of the Icelandic active population was affected by these reductions in working hours. However, the extent of these reductions remains uncertain: in certain parts of the report, it is mentioned that the reduction in working hours in the public sector was 13 minutes per day, or just over an hour per week, while in the private sector, it was purportedly 35 minutes per week. A little further on, citing the same source (Committee on Labour Market Statistics, April 2021), they write: « *these changes mean that working hours in standard work have reduced to 35 or 36 hours in the private sector and 36h in the public sector. For those working irregular hours in the public sector, the weekly hours have shortened to 36, and in some cases to 32*" (Haraldsson and Kellam, op.cit. p 54). This means that more research is needed to have a more precise evaluation of working time evolutions in Iceland.

Regarding the results, according to the authors of the report, they are largely positive both economically (productivity was, at worst, maintained, and at best, increased in all the services concerned) and socially. The evaluations compared with the control group revealed, on one hand, an improvement in the well-being of the employees at work (people reported they felt more positive and happier at work ; symptoms of stress were reduced while they noticed an increased support of colleagues), on the other hand an improvement of their work life balance and their well-being in their personal life (easier to do errands as for participation in home duties, positive effects on single parents, more exercise, more time for oneself, less stress at home).

The unexpected expansion of the 4-day workweek

With the gradual easing of the Covid-19 pandemic, the idea of a four-day workweek has gradually gained prominence in social and political debates. Governments have announced the launch of four-day week experiments; policies have been drafted, and experiments promoted by think tanks have emerged in several countries.

The idea of a 4-day work week is not new

The compressed workweek, meaning reducing the workweek to 4 days while maintaining the same total weekly hours, has been around at least half a century.

Pedro Gomes (2021) points out that during the 1970s, several American companies adopted this type of arrangement (working 40 hours in four days instead of five, without a reduction in salary). He reports that Paul Samuelson wrote a foreword to a book titled "*4 Days, 40 Hours*" (1971), edited by Riva Poor, in which he praised this work organization for bringing productivity gains, reducing operational costs for the company, as well as turnover and absenteeism, all while increasing employee satisfaction with their work and non-work time.

Several authors (Gomes, op.cit.; Soojung-kim Pang, 2023; Coote, 2021) also mention the case of the state of Utah in the USA, where the governor decided in 2008 to transition 18,000 of its employees (out of 25,000) to a four-day workweek while maintaining the same total weekly hours of 40h, with no reduction in salary. By closing the affected services (mentioned as non-essential services) on Fridays, the governor aimed to achieve several objectives: reduce operational costs, especially the state's energy bill, improve air quality by reducing employees' commuting, enhance service quality, and make the state more attractive for new hires or limit departures. The experiment was discontinued in 2011 on the pretext that the energy-saving goals were not as significant as hoped, despite the fact that service quality hadn't declined and both employees and users were generally in favour of continuing the arrangement (Gomes, 2021).

During the first half of the 1990s, the idea of a four-day workweek coupled with a reduction in working hours for the purpose of job sharing was brought into discussion in France by a leader of a major company, Antoine Riboud, and by an engineering consultant with a political inclination, Pierre Larrouturou. They are at the origin of the Robien law (11 June 1996) which was part of this job-sharing approach by encouraging companies, through financial aid (reduction in employers' social security contributions), to reduce working hours either to hire new staff (offensive aspect) or to avoid redundancies (defensive aspect). The reductions in social security contributions were proportional to the extent of the reduction in working hours applied, which could be 10% (about 35h a week) or 15% (about 33h a week). In the first case, the reduction in employer social contributions

was 40% in the first year and 30% in the following six years. In the second case, these percentages were 50% and 40% respectively.

Although the law makes no reference to the 4-day week, several companies adopted this work organisation. As a sign that the 4-day work week had not acquired the popularity it has today, none of the Ministry of Labour's evaluations (Bangoura, Le Corre, 1997; Doisneau, 2000; Doisneau et Le Corre, 1998; Bloch-London et al., 1999) drawing lessons from this law mentions the number of companies that have adopted this arrangement, nor does it mention the 4-day work week. The Robien law was repealed in 1997 due to the implementation of the Aubry laws (1998 and 2 000), which reduced the legal working hours from 39 to 35 hours.

In 2004, Belgium implemented a law similar in its incentivizing framework to the Robien law (this time through a flat-rate subsidy per affected employee) aimed at promoting the four-day workweek. Two options were offered: either working four days without a reduction in working hours, or a four-day workweek with a reduction in the duration of working hours, with no precision concerning the extent of the working time reduction. We didn't find any evaluation of this law.

The emergence of the 4-day/32h model

The examples we've just mentioned constitute somewhat isolated cases. They didn't receive the same level of media attention as current 4 day week experiments experience since the gradual easing of the COVID-19 pandemic.

The pandemic both led to the widespread adoption of remote work and triggered new relationships with work but also with family, friends and community. It also resulted, notably for the so-called "essential workers", in significantly increased levels of stress and in most cases, longer working hours.

The outbreak of this truly special period has brought about a shift in people's relationship with work, together with a disruption in their relationship with time (Djelassa, S.; Ayedi, N., 2020). This has resulted in a greater demand for autonomy, control over working hours, improved working conditions and a change in the balance between professional and personal times (OECD, 2022; Veal, 2023), one manifestation of which is the 4-day workweek.

It is in this context that the four-day workweek has garnered growing interest, both from the side of employees, as indicated by numerous surveys, and surprisingly, from certain employers and governments. Actually, prior experiments carried out in Sweden and Iceland created a more favourable atmosphere to reducing working hours with the aim of improving employees' well-being and work life balance as well as job satisfaction. The fact that these experiments did not have negative impacts on the economic situations of firms, or even, on the contrary, turned out to improve it (see chapter 4) served as a catalyst for the proponents of the 4-day work week who all mentions these examples as a kind of starting point (Barnes, 2020; Coote et al. 2021; Gomes, 2021; Soojung-Kim Pang, 2023).

The Pioneers

The case that contributed to establishing the four-day workweek with reduced working hours and maintained salaries as a new and positive way of working for both the company and the employees is that of *Perpetual Guardian* in New Zealand.

In the spring of 2018, this financial services company, initiated an experiment over a period of 8 weeks, implementing a four-day workweek with a reduction in weekly working hours from 37.5 hours to 30 hours per week while maintaining wages at the same level. This unilateral decision by the company's leader, Andrew Barnes, was inspired - he said - by the findings of a study published in *The Economist* indicating that office workers were productive for only 1.5 to 2.5 hours in an 8-hour workday. This is because they are preoccupied with personal matters outside of work and are interrupted by various demands in the workplace. Andrew Barnes' idea was to free up a day for his employees so that they could take care of all their non-work-related duties outside of the office. When he announced his decision, he made it clear that he expected his teams to accomplish in 4 days what they used to do in 5 days.

This experiment was evaluated by two academics from Auckland universities (see chapter 4) who confirmed rather positive results both economically and socially: employees were more engaged in their work, felt more autonomous, and demonstrated increased collaboration. They were not only more satisfied with their work but also with their non-work lives. Moreover, productivity saw an increase during the experiment (Haar, 2018; Delaney and Casey, 2022). However, we will see later on that Delaney and Casey are critical of what they call the ideation of the "productivity week" (chapters 4 and 5). Encouraged by these results, Andrew Barnes decided to make the four-day workweek a permanent arrangement by the end of 2018.

Beyond the specific case of his company, Barnes founded 4-Day Week Global, a non-profit community providing a platform for like-minded individuals who wish to support the concept of a 4-day workweek as a constituent of the future of work (Coote et al. 2021). Additionally, he authored a book to describe the journey that led him to this idea and to offer a kind of toolkit for those interested in implementing a 4-day workweek (Barnes, 2020). 4-Day Week Global, which has established the guiding principle of 100-80-100 (maintaining production at 100%, reducing working hours to 80% of the initial time, while keeping salaries at 100%), is serving as a catalyst for experiments developed in various countries (chapter 4).

The case of *Perpetual Guardian*, which received extensive media coverage, in which Barnes played a significant role through his book and many interventions in the media, inspired other companies to experiment with the four-day workweek. This included *Microsoft* in Japan, which tested with its 2300 employees, in August 2019, what was called the "*Work Life Choice Challenge*" which involved conducting trials of a 4-day workweek and a 3-day weekend. Despite impressive economic results (chapter 4) the experiment lasted only one month and had no follow-up. Paradoxically, given the brief duration of the experiment, it had a very significant international impact, being cited as an example in support of new experiments. In France, a media and business services company, *Welcome to the Jungle*, also experimented with the four-day workweek during five months from June to October 2019 before adopting it permanently.

The post-pandemic spread of the 4-day working week

The Covid-19 pandemic catalysed the movement in favour of the four-day workweek. As early as spring 2020, New Zealand's Prime Minister, Jacinda Ardern mentioned the four-day workweek as a means to boost the economy, while the New Zealand subsidiary of Unilever announced its intention to test this work arrangement in December 2020.

During 2021 and 2022, several European countries' national or regional governments committed to funding experiments with the 4-day workweek. For example, the Scottish government decided in 2021 to finance a pilot experiment with £10 million, but this was a commitment on the part of prime minister Nicola Sturgeon who since has stepped down.

- In 2022, the Spanish government decided to fund an experiment with 200 voluntary companies to test a reduction in working hours to 32 hours per week over four days without a decrease in salary. Financed to the tune of €50 millions, the experiment should last three years.
- Similarly, the Portuguese government approved the idea of a pilot program allowing companies to test a four-day workweek with reduced working hours while maintaining salaries. In this case, the government will not provide financial support to the voluntary companies, limiting its assistance to the financial support of experiment's evaluation.
- In Spring 2023, a pilot project was conducted in the city of Valencia, Spain, under the auspices of the municipality. Leveraging the presence of two public holidays falling on Mondays, the project's initiators suggested to businesses and public institutions operating within the city's jurisdiction to add an extra day off on Mondays in order to experiment with a four-day workweek for a month. This compressed workweek pilot project involved 360,000 individuals. It underwent an evaluation conducted by a team from the Universidad Autonomia de Barcelona (report 2023).

Some political leaders proposed bills to promote a transition to a 32-hour workweek over four days like in the UK, where Labour MP Peter Dowd introduced a bill to this effect in September 2022. The same in the United States, where Mark Takano, a Democratic representative from California, introduced a federal bill in December 2021 with the aim of reducing the standard workweek to 32 hours over four days. More recently, In March 2024, US Senator Bernie Sanders, as chairman of the Senate Committee on Health, Education, Labour, and Pensions, also introduced a bill to reduce the workweek in the United States to 32 hours without a reduction in pay.

None of these proposals has been implemented an to date, only Belgium has taken the step by adopting a labour market reform in September 2022, allowing willing employees to work the same weekly hours (38 or 40 hours according to Belgian collective agreements) over 4 days. Indicating that this is indeed a reform aimed at improving the work-life balance of employees, a specific provision for separated parents has been included in this reform in Belgium. It allows them to adjust their working hours from one week to another, with the week they spend with their children possibly being shorter, under the condition that they make up for the reduced hours the following week.

However, Belgian unions have expressed reservations, seeing this as potentially resulting in an intensification of work hours. The same reluctance to the 4-day work week without reduction in working time was expressed by French unions at the announcement made by the Total's CEO who stated: "*Those who wish can work more hours per day in exchange for an additional day off during the week. This way, they can work full-time in four days*". As pointed out by Catherine Pinchaut, National Secretary of CFDT (a French trade union): "*This contributes to intensifying work: this is not the way to better reconcile professional and personal life... Many people feel that they don't have the means to do quality work and that they often have to rush things. Concentrating work goes against their aspirations.*" In France, the government and employers' Confederation (MEDEF) are strongly

opposed to the idea of a 4-day workweek combined with a reduction of working hours to 32 hours. However, a few dozen French companies are experimenting with this new work time organisation and duration, sometimes with a reduction in working hours and sometimes maintaining the same duration of work. In January 2024, the Prime Minister of the French government encouraged government institutions to experiment with the compressed four-day workweek.

To conclude with the case of Belgium, in September 2023, in response to union criticisms, the government approved the proposal of the Minister of Employment and Economy, Pierre-Yves Dermagne, to launch a pilot program to test the four-day workweek with reduced working hours without a loss of salary. The Belgium government does not provide a specific funding for firms which will be involved in the scheme but rebate on social security contributions established in 2004 in favour of firms which reduce working hours will be provided (€400 per employee). Concerning this new program aiming at experimenting the 4-day workweek the government will financially support the team which will be in charge of the evaluation (a team from Ghent University).

Alongside these commitments from several governments, 4-Day Week Global has managed to launch several experimental programs of the four-day workweek following the 100-80-100 model through its platform. We will report on the evaluations of these pilot programs in chapter 4.

3 - Theoretical and empirical analysis of the impacts of collective reduction in working hours

This chapter discusses the literature that delves into the main socio-economic effects of reducing working hours.

While the initial scope for this study was the last five years, it was subsequently extended as latest reductions in working hours on a national or sectoral scale took place during the last two decades of the 20th century (chapter 1). As a result, many articles were published in the early 2000s. 10 out of the 13 selected papers which address the employment effects of a working time reduction were published before 2014 (see table 1).

In a first section we will report on findings that emerge from research addressing the effects on employment of working time reductions. Then in the second section, we will examine the effects on productivity, even though these effects, as well as the evolutions of wages, are often significant when considering their impact on employment. A third section synthesizes a series of works that have analyzed the social effects of reduced working time policies, while the fourth section of this chapter focuses on research findings related to environmental impacts of a working time reduction. The work presented here is not exhaustive. The papers selected for this analysis were not chosen through a systematic quantitative method. They result from an analysis based on papers identified as important to our subject and then selected from among their bibliographic references. Finally, there is a quantitative disproportion between the papers dedicated to the impacts of reduced working hours on employment, which are much more numerous than those dedicated to the other three topics discussed in this chapter.

Impact on employment

In the long term, as emphasized by Bosch and Lehndorff (2001), productivity gains generated over more than a century and a half, especially through technological progress, would have led to a dramatic increase in the unemployment rate if there had not been a halving of working hours in industrialised countries.

We will see in the subsequent developments of this report, particularly those pertaining to the evaluation of four-day workweek experiments, that the links between working time reduction and productivity gains also need to be addressed as one examines the impact of working hours reduction on employment. The reason being that working hours reduction is instrumental in supporting productivity gains, which could work against employment.

When evaluating the impact of a reduction in working hours on employment, numerous factors need to be considered: is it implemented with full or partial wage compensation? Does the compensation take the form of an immediate reduction or occur over the medium term (wage moderation)? Is there an increased use of overtime? Was the reduction in working hours accompanied by reorganizations of working hours allowing for an extension of operating hours? Do government provide financial incentives to alleviate the impact of working time reduction on labour unit costs? All these elements weigh in one way or another on the unit labor costs and ultimately on employment. Similarly, the composition of the labour market, the educational level of individuals seeking employment, respective gender employment rates - which could be related to a cultural

dimension, for instance when considering the development of part-time work which is an individual working time reduction - age, and qualification levels should be taken into account. They can explain the limited impact on employment when labour markets are tight.

Finally, the methodology used to conduct these evaluations seems to play a significant role. As seen in Table 1, the impact on employment of a reduction in working hours can be subject to theoretical simulations, while others develop models - either macroeconomic or microeconomic - based on empirical data, aggregated in the first case or directly drawn from analysed cases in the second. The latter is generally based on secondary analysis of empirical data.

Table 1. Selected papers looking at the employment impact of working time reduction

Paper	Publication date	Countries involved	Theoretical models	Models based on empirical data	Socio-economic analysis of empirical data		Employment impact
					originals	secondary	
Rapos/Van Ours	2010	Portugal 96		x			> 0
Asai	2022	Portugal 96		x			< 0
Chemin/Wasmer	2009	France 1998-2000		X Diff-in-diff			< 0
Bosch/Lehndorff	2001	EU80-90s				X	>0
OECD	2022	Worldwide 90s-2021			X	X	Depending on conditions
Batut/Garnero/ Tondini	2022	PT/IT/FR/BE/SI		x			<0
Kapteyn/Kalwij/ Zaidi	2004	16 OECD Countries	x				<0
Marimon/Zilibotti	2000		x				=
Booth/Schantarelli	1986		x				=/<0 ambiguous
Brunello	1989	Japan		x			ambiguous depending hypothesis on wages
Du/Zhang	2013	France		x			>0
Estevao/Sa	2008	France		X Diff-in-diff			<0

Lehndorff	2014	France				x	>0 (short term)

Source: author's classification

Theoretical models (Kapteyn et al., 2004; Marimon and Zibilotti, 2000; Booth and Schiantarelli, 1986) conclude, at best, to neutral effects of a reduction in working hours on employment (Marimon, op.cit.), but more surely to negative effects (Kapteyn et al. op.cit.). According to Marimon and Zibilotti (op.cit.), who study the employment and distributional effects of a reduction in working hours within the framework of a general equilibrium model, small reductions may lead to a small increase in employment, while larger reductions inevitably lead to negative effects on employment. This is because, for these authors, significant reductions result in a decrease in production, working hours, and wages.

On the other hand, Booth and Schiantarelli (op.cit.) assess the effects of a reduction in working hours on employment using the monopoly union and efficient bargaining models of unions and firms. If the number of teams remains fixed, they estimate the employment effect as ambiguous but more likely negative unless there are financial incentives. In this respect, they align with the analyses of Bosch and Lehndorff (2001), who argue that the employment outcomes of a reduction in working hours depend on its implementation conditions. They suggest that measures to reorganize working hours to increase operating hours may have a positive effect on employment. However, it should be noted that these measures aiming to decouple equipment usage time and employees' working hours often have negative effects on their well-being, particularly their health, and work-life balance. Indeed, such reorganizations lead to the development of atypical schedules.

Kapteyn et al. (op.cit.) conducted a longitudinal cross-country analysis (16 OECD countries) of the long-run impacts of working time reduction on employment and concluded that while the reduction in working hours may have a positive short-term effect on employment, this effect disappears in the long term due to its lifting effect on wages. On the issue of distinguishing between short-term and long-term effects of a working time reduction, their conclusions align with those of Lehndorff (2014), who also estimates that the short-term effect is positive but disappears in the long term. The question that arises here is whether these long-term effects are assessed considering changes that may occur in the regulation of working time (for example, an incentive to use overtime, as was the case in France between 2003 and 2008) or a cessation of government financial incentives.

Modeling based on empirical data supports more contradictory results. For instance, studies conducted on the same empirical case of a reduction in working hours in a given country led to very contradictory results. Two cases are particularly analysed in the EU as they were the last European countries, except for Slovenia, that implemented a working time reduction at the national level: France and Portugal. These two countries reduced working hours, in Portugal from 44 hours to 40 hours in two stages between 1996 and 2000. France implemented a reduction from 39 hours to 35 hours a week between 1998 and 2000 (Aubry laws in 1998 and 2000) depending on the size of the firms: companies with more than 20 employees had to comply with the new legal duration of 35 hours starting from January 1, 2 000, while those with fewer than 20 employees benefited from an additional two years (until January 1, 2002).

While in Portugal the main objective was to align working hours with the European standard of 40 hours, in France the two laws aimed explicitly at job creation and / or avoiding layoffs

In both countries, wage levels were maintained. Whereas in Portugal this policy did not receive any government financial assistance, in France social security contribution relief measures were implemented to assist companies in creating or preserving jobs. Government subsidies were first implemented in the case of the Robien law in 1996 as already explained in chapter 2 and were continued for the two Aubry laws. However, while the first Aubry law (1998) tied these subsidies to the creation or preservation of jobs, the second Aubry law (2000) implicitly lifted this conditionality. Aubry I law was modeled on the Robien law: financial incentives were aimed at encouraging companies to enter into agreements to create jobs or preserve them before January 1, 2000, the date on which the new legal duration would apply to companies with more than 20 employees. The set standard was to reduce working hours by 10% and increase the number of jobs by 6%. In the case of a 15% reduction in working hours, the employment effect should be 9%. This aid consisted of a flat and degressive reduction (over five years) in employer social security contribution. According to Chemin and Wasmer (2009), this corresponded to aid ranging from €800 to €1,500 per employee. From the sixth year onwards, the company benefits from a permanent aid of approximately €600 per employee. The second Aubry law established a permanent and structural reduction in employer social security contributions. The conditions to obtain this aid were to reduce working hours to 35 hours and make commitments regarding employment without a fixed threshold.

Regarding the impact on employment of the reduction of working hours in Portugal, Raposo and Van Ours, (2010), on the one hand, and Asai (2022) on the other hand, arrive at opposing conclusions.

- For the former, who used longitudinal data set matching firms and workers in order to take in account the considerable regional, sectoral and firm-size variation in the share of workers who were affected by the working time reduction, the transition from 44 hours to 40 hour workweek did have an effect on employment, leading to job creation, but more significantly, a decrease in job destruction.
- According to Asai, who used the same data set (QP- "lists of personnel") to build his model, the macro-economic impact on employment was neutral. More precisely, he founds that the establishments that were more treated experienced lower post-reform employment growth compared to less or non-treated counterparts. He notes the absence of an impact on sales, which would be a sign of productivity gains, measured by sales-per-hour. However, he reports there was a significant heterogeneity between capital-intensive companies, which saw a greater reduction in employment due to capital-labour substitution, and labour-intensive companies, which did not experience a significant decline in employment. One explanation for the lack of impact on employment provided by Asai (op.cit.) could lie in the observation of an increase in the proportion of highly qualified employees in certain companies after the reform. This change in the workforce structure may have resulted in increased productivity and consequently a negative impact on employment in these companies.

Raposo and Van Ours (op.cit.) attribute the positive relation between working time reduction and employment to the "*increased flexibility in the use of standard workweek which made it easier to adjust the workforce at the intensive margin rather than at the extensive margin*". These new flexibility options involve the ability to adjust the duration of working hours over a period of 4 months and the possibility of extending the maximum daily (up to 10 hours) and weekly (up to 50 hours) working hours. Interestingly, they argue that increased flexibility is a condition for a positive

impact on employment, a condition they believe was not present in the case of the transition to a 28-hour workweek at VW in Germany in 1993 or in the French case. However, this assertion is not necessarily backed up by evidence, as in both cases, much more significant flexibility measures were introduced than in Portugal. For example, Bosch and Lehndorff (2001) demonstrate that the reduction in working hours implemented at VW in 1993 was accompanied by flexibility measures allowing an increase in annual operating hours from 3,700 to 5,300. Conversely, In Portugal, the overtime regime was not changed: it was limited to 2 hours per day and 200 hours per year, and most importantly, their compensation rate remained the same, significantly higher than in other countries: 50% for the first hour and 75% from the second. However, the reform introduced the fact that they were no longer counted on a weekly basis but on a 4-month cycle.

The impact on employment of the transition to a 35-hour workweek in France has been fiercely debated and remains a controversial issue. Several studies cited by Askenazy (2013) report positive results on employment. These studies (Crépon et al., 2004; Bunel, 2004; Gubian et al., 2004) "*use propensity scores, matching methods, or structural models to encompass major selection problems. They try to build control groups carefully and to exploit discontinuities in the regulation*" (Askenazy, op.cit.). These studies conclude a net employment effect in the range of 6% to 9% for the Aubry I law, while the effect of the second law was much weaker (around 3%). Thus, Gubian (2004), by aggregating microeconomic data at the macroeconomic level, estimates that between 300,000 and 350,000 jobs were created between 1998 and 2002 due to the transition to the 35-hour workweek (Askenazy, 2013).
However, these results are contested by other authors who assert that it is difficult to assess the net effect of the 35-hour workweek in an employment-friendly context (2 million jobs created between 1997 and 2002) or to disentangle its effect from those due to the reduction of labour costs driven by the financial incentives or to increased flexibility (Artus et al, 2007). Nevertheless, for most authors, it is important to distinguish between the Aubry 1 law, which conditioned state aid on job creation, and the Aubry 2 law, which removed this conditionality. Crépon and Kramarz (1999) argue that the positive effect of working time reduction on employment is linked to concomitant reduction in social security contributions and wage restraint.

However, other studies contradict or, conversely, confirm these results. For instance, Estevào and Sà (2008), who used employment surveys conducted in France from 1993 to 2002, compared employment trends between companies with more than 20 employees (subject to the obligation to comply with the new legal duration by January 1, 2000) and those with fewer than 20 employees, which served as their control group, arguing that the latter were only compelled to switch to the 35-hour workweek by January 1, 2002. However, this assertion can be contested as some companies with fewer than 20 employees also anticipated the switch to the 35-hour workweek to benefit from incentives. Their conclusion is that the 35-hour reform in France did not have a positive aggregated effect on employment, which, according to them, invalidates work-sharing policies.
Chemin and Wasmer (2009), on the other hand, compared the impact of the implementation of the 35-hour workweek in Alsace Moselle – a French region where a specific regulation linked to the history of this region, occupied by Germany between 1871 and 1918, grants two additional annual days off - to the rest of France. As employers included these two days off (16 hours) in the calculation of the 35-hour workweek, this reform had a less pronounced impact in terms of reduced working hours. However, relying on employment surveys from the French national statistics Institute (INSEE), they conclude that although the extent of the reduction in working hours was smaller in

Alsace Moselle, the impact on employment was the same as in the rest of France, even when considering the size of companies. However, their conclusion is more ambiguous (as are the conclusions of several other surveyed papers, often pointing to "ambiguous" impacts): "*The conclusion is that previous estimates of the employment effect are not entirely inconsistent with our results but rather that we cannot find any significant effect of the 35-hour reform using our empirical strategy.*"

Other papers conclude to positive effects on employment of the 35-hour workweek in France. For instance, Du and Zhang (2013) attempted to assess its effects on unemployment and real GDP using a counterfactual analysis. By comparing the evolution of the unemployment rate in France and in 15 OECD countries between 2000 and 2007, they estimate what the evolution of unemployment would have been without the reduction in working hours in France. Their conclusion is that the 35-hour workweek reform in France reduced the annual unemployment rate by about 1.58% and raised the real GDP growth rate by 1.36% from 2 000 to 2007.

Batut et al (2022) used a panel of industry-level data in European countries between 1995 and 2007 to evaluate the impact of national working time reductions which kept monthly wages constant (Portugal (1996), Italy (1997), France (1998-2000), Belgium (2001), Slovenia (2002)) on hours worked, employment, hourly wages and value-added per hour worked. Their sample consisted of 23 countries and 32 industries. To assess the causal effect of working time reductions on the outcome of interest, they use a difference-in-difference methodology that exploit the initial differences in the share of workers exposed to the reforms across sectors. Their conclusions are that lower working hours did not translate into higher employment while they found positive but insignificant effect on hourly wages and value added per hour worked.

From these various analyses, one can conclude that the impact on employment of working time reduction should be considered with caution and must consider factors like the existence or absence of state aid, the work reorganisation measures which can expand the operating hours, the level of wage compensation. As emphasized by the OECD, theoretical models are based on the idea of a full wage compensation, which is also mostly the case in the real world, at least at the time of the implementation of the collective working time reductions. These models also consider the propensity to use overtime, which can be deterrent to hirings. In both cases, reducing working hours will result in an increase in unit labour costs. This, in the long run, can lead to a substitution of labour by capital. However, still from a theoretical perspective, productivity gains generated by restructuring working hours and/or the fact that employees are more rested can help mitigate the increase in unit labour costs. According to the OECD (op.cit.), as regards the link between reducing working hours and employment, empirical studies conclude that there is either a negative effect, or, more commonly, the absence of a significant effect, and only in a minority of cases a positive effect. Bosch and Lehndorff (2001) and Lehndorff (2014) do not share this opinion and argue that the models tend to overlook the actual conditions of implementing reduced working time measures. Their analyses advocate for methodologies that delve into the real conditions of implementing reduced working hours, monographic approaches that also consider contextual elements, including the existence or absence of active employment policies, which are a prerequisite for a positive employment effect.

Drawing on previous research, particularly the work of Bosch and Lehndorff (2001), De Spiegelaere and Piasna (2017) conclude that the effects on employment from a reduction in working hours are not proportional. For instance, Bosch and Lehndorff (2001) find an elasticity between – 0,4% and –

0,7% which means that the impact on employment would be between 2% and 3.5% for a reduction in working time of 5%. From our perspective, the work conducted by Bosch and Lehndorff constitutes an advocacy for more empirical research, case studies that consider both the implementation conditions of reduced working time measures and the national, regional, or sectoral context.

Impact on productivity

Long working hours have long been understood as detrimental to labour productivity. Pencavel (2014), based on historical work in a munitions factory during World War I, estimates that productivity decreases proportionally with the increase in working hours, with a drastic change being seen after five hours of work. He explains this process by stressing that: "*employees at work for a long time may experience fatigue or stress that not only reduces his or her productivity but also increases the probability of errors, accidents and sickness that impose costs on the employer*" (idem).

Several papers (OECD, 2022; De Spiegalaere and Piasna, 2017), confirm that reducing working hours can result in less fatigue and higher worker engagement, leading to productivity gains. These gains can also be attributed to organisational and managerial innovations or the replacement of less productive workers by more qualified ones, all measures that can be stimulated by working time reductions. Literature also suggests that productivity gains can be achieved through workers investing some of their free time in further training when benefiting from reduced working hours (OECD, op.cit.).

In its review of studies on the impacts of reduced working hours, the OECD (op.cit.) notes a scarcity of empirical studies on the relationship between reduced working hours and productivity. To fill this gap, the authors compare the effects of a reduction in working hours conducted at the national level (drawing on the research conducted by Batut et al. mentioned previously) and those of a reduction in working hours carried out at the company level through negotiated processes. To carry the analysis of company levels working time reduction, OECD rely on firm-level panel data in three countries: Germany, Korea, and Portugal. They used a difference-in-difference framework, comparing log changes in productivity per worker, number of employees and average wage between firms that reduced their contractual working hours and similar firms that did not. Their results show positive and significant associations with productivity growth in Germany and Korea and positive but insignificant in Portugal. They also observe insignificant employment effects in Germany and Korea, and negative and significant in Portugal. Looking at wage growth, they report insignificant association in Portugal and Korea, but positive and significant in Germany. Their interpretation of these contrasting country results leads the authors to conclude that a reduction in working hours can have a positive effect on productivity and no effect on employment in some cases (Germany), and in the case of Portugal, it may not have any effects on productivity and may have a negative effect on employment. This leads them to suggest that in some cases, there may be a virtuous circle between reduced working hours and productivity that limits the increase in labour costs: the causes may be company investments (Germany) or organizational changes or even the renewal of workers and reduced fatigue. However, a particularly important point made is that this can also be attributed to institutional mechanisms, including the industrial relations system through its collective bargaining institutions and the richness of social dialogue.

In a study conducted for the ILO (2012), Lonnie Golden synthesizes research on the links between working time, productivity, and firm performance. In agreement with Pencavel (op.cit.), he quotes several studies that estimate that long working hours, particularly through the use of overtime, have a negative effect on productivity. Conversely, reducing working time can have a positive effect on productivity through either a reduction in physical and mental fatigue or because a decrease in working hours catalyses new organizational and management methods. Beyond questions related to working time duration, Golden shows that employee-driven flexibility, meaning all measures aimed at giving employees more autonomy in managing their working time (flexi-time, compressed workweek, hours averaging, working time accounts or time banking, etc.), have a positive impact on productivity and firm performance.

This employee-driven flexibility allows employees to better balance their personal and professional lives, increasing their job satisfaction and impacting absenteeism reduction. While measures that give employees more autonomy in managing their daily work schedules (such as being able to adjust their arrival and departure times) enhance employee satisfaction and productivity, as shown in a survey of 1500 employees and managers in six American companies quoted by Golden (op.cit.), the implementation of compressed workweeks has more mixed results. Some studies (Baltes et al., 1999) cited by Golden demonstrate improved job satisfaction among employees working under the regime of compressed workweek, but they do not show a positive impact on absenteeism and productivity. However, Golden cites other more recent studies (Facer and Wadsworth, 2008) that suggest a positive link between compressed workweeks and productivity gains, albeit without an increase in job satisfaction.

Social impacts

Research on working hours has demonstrated long working hours, as well as irregular working time schedules, have negative effects on the well-being and health of workers (OECD, 2022; Coote et al., 2021; Lepinteur, 2018).

Long working hours, which increased in several countries after the 2008 financial crisis, and also during the 2020/2021 health crisis, particularly among the “essential workers”, are now well understood to have negative effects on health, including stress and sleeping disorders, as well as unhealthy lifestyle habits such as smoking and alcohol abuse, irregular diet, and lack of exercise (Messenger, 2018 ; Pega, 2021; Coote et al.,2021). The longer-term effects of long working hours include an increased incidence of cardiovascular disease, gastrointestinal and reproductive disorders, musculoskeletal disorders, burnout, and higher risks at work (Messenger, op.cit). Long working hours are a risk factor, particularly for workplace or commuting accidents, due to prolonged exposure of workers to physical and psychosocial risks associated with work activities (Eurofound, 2019). They also negatively impact the balance between professional and personal life, as well as subjective well-being (Eurofound, 2018). Often accompanied by low control over working hours, they result in low job satisfaction and motivation, leading to high rates of absenteeism and turnover (Golden, 2012).

Consequently, it is not surprising that evaluations concerning reductions in working hours consider it as beneficial for health and well-being, work life balance, job and life satisfaction (OECD, 2022;

Lepinteur, 2018; Hammermesh et al, 2017; Coote et al. 2021). However, to achieve these results, several conditions must accompany a reduction in working hours :

- 1. salary is maintained (this could however have a negative impact on employment and productivity and we will see that this is considered by some researchers as an obstacle to positive impacts of a working time reduction on the environment),
- 2. it should not result in an increase in workload, which implies from a theoretical point of view that it should be accompanied by compensatory hires,
- and 3. it should not lead to an intensification of working hours or flexibility measures, such as atypical working hours, that could degrade working conditions and the work/life balance.

According to the OECD (2022): "*a reduction of normal working hours may (…) be considered as a possible working time policy lever to enhance worker's non-material well-being…*". In the same line, Lepinteur (2018) argues that a decrease in working hours increases utility due to an increase in free time.

While some studies we have identified focus on specific areas, such as the impact of reduced working hours on the family life of parents (Fagnani and Letablier, 2006) or on health (Berniel and Bietenbeck, 2020), others discuss the impact on well-being taken as a comprehensive concept encompassing both the effects of reduced working hours in the workplace and in the family and social spheres (Lepinteur, op.cit.). In doing so, they tend to mitigate the negative effects that may manifest in one sphere, such as those regarding working conditions, in favour of an overall positive assessment of well-being due to a strongly positive perception of leisure or of the new conditions of work-life balance, for example. This explains why general feeling drawn from the 35-hour reform in France is that it did not have a positive impact on the working conditions of the entire working population, as it accentuated inequalities (Pelisse, 2008), but that employees appreciated more universally its impact on family and social life as well as on the use of leisure time.

Results regarding health also seem to point in the same direction of generalised positive impact but also reveal inequalities among categories. Berniell and Bietenbeck (2020) used the Health and Social Protection Survey (ESPS), a longitudinal health survey, to measure the impact of the reduction of working hours in France on the propensity to smoke and on the Body Mass Index (BMI). Using the difference-in-difference methodology to compare individuals affected by the reform and those who remained at 39 hours, they show that four years after the reform was initiated, the propensity to smoke decreased by 6 percentage points, corresponding to a reduction of 16% of the pre-reform mean. Similarly, the BMI was also affected downwards while the self-reported health increased. However, these overall results mask inequalities, as for smoking, it mainly affects blue-collar workers, while the decrease in BMI mainly concerns white-collar workers.

Empirically, analyses can yield ambivalent results due to differentiated contexts and implementation modalities of working hour reductions, as well as varied analysis methods and objectives or indicators used. For instance, as stated in the OECD review (2022), the reduction of working hours from 44 to 40 hours that took place in Korea between 2004 and 2011 had, according to some authors (Lee and Lee, 2016), positive effects on employee well-being and health, while others (Rudolf, 2013) observed no positive effects. For the former, an "*average one-hour reduction in normal weekly working hours in Korea significantly decreases the injury rate by about 8%*" which means an improvement in working conditions. On the other hand, Rudolf finds that this reduction of

working hours "*did not have the expected positive impact on workers' job and life satisfaction and suggests that the reduction in hours was offset by greater work intensity*".

Lepinteur (2018), conducted a study comparing the effects on well-being of working hour reductions carried out in France between 1998 and 2000 and in Portugal between 1996 and 2000. On the basis of data from the European Community Household Panel (ECHP) between 1994 and 2001, He observed an improvement of job and leisure satisfaction in both countries. More precisely, he found a positive association between reduced working hours and satisfaction with working conditions in Portugal, but this relationship was nearly non-existent in France. Comparing his analysis with the one conducted by Rudolf (2013) in Korea, Lepinteur (2018) contends that the intensification of work did not diminish the positive association between reduced working hours and well-being, both in France and Portugal. This observation is partially contradicted by studies conducted on the impact of the 35-hour workweek on working conditions in France. Askenazy (2013) demonstrates that a large majority of employees report that the intensity of work has increased due to the reduction of working hours, particularly due to the development of multitasking, but also because of an increase in workload or of productive (employer driven) flexibility. On their part, Fagnani and Letablier (op.cit.) note that, in the French context, a portion of employees do not fully benefit from reduced working hours due to the development of atypical schedules or the annualization of working time, which makes schedules unpredictable and irregular. For these employees, the balance between professional and family life has not evolved positively.

Indeed, upon reviewing these studies, it appears that the contradictory results that may arise from comparing results across different countries can also be attributed to contextual differences. Transitioning from a 44-hour workweek to a 40-hour workweek does not have the same implications as going from a 39-hour workweek to a 35-hour workweek. One can hypothesize that the differences in the starting situation - 39h in France, 44h in Portugal – may have differentiated impacts.

Another dimension to consider lies in the modalities of implementing the reduction of working hours and in the varying degrees of choice given to employees. For instance, the fact that the reform in France allows working beyond the legal duration of 35 hours (up to 39 hours), and that this possibility entitles employees to rest days (JRTT for working reduction days: in theory, up to 20 days per year if the weekly working hours are maintained at 39 hours), has been a source of satisfaction, especially for public sector employees (Fagnani, Letablier, 2006) : in the public sector, 80% continued to work 39 hours in order to benefit from these additional 20 days off. These working reduction days, in addition to the five weeks of paid vacation, allow parents of school-age children to align with school time schedules.

According to Fagnani and Letablier (op.cit.), the level of satisfaction is not the same depending on whether one works in the public or private sector. Thus, when asked if the transition to the 35-hour workweek has made it easier to balance work and personal life, 68% of public sector employees answer affirmatively compared to 55% of private sector employees. Several explanations can be offered for these differences, including a higher rate of unionization in the public sector and a greater tradition of social dialogue, as well as the existence of flexibility measures more oriented towards meeting the needs of employees.

It is important to also consider differences related to gender, family situation, age, etc. For instance, when Lepinteur (2018) suggests that the positive impact of reduced working hours is stronger for

women in Portugal and for men in France, he does not consider the family situation. Indeed, Defalvart and Méda (2002) as Fagnani and Letablier (op.cit.) have shown that the employees who appreciated most the gains brought about by the reduction of working hours (in terms of subjective well-being) were those (both women and men) who had children under the age of twelve and were able to spend more time with them. Moreover, Fagnani and Letablier (op. cit.) argue that the 35-hour workweek has reduced inequalities between men and women in terms of working hours. Indeed, since the full-time norm was reduced to 35 hours, many women who were working part-time (between 30 and 35 hours) switched back to full-time employment. However, these authors emphasize that the reform did not have a significant impact on the distribution of domestic tasks between men and women, with women continuing to bear the brunt of unpaid work. From this last perspective, the cultural dimension is important to consider as the models of division of tasks between men and women vary from one country to another. For instance, Hammermesh et al. (2017) observe an improvement in satisfaction among Japanese and Koreans employees affected by reductions in working hours. An interesting finding in Korea is the increase in well-being for women when their husbands benefit from a reduction in working hours.

On an empirical level, evaluations stemming from the reduction of working hours in Iceland between 2015 and 2019 appear particularly positive. Haraldsson and Kellam (2021) note a greater job satisfaction. Employees in various entities of the municipality of Reykjavik report being happier in their work while instances of stress have decreased. Additionally, these employees feel better and more energetic both at work and during their leisure activities, such as physical activities, shared moments with family or friends, or pursuing hobbies. A particularly interesting result is that they feel they receive more support from their colleagues as well as from their superiors. They report an improvement in their work-life balance and a better quality of their leisure time during the weekend, thanks to the reduction in working hours that allows them to handle necessary tasks during the week. Finally, in line with the findings of Hammermesh et al. (2017), men benefiting from a reduction in working hours felt they take on a greater role in household chores after the trial, especially in terms of cleaning and cooking. However, this perception by men of spending more time on household chores is not necessarily shared by women.

Environmental impact

The relationship between working time reduction and environmental concerns in light of climate change, emerged as a concern in working time policies from the 2000s onwards.

For instance, Knight et al. (2013) demonstrated, by comparing data from the 29 richest OECD countries, that those with the shortest working hours also had the lowest carbon footprint. By modelling the trajectories of these different countries, the authors calculated that a 10% working time reduction, with a proportional decrease in wages, would decrease the carbon footprint by 14.6% and CO2 emissions by 4.2%. It would be obtained by decreasing the scale of both production and consumption. In a more recent publication (Fitzgerald et al. 2018) which examines the links between carbon emissions and working hours in fifty US states, the authors found that shorter hours of work are positively associated with lower state-level carbon emissions. Rosnick and Weisbrot (2006) estimated that if the USA were to align their working hours with those practiced in the EU, they would reduce their energy consumption by 20%. In the same vein, a Swedish study (Nässen and Larsson, 2015) arrived at similar assessment: reducing working hours by 1%, with a proportional

decrease in income, would lead to a 0.7% drop in energy consumption for Swedish households and a 0.8% reduction in carbon emissions.

All these theoretical associations between working hours and the environment are based on the hypothesis that long working hours encourage energy-intensive consumption of goods and services and lead to conspicuous expenditures. This is the starting point of the paper by Devetter and Rousseau (2011) who, by distinguishing three types of households according to their working hours, consider that households working long hours are more likely to have high wages and little free time. Thus, they are more likely to live in large, energy-consuming homes, eat prepared meals and travel more often by car or plane. These observations are echoed by Coote et al. (op.cit.) who also highlights the tendency towards environmentally detrimental consumption by time-poor households, as they are compelled to consume convenience products and services. They do this not only out of necessity but also to showcase their social status. Today, it is still the long hours in high hierarchical positions that serve as the "badge of honour" (Gershuny and Fischer, 2014).

Antal et al. (2020), who conducted a systematic analysis of the literature on the links between reduced working hours and the environment (ultimately selecting only 15 relevant articles), note a shared assumption in these theoretical works. Nearly all of them assume a proportional reduction in wages with reduced working hours. Antal et al. observe that empirically this is rarely the case, at least in terms of real wages at the time of the reduction in working hours. This denial of reality largely invalidates for Antal and his co-authors, the relevance of such theoretical research. But they also, recognize that to have a real impact on the environment, the reduction of working hours should be accompanied by a decrease, or at very least a freeze, in remuneration in order to weigh down on the propensity to consume.

To illustrate, Neubert et al. (2022) have conducted a longitudinal study with Swiss employees including one group who voluntary reduced their working hours with a proportional decrease in wages. They observe that the improved greenhouse gas emissions (GHG) related behaviour is mainly due to reduced income. They also report that the well-being effect arises despite lower income. But the key issue is the extent to which people's income decreases because of the working time reduction. Their conclusion is that future working time policies will have to "*carefully consider trade-off to achieve co-benefits for both the environment and human well-being, for example by financially compensating low-income workers*". It is also what Fitzgerald (2022) advocates, who believes that rather than reducing wages in proportion to the reduction in working hours, it is the wage inequalities that should be addressed. It is these inequalities that catalyse competitive consumption and emulate the consumption practices of the wealthy and elites in society. According to this author, there is no contradiction between a generous wage policy and ecological objectives.

In the same vein, Antal et al (op.cit.) emphasize that most of the studies contain a second uncertainty due to a lack of empirical data regarding the rebound effects of reduced working hours. Having more free time can lead to behaviours that have a negative impact on the environment, such as embarking on long-distance flights, or in the case of a 4-day workweek to take the opportunity of 3-day weekends abroad. They stress the fact that the effects related to changes in wages and those related to the reduction in working hours on lifestyles and consumption patterns are intertwined.

These composition effects are also underlined by Fitzgerald et al (2018) and De Spiegelaere and Piasna (2017) who also believe that an increase in free time rather than an increase in wages can promote consumptions less damaging to the environment. Actually, most of those who believe that

reducing working hours, especially the 4-day workweek, can have a positive impact on the environment, make assumptions about changes in individual behaviours (Fitzgerald et al, 2018; European Environmental Bureau, 2022; Coote et al. 2021). They believe that reducing working hours will lead to shifts in time use through the adoption of ecological friendly behaviours such as biking or walking for transportation, self-producing food rather than buying prepared meals, spending more time with family or friends, getting more involved in caregiving, and engaging in local leisure activities near home (Grosse, 2018). For an author like Veal (2023), these speculations are significant among leisure scholars who, since the 1930s, believe that more free time will result in creative activities. Veal reminds us that it is the act of watching TV which has developed the most during the decades marked by working time reduction in developed countries.

While these assumptions of an adoption of virtuous behaviours for the environment are supported by some surveys (Platform/4dayweek), there are currently few robust studies reflecting the reality of these behavioural changes, except for preliminary results from analyses of the 4-day workweek experiments (see chapter 4). To assess the scope of these composition effects, Antal and his co-authors (op.cit.) suggest generating simultaneous longitudinal data on expenditures and time usage at the household level.

In summary, the above review of recent literature on the employment, productivity, social and environmental impacts of working time reduction primarily based on ex-post evaluations carried out at the national level or on theoretical and empirical modelling, shows that these impacts are highly interdependent. If working time reduction policies aim to enhance non-material well-being without adverse effects on productivity, employment, and the environment, their success is contingent on the condition that the impact on unit labour costs remains limited (OECD, 2022). This can be achieved through productivity gains generated by the reduction/reorganisation of working hours and/or through government financial assistance (OECD, op.cit.), or even through a proportional or non-proportional decrease in wages. According to these analyses, a win-win outcome for employees, businesses, society as a whole and environment seems to be difficult to achieve. As emphasised by the OECD (op.cite) "*Any foreseen reduction of working hours should carefully be designed to tap into productivity-enhancing potential of working shorter hours*." We will convey evidence in the following chapter on the evaluation of experiments or permanent initiatives that have been undertaken in recent years, which we refer to as the 6/30 model or the 4-day workweek that appear to address with success, several of these concomitant objectives.

4 - Impact of the 6/30 model and of 4-day work week

This chapter will report on the results of evaluations conducted on the two models of reduction and/or reorganisation of working time that have been most frequently cited as potential templates for the "future organisation of working time". The two models that have given a new legitimacy to working time reduction policies are the 6/30 model and the 4/32 model.

We will first present the main evaluation studies conducted on experiments reducing the daily working hours from 8 hours to 6 hours over 5 working days. This model, mostly found in Scandinavian countries, has been developed with the aim of extending opening hours or machine capital utilization time (6+6 model), together with the aim of improving working conditions and employee well-being. Experiments aimed at this latter objective have been mainly conducted in the healthcare and social sectors.

We will then report of evaluations conducted on experiments involving a 4-day workweek with reduced working hours and maintained salaries. This model has seen a much broader geographical diffusion than the previous one, with experiments conducted in North America, Europe, Australia, New Zealand, and South Africa. Similarly, the sectors involved are much more diverse, although the IT and business services sectors (marketing, finance, consulting) are more commonly represented than the industrial sector. We will also briefly focus on the few evaluations that have been conducted on compressed workweek initiatives since some countries (Belgium, France) have put this 4-day workweek modality on their political agenda.

Evaluations of the 6/30 model

The 6/30 model of working time organisation involves working 5 days a week, 6 hours a day. The model is mainly found in Nordic countries, especially in Sweden, where it has been the subject of scientific evaluations.

Out of the 113 cases of reduced working hours listed by Soojung-kim Pang (2023), 15 cases fall into this category, with 6 in Sweden and 4 in the United Kingdom while the other company cases are distributed at a rate of one per country. From this survey, there are also cases of daily working time reduced to 5 hours a day (3 cases in the USA, including one at 24 hours a week, and 1 case in Australia). While this model hasn't gained the same popularity as the four-day workweek, it nevertheless represents a form of working time reduction that is frequently mentioned in the literature (De Spiegelaere and Piasna, 2018; Barnes, 2020; Coote et al, 2021; Gomes, 2021; Soojung-Kim Pang, 2023).

The majority of these references predominantly refer to the experiment conducted at the Svartedalen retirement home in Gothenburg between February 2015 and December 2016 (discussed later in the report). However, as mentioned in chapter 2, several experiments involving a reduction in daily working hours over 5 days were conducted earlier in Sweden. They were also subject to evaluations using a similar methodology, involving a control group. This model of 6 hours of daily work over 5 days, as well as the way in which the evaluations are conducted and the objectives set by these evaluations, fall under what Heidi Enehaug (2017) calls the "Nordic sociotechnical tradition", whose components are responsible autonomy, learning - in the sense of

acquiring socio-technical knowledge - and control. The reduction of working hours appears as a condition for improving productivity through an increase in the sense of responsibility. Indeed, "*the analysis revealed that sharing productivity gains with the employees by implementing a 6-hour-workday contributed to the development of responsibility toward work task improvements, participation in change processes, and productive organisational learning*" (Enehaug, op.cit. p.86).

The observation that the 'gift' of a reduction in working hours, whether according to the 6/30 or the 4-day/32-hour model, encourages employees to engage in organizational improvements leading to productivity gains, through what Enehaug calls responsible autonomy, aligns with Delaney and Casey's conclusions of the 4-day work week as a process of internalisation of employees' expectations by employers in order to boost productivity (Delaney and Casey, 2022).

While Enehaug's insights regarding the positive associations between responsible autonomy, employee control, and organisational learning are derived from a longitudinal analysis of a 6/30 model experiment in a factory spanning from 2001 to 2012 in Norway, in Sweden, this model has primarily been implemented within the social sector.

Several experiments of the 6/30 model have been conducted in the healthcare sector in Sweden

Akerstedt et al. (2001) sought to assess the impact of a significant reduction in working hours (from 39 to 30 hours) on subjective health and well-being. The experiment involved five care units - two child-care units, one unit for home service, one unit for mentally handicapped, and one department of geriatric - totalling 74 employees. Another fifty employees from four different care units served as the control group, and did not change their working hours. The employees in the experimental group saw their weekly working hours reduced by nine hours without a decrease in salary or an increase in workload, as eight compensatory hires were made.

Comparisons between the two groups revealed a significant positive association between the reduction in working hours and heart and respiratory symptoms, mental fatigue, sleep quality, time for social activity, time for family and friends, influence on work hours, and satisfaction with working hours. In all cases, the experimental group demonstrated an improvement of these indicators whereas the control group exhibited minor changes (Akerstedt, op.cit., page 199). Other significant positive change were reported for the experimental group versus the control group, including a decrease in workload, positive changes in several health indicators (pain/ache complaints, nervous symptoms), and job satisfaction. There were also important differences in time uses between the two groups in relation to time spent with friends, followed by relaxation, time with children, domestic work, sports/hobbies, courses/education, shopping/banking, spouse, and entertainment/TV/radio, as well as union/political activity.

A paper by Barck-Holst et al. (2019) assesses the difference in coping with stressful situations before and after a working time reduction by 25%, from 40 hours to 30 hours a week, in a social work agency. Again, wages were retained, and additional staff was hired in order to stabilise the workload. This study was part of a Swedish government trial, monitored by the Swedish Institute of Working Life, which took place in 2005-2006, to assess the psychosocial health effect of reduced working hours in public organisations, specifically in social services, technology, care, and call-centres.

The main effects reported by Barck-Holst et al. (op.cit.) include a decrease in workplace stress due to reduced exposure to work stressors. They also observed a decrease in work-life conflicts, particularly through a reduction in work intrusions into personal life. Furthermore, the time made available by the reduction in working hours was primarily used for household chores and leisure activities on workdays.

Schiller et al., (2016), on their part, conducted an intersectoral evaluation involving all 580 employees participating in the same experiment to assess the impact of the reduction in working hours on sleep. In their paper, they demonstrate that the reduction in working hours during the course of the experiment had a positive effect on sleep. On working days, workers with reduced working hours reported higher sleep quality, longer sleep duration, lower daytime fatigue, and reduced stress. During days off, all these positive adjustments, except for longer sleep duration, were also observed for workers in the reduced working hours group.

Voglino et al. (2022) conducted a review of the literature examining studies focusing on the relationship between reduced working hours and health effects published since 2000. In their survey, they only considered studies in which employees retained their salary and proportionally decreased their work time and workload. The seven selected papers are from Nordic countries, all from Sweden except one from Norway. Their conclusions confirm the findings we have just reported: the reduction of work hours is associated with an improvement in sleep habits, lower levels of stress, and better quality of working life. However, they did not find a positive influence of working time reduction on either quality-of-life outside work or physical activity.

The emblematic case of Svarteladen home

We are discussing what we call an emblematic case because it is referenced in numerous books and reports advocating for a reduction in working hours and/or a 4-day workweek with reduced working hours (De Spiegalaere and Piasna, 2017; Latour, 2018; Dilani and Papadopoulos, 2018; Stronge and Harper, 2019; Cotte et al., 2021; Soojung-Kim Pang, 2023;). This case is about an experiment aimed at reducing the daily working hours of assistant nurses employed at the Svarteladen home, an elderly care facility located in Gothenburg, Sweden. The experiment, which aimed to assess the long-term effects of shorter workday, took place between February 2015 and December 2016. To evaluate the effects of the reduced working hours, a comparison was made between an experimental group and a control group. The intervention group comprised 62 full-time equivalents (FTEs) whose daily working hours were reduced by about 2 hours, and 15 part-time workers. The control group comprised 30 FTEs and 29 part-time assistant nurses who worked at another older people care facility with the same number of apartments (Lorentzon and Yang, 2021). Similarly to other 6/30 experiments, wages were maintained and new recruitments (about 15) were made.

In their systematic review, Voglino et al. (2022) summarized the main results of the study. The authors explain that outcomes were assessed using several questionnaires before, during and after the experimentation : sick leave in the experiment group decreased to 6.1% compared to a rate of 12.3% in the control group; health, perceived as good improved 72% in the experimentation group versus 60% in the control group. The differences between the two groups were also assessed for alertness level, perceived as good (65% vs 50%), satisfactory level of" perceived fatigue"e (+20% vs –22%), feeling of having a lot of energy when arriving at home (51% vs 7%, both starting from 20%), feeling calm (64% vs 45%), satisfactory level of stress (+20% vs -5%), average sleep time (7 hours vs 5.8 hours)

The impact of shorter working hours was also assessed through questionnaires administered to both the nurses and the residents. Residents of the Svartedalen home reported more positive experiences during the experiment. The evaluation revealed that staff engaged in more activities with them, resulting in an increase of approximately 60% in the number of daily activities. These activities included walking in the open air, singing, and dancing.

These remarkable results beg the question of why the experiment wasn't continued or even extended. In fact, this experiment was initiated and funded (including additional recruitments and covering the increase in unit labour costs associated with reduced working hours) by the municipality of Gothenburg. Its cost was estimated at around 12 million Swedish Kronor (SEK) (approximately 1.2 million euros). For the mayor of the city: "*Overall, hiring more people drives costs up by 20% and 30% for the local authorities, but in the long run, it drives down collateral costs associated with unemployment and healthcare by 15%".* According to him, the costs of the experimentation were shouldered by the local authority, but the fiscal benefits are for the central government that would see a reduction in health care and welfare costs (https://www.equaltimes.org/swedish-researchers-examined?lang=fr).

According to the Mayor of Gothenburg, the experiment faced political opposition, and the governing coalition lost seats, resulting in a minority status. This led to the discontinuation of the experiment.

A Belgian organisation drew inspiration from the 6/30 model

Latour (2018) explored the possibility of Belgium replicating the 6/30 model by comparing the labour market institutions and regulations in Sweden and Belgium. His conclusion was that it is currently not feasible to finance such a process in Belgium. However, a Belgian feminist organization (Femma Wereldvrouwen) with 60 employees experimented with a reduction in working hours to 30 hours, in 2019 for a year. Previous working hours ranged from 36 to 34 and 32 hours depending on the age of the employees. This experiment was evaluated by a team of researchers from the Vrije Universiteit Brussel (Mullens, Verbeylen, and Glorieux, 2021; Mullens and Glorieux, 2022; Mullens and Glorieux, 2023).

First and foremost, their analyses provide an interesting insight into the attractiveness of the various forms of reduced working hours. Although employees had the choice between a 6-hour workday and a 4-day workweek (with 7.5 hours per day), the majority opted for the 4-day workweek. The authors link this choice to the employees' expectations: greater personal time, more exercise and overall healthier living practices. The evaluation conducted among employees highlights a significant gap between expectations and reality. While 83% hoped for more time for themselves, only 42.8% felt they achieved this goal. The same pattern emerged for expectations related to physical activities (33.8% increased their physical activity at the end of the experiment versus 70% who desired it), time with children (52,8% versus 61,8%) or for time spent with their partners (23.4% versus 60%).

In reality, likely due to cultural and social norms, the gained time of these women, who had mostly chosen Wednesdays and Fridays off, was devoted to household work, care, and personal tasks, "*although this was not exactly what they wished for*" (Mullens and Glorieux, 2022). Those who worked full time (36 hours) prior to the experiment had significantly more time for leisure and media activities (such as reading or watching TV). They also had more opportunities for solitude and engaging in calm indoor leisure activities. They felt less pressure to constantly engage in various

leisure activities, experiencing a slower pace of life by focusing on one activity at a time. This allowed them to create more meaningful moments with their children or loved ones and even have some time for themselves.

Interviews reveal that employees are more mindful of how they allocate their time and recognise the significance of non-work hours. Organisational practices and norms have translated into increased time-consciousness among employees in their private lives as well (Mullens and Glorieux, 2023).

The research team's evaluation also highlights negative externalities associated with the work environment, which suggests an intensification of work rhythms. Women reported having less time for interactions like tea or coffee breaks with colleagues and external partners. They also noted insufficient time for 'white spaces' in their work routine – moments of flexibility where employees have open time to explore new ideas which could lead to innovation.

Evaluation of the four-day working week

While the 6/30 model hasn't spread much beyond the Scandinavian countries, the same can't be said for the 4-day/32-hour workweek, of which we see variations in many countries. Despite its popularity, data regarding the actual implementation of the 4-day workweek is sparse. Eurofound (2023) using the European Working Conditions Telephone Survey of 2021 (EWCTS 2021) report that 8% of EU workers (full time and part time workers together) usually work four days a week (compared to 68% working five days and 10% working six days). Most of those who work four days a week have a working duration ranging from 24 to 35 hours. in contrast, Eurofound's report on work time developments 2021-2022 (Eurofound, 2023), which relies on data provided by its national correspondents, report that the four-day working week has been increasingly debated in many EU Member States, including Austria, Ireland, Latvia, Lithuania, Portugal and Spain.

Alex Soojung-kim Pang (2023) provides a list of companies from around the world that have adopted the 4-day workweek model. Among the 113 companies he identified as having reduced their working hours, 84 (or 75% of companies) have adopted the 4-day week. His survey is heavily skewed in terms of geographical distribution, with one-third of the companies located in the United Kingdom and 17% in the United States. Very few companies are in Europe, with the largest contingent being in Denmark (6 companies). Southern and continental Europe are almost absent from his survey, except for one company in Germany, whereas France has several dozen, as well as Spain. While Soojung-Kim Pang's data may not be representative in terms of geography, or even in terms of the extent of the phenomenon, they nonetheless provide interesting indications about the represented economic industries. Restaurants, for instance, constitute the largest contingent (26%), indicating the efforts made by companies in these industries to increase their attractiveness. Restaurants have, in fact, witnessed one of the highest rates of resignations since the Covid-19 pandemic. Even though, as Soojung-Kim Pang points out, the daily working hours in restaurants are often more than 8 hours – to which we can add that the rest times during the day, between the noon and evening shots, are not really times allowing them to return home -. Having an additional day off a week is an attractive factor for potential employees as well as employees currently working in the sector. The other two most represented sectors are marketing and software.

A summary of the impacts of experiments initiated by 4-day week global

Proponents of the 4-day workweek attribute it numerous economic and social benefits such as increased productivity, growth in revenue, improved work quality (work as an output), increase in innovation, decrease in unmet vacancies and reduction of labour shortages, increase in the well-being of employees in both in and out of work activities; better work-life balance; increase in physical and mental health; higher gender equality. Additionally, they also anticipate environmental benefits in terms of changed consumption, mobility, and leisure behaviours of employees, as well as energy savings for companies which can shut down operations one day a week. However, until recent years, these positive anticipations were seldom based on in-depth and rigorous studies. They often relied on testimonials collected by authors advocating for the implementation of the 4-day workweek (Barnes, 2020; Coote et al. 2021; Gomes, 2021; Soojung-Kim Pang, 2023) or in-house evaluations (Welcome to the Jungle, 2019; Barnes, 2020; de La Clergerie, 2023).

However, in the wake of the COVID-19 pandemic, several pilot programs have been conducted at the instigation of the NGO 4-Day Week Global. These pilot programs have been evaluated by a group of researchers gathered around Juliet Schor of Boston College. The results of these evaluations will be presented in the following developments. At the end of this section, we will also report on evaluations conducted on two individual company cases, each of which was a pioneer in their respective countries. A final sub-section will report on the few evaluations that have been identified regarding the compressed 4-day workweek which maintain the same working hours and salaries but re-organise work around 4 days. (see Box 2) .

Overview of the trials : countries included and methodology

4-Day Week Global is a non-profit organisation founded by Andrew Barnes following the transition of his company, Perpetual Guardian, to a four-day workweek. This organisation initiated experiments involving dozens of companies across several countries. Some of these experiments are currently ongoing or scheduled for the coming months. These experiments follow a common methodology and are subject to evaluations by academic teams. To date, six evaluation reports are available. The first pertains to an experiment conducted between February and July 2022 involving 33 companies located in the USA, Ireland and Canada, (Schor et al., 2022). The second refers to an experiment that took place from June to December 2022, involving 61 companies based in the UK (Schor et al. 2023-1). A third is a specific analysis focusing on the Irish companies involved in the first experiment (Kelly et al; 2022) while another report covers 26 companies from Australia and New Zealand (Schor et al., 2023-2). From March to August 2023, 28 companies based in South Africa (27) and in Botswana (1) took part in an experiment following the same protocol (Schor and Smith, 2023). A final publication, seeks to address the criticisms of the initial evaluations, which argued that a six-month evaluation period may not anticipate the same positive long-term outcomes. This publication gives the result of an employees' survey administrated 12 months after the pre-trial survey in firms in Canada and the USA (Schor et al., 2023-3). Other experiments took place in Europe and North America between February 2023 and July 2023 which results have not been yet published while a new cohort will begin in Germany in March 2024.

Table 2 - Experiments which have been evaluated.

Countries	Initiator	Date of experiment	Number of companies	Number of employees	Research team
USA/Ireland	4-D W. G.	Feb-July 2022	33	903	Boston College/Cambridge U^{y}/UCD
UK	4-D W. G.	June-December 2022	61	2900	Boston College/Cambridge U^{y}/UCD
Australia/NZ	4-D W. G.	August-January 2023	26	758	Boston College
Ireland	4-D W. G.	Feb-July 2022	12	188	Boston College/ UCD
US/Canada	4-D W. G.	Feb 22-April23	41	988	Boston College
South Africa Botswana	4-D W. G.	March-August 2023	28	470	Boston College/Stellenbosch Business School
Spain* (Valencia)	Valencia City council	April 10th-May 7th 2023		2100	QUIT/UAB
Perpetual G.	founder	Feb-March 2018	1	183	Auckland U^{y}
WTTJ	founder	June-October 2019	1	86	Consulting firm

**survey conducted only with employees*

Source : author's classification

The research teams conducting these evaluations come from academia and include researchers from Boston College in the USA, Cambridge University in the UK, and University College Dublin in Ireland. For the report concerning the experiments carried out in the UK, two additional university teams were involved, one from Salford University in the UK and one from Vrije Universiteit in Brussels, Belgium. For this latter report, a team from Autonomy, a British think tank advocating for the four-day week, was also engaged. The South African experiment has been followed by the same Boston College Team and a researcher from the Stellenbosch Business School. The last two reports (Australasia and the US/Canada) have been completed by the Boston College team.

For each iteration of the experiments, the same methodology was applied. The recruitment process for the voluntary companies is not explicitly detailed, but it appears that their enlistment occurs through a campaign organized by 4-Day Week Global (and Autonomy in the case of the UK programme). Once the willing companies are gathered, a two-month preparation period with workshops, coaching, mentoring and peer support is organised. The experiment lasts for six months, and the guiding principle is to adopt the 100-80-100 model, meaning the production level is maintained at 100% of its previous capacity, working hours are reduced by 20%, and salaries are preserved. In practice, there is no formal requirement to implement the four-day week, nor to reduce working hours by 20%, but the reduction must be "meaningful" for employees. However,

wages should be maintained at 100%. The implementation of the reduced working hours can take five different forms:

- Friday off for all employees;
- staggered, meaning the staff take alternating days off;
- decentralised, through which different departments of the firm adopt different working time reduction patterns;
- annualised, which means that staff work a 32-hour week (or the new weekly working time duration which could be more than 32 hours) on average calculated over the course of a year;
- conditional which means that staff entitlement to the four-day week is tied to ongoing performance monitoring (Schor et al. 2023).

The collection of company related data is done by accessing administrative documents on a small set of common metrics (revenue, absenteeism, resignations, new hires, energy consumption). This collection covers the six-month period preceding the experiment and continues once a month during the duration of the experiment. The employee survey is conducted through questionnaires with data collected at three different times: at the start of the experiment, in the middle of the experiment, and the final wave at the end of the experiment. Unlike the evaluations conducted for the 6/30 experiments, the evaluations carried out on the 4-day/32-hour week did not include a control group.

Overall positive evaluations from both company and employees

The four reports yield highly convergent results for most of the selected indicators (the differences observed are more of degree than of nature). The findings pertaining to the first trial conducted in the USA and Ireland are reported in this section together with any significant discrepancies with the other trials (UK, Australasia and South Africa ones).

The first experiment involved 33 companies based in the USA, Canada and Ireland, of which 29 (88%) adopted the four-day workweek. This experiment covered 903 employees, of which 762 participated in the entire survey meaning they responded to the three questionnaires. In the UK study, 2,900 employees were involved, but only 1,967 completed all three questionnaires. In Australasia, 758 employees took part in the trial but only 547 completed the baseline and endpoint questionnaires. In the South Africa trial, about 287 employees over 470 had completed the three questionnaires meaning they responded to the three questionnaires presented to them.

Fifteen out of these 29 companies involved in the USA/Ireland/Canada evaluation granted Fridays off, while 8 adopted a scheme in which employees did not have the same day off. The other companies were divided between those who granted Mondays, those who granted Wednesdays, and those who adopted a system with different day off. The companies that took part in this research are small-scale: 52% have a maximum of ten employees, with only one company exceeding 400 employees. In the UK experiment, one company has over 1,000 employees. 36% of the companies in this first evaluation report do not have a physical office space which means that all their employees work remotely. This latter characteristic is not specified in all the reports (30,8% of the South African pilot program employees involved are in a fully remote position), but the predominance of small and medium-sized enterprises is evident in all the reports.

Regarding the sectors of activity, more than a third (36%) of the participating companies are in the Administration, IT, and Telecom sectors, while the second largest group (27%) is made of companies

in the Business Services sector. In the UK experiment, the most represented sectors are Marketing and Advertising, followed by Professional Services and Charity/Non-Profit Organisations while in the Australasia experiment 27% were in Professional Services followed by Marketing (18%). In the case of South Africa, Professional Services were the most represented (42%), followed by IT (19%), the remaining being distributed in several activities (marketing, finance etc).

When examining the key findings of the study, the average revenue increased by 8.14% (1.4% in the UK study; 10,5% in the South African pilot) across 17 companies with available data during this first experiment. Compared to the same six-month period in 2021, the revenue increase reached 37.55% (35% for the UK study). On average, among the 18 companies able to provide data, the employee count increased by 12.16% (-1.3% in the UK study, information not available in other reports). Absenteeism, measured in terms of days off due to illness or personal reasons per month, saw a slight decrease during the period. Additionally, the number of resignations also saw a slight decline compared to the same period in 2021. A similar trend was observed in the UK experiment, but with more pronounced reductions in resignations (57% decrease) and absenteeism (a 65% reduction). In the Australasia pilot program, rates of absenteeism felt by 44,3% (number of sick and personal days taken by employee per month) while average resignation rates per 100 employees felt by 8,6%. The South African pilot's evaluation reports a decrease in resignation rate by 11% during the trial as well as a decrease in the number of sick or personal days of absence by 9%.

On the employees' side, an initial factor to consider is the reduction in working hours, which on average decreased from 40.83 to 34.93 hours, a mean reduction of 6 hours (this figure is slightly lower in the UK, with an average reduction of 4 hours, from 38 to 34 hours. This information is not available in other reports). The average number of days worked per week also decreased, from 5 days to 4.36 (from 4.86 to 4.52 in the UK), while the frequency of overtime work also declined, both on average and individually: 35% of companies experienced a decrease, and 18% experienced an increase (similar proportions were observed in the UK). In total, 83% of the surveyed employees report that their working hours have decreased, while 9% report an increase, and for the remaining 8%, there has been no change. It can be hypothesised, though not explicitly stated in the report, that the last two categories mainly consist of part-time employees. The report on the UK experiment provides a bit more precision on this matter. Similar results to the other trials are reported: 71% of the sample reporting a decrease in their working hours, compared to 15% who say it increased, and 13% for whom it remained unchanged. The UK report details how companies addressed part-time work. Five scenarios are reported based on company practices:

- part-time staff received a pro-rata working-time reduction
- part-time staff continued on their existing hours and received a pro-rata pay rise, to match the new pay rate of their full-time (four-day week) colleagues
- part-time staff were permitted to choose between the two options above
- part-time staff received a small increase in bookable annual leave
- part-time staff were excluded from/opted out of the pilot

This first study's authors also highlight that the frequency of remote work decreased, going from an average of 3.72 to 3.37 days (in the UK, this indicator also showed a decrease, going from 2.88 to 2.66 days per week).

All this information on the scope of working time reduction is absent in the Australasia report as well as in the South African one.

Employees who transitioned to a four-day workweek during this experiment report that they have become more productive and produced higher-quality work: 49% in the South African pilot report they are more productive. They also report greater control over their schedules, as assessed by researchers through a composite indicator involving control over workdays, the number of hours worked, break times, and start and end times of the workday (these indicators moved in the same direction for employees involved in the survey conducted in the UK).

On average, the four-day workweek workers report they did not experience an increase in work intensity or pace of work. However one-third of employees reported work intensification, another third experienced a decrease, while the final third did not perceive any change (these proportions are the same in the UK experiment). Results of the South Africa trial exhibit a similar pattern: 39% of employees reported no change in work intensity, 35% reported an increase and 25% a decrease. These results suggest that, on average, the increase in productivity and company performance is not the result of work intensification, but rather that of changes in work practices through the reduction of both the frequency and duration of meetings and the reduction of "unproductive time". However, 62% of the employees involved in the UK trial report they experienced an increase in work pace; 36% of employees report no change, and 2% report a decrease. The figures for South Africa are similar with a 62% who report an increase in their work pace. In the same vein, 42% of employees involved in the first trial, in USA and Ireland, report an increase in the complexity of their tasks, while 41% noted a decrease, and the rest observed no change (the same proportion in the UK). In a more surprising result, self-reported absenteeism did not decrease, while absenteeism reported by companies' management decreased.

Two other results are worth noting. The first is that the day off was not used to take on a second job, and the second concerns the trade-off between time and money. When asked what increase in salary would make them give up the four-day workweek, 32% placed this increase between 0 and 25% (46% in the UK trial), 42% placed it between 25% and 50% (29% in the UK trial), 13% at over 50% (8% in the UK trial), while another proportion of 13% (15% in the UK trial) stated that no salary increase would make them give up the four-day workweek. In fact, 96.9% of the employees involved in the experiment wish for it to continue (90% in the UK trial).

The researchers attempted to assess the impact of the four-day workweek on the health and well-being of the employees involved. They observed a general decrease in stress levels (on a scale of 1 - never in a stressful situation - to 5 - always in a stressful situation - they noted a decrease from 3.15 before the experiment to 2.95 afterward) and instances of burnout (which dropped from 2.74 to 2.30). They also noted an improvement in mental health and a correlated decrease in anxiety, while physical health showed a noticeable improvement, particularly due to an increase in time dedicated to physical exercise, and a significant reduction in sleep-related problems. In the Australasia pilot programme almost two thirds (64%) of employees report reduction in burnout (57% in the South Africa pilot), while 38% felt less stressed. Almost half of the workers (49%) reported a decline in negative emotions while positive emotions increased for 62% of employees.

Participants in the survey also reported a noticeable improvement in the balance between their professional and family lives. When asked about how easy it is to combine paid work with care responsibilities, the average score increased, as did the score for work-life balance. As a result, work-

to-family, as well as family-to-work conflicts, decreased following the trial (the same in the Australasia report which exhibit a decline in the work-to-family conflict for 49% of the employees and for 48% for the family-to-work conflict). Similarly, the researchers noted a decrease in the proportion of those who claimed to be too tired after work to engage in household tasks.

All these indicators show similar trends and changes in roughly the same proportions in the UK. This holds true for indicators related to life satisfaction as well: there was an increase of approximately one full point, rising from 6.64 to 7.53 in the USA/Ireland trial, and from 6.69 to 7.56 in the UK case, measured on a scale from 0 – not satisfied at all – to 10 – completely satisfied. In both cases, there was an almost two-point increase in satisfaction with regards to time, with 73% reporting greater satisfaction in this aspect in the UK trial.

Box 1: Impact on the well-being of employees transitioning to a 4-day workweek with reduced hours and maintained salaries: statistical estimates conducted on all employees involved in the 4-day week global experiments evaluated by Schor and others (Fan et al., 2023)

A recent paper by the researchers who have evaluated the pilot programs initiated by 4-Day Week Global include statistical analyses on all employees involved in these experiments. The analyses cover a population of 2,134 employees from 123 organisations that transitioned to a 4-day workweek with reduced hours and maintained salaries. These organizations, including private companies, public entities, or NGOs, are distributed across several countries: Canada, USA, Ireland, Australia, New Zealand, and South Africa, and several European countries.

Table 3 presents the results of a descriptive statistical analysis indicating the evolution of average working hours and five well-being indicators between the beginning of the experiment and its terminal point six months later. It shows a decrease in working hours averaging nearly 5 hours (from 39.12 to 34.48). The authors disaggregated this average into four groups of employees: those affected by reductions of 8 hours or more per week (30.8% of employees), those affected by reductions between 5 and 7 hours (24.6%), those affected by reductions of 1 to 4 hours (20.3%), and a final group in which either there was no change or an increase (24.3%). This table also highlights significant improvements in well-being indicators: "*Burnout reduced from 2.77 to 2.35 on a 1-5 scale (change = -0.42, $p < .001$), job satisfaction increased from 7.16 to 7.61 on a 0-10 scale (change = 0.45, $p < .001$), positive affect improved from 3.14 to 3.57 (change = 0.43, $p < .001$), and mental and physical health increased, respectively, from 2.94 to 3.30 (change = 0.35, $p < .001$) and from 3.01 to 3.29 (change = 0.27, $p < .001$)".*

A second finding from their statistical analyses (based on mixed-effects linear regression models) is that the greater the reduction in working hours, the greater the positive effects on well-being indicators: "*For example, compared with employees whose hours either remain stable or increase over the trial period, those whose hours reduce by 8 hours or more experience a significantly larger reduction in burnout (-0.294, $p < .001$), followed by those with an hour reduction between 5 and 7 hours (-0.218, $p < .001$) and between 1 and 4 hours (-0.131, $p < .01$). Similar patterns are observed for other outcomes, with the largest well-being benefits accruing to those whose hours reduce the most (8 hours or more)*".

The analyses conducted by the authors of the study also show that greater reductions in hours worked are associated with larger increases in perceived work ability and greater reductions in work

intensity, sleep problems, and fatigue. Moreover, reducing work hours by 8 hours or more (but not by other amounts) is associated with significant increases in work autonomy, exercise frequency, and high levels of smart working (which is only measured at the endpoint). Schedule control, by comparison, is not related to changes in work hours. The fact that the perceived ability to work is improved as a result of transitioning to the four-day workweek with reduced working hours is particularly emphasized by the authors, as it demonstrates that when the reorganization applies to all employees, they tend to adapt and optimize their work processes (job crafting), leading to a sense of improvement in their work ability and well-being. This leads the authors to posit: "*Given the dual benefits of perceived productivity and well-being, removing constraints on work time is a promising avenue for the future of work".*

Table 3: Descriptive statistics of work hours and well-being

	baseline	Endpoint	Change	
Work hours	39.12	34.48	-4.64	***
	(6.67)	(6.99)	(6.90)	
Burnout (1-5)	2.77	2.35	-0.42	***
	(0.79)	(0.73)	(0.75)	
Job satisfaction (0-10)	7.16	7.61	0.45	***
	(1.91)	(1.91)	(1.93)	
Positive affect (1_5)	3.14	3.57	0.43	***
	(0.80)	(0.79)	(0.88°)	
Mental Health (1-5)	2.94	3.30	0.35	***
	(0.99)	(1.00)	(0.99)	
Physical Health (1-5)	3.01	3.29	0.27	***
	(0.97)	(0.94)	(0.91)	

*Note : Standard deviations are in parentheses. Asterisks indicate statistical significance, calculated using paired-sample t tests. ***p<001*

Source: Fan et al. (2023)

Regarding the use of the extra time gained from reduced working hours, the most significant increases were observed in time spent on leisure and hobbies. From a list of activities (such as childcare, caring for elderly relatives or neighbours with disabilities, household chores, cooking, leisure, and volunteering), researchers found that, on average, by the end of the study employees were less likely to report a lack of time for these activities, except for elderly care than at the beginning of the study. Time logs used during the survey (the researchers used similar time diaries as those which are used in the American Time Survey) show that, on average, the time gained from the reduction in working hours is primarily allocated during the day-off (7am-10pm) to leisure activities (4.9 hours per day), followed by household chores (3.5 hours per day), and personal care (2.6 hours

per day). About 1 hour of free time is dedicated to work-related activities. Similar data is not available for the UK trial. The Australasia evaluation shows that frequency of exercise rose for more than a third of the sample (36%), while exercise duration went up an average of 20mn per week.

In the USA/Ireland trial, among respondents who had a partner, the move to a four-day workweek did not really change the household division of tasks, contrary to what proponents of the four-day week had anticipated. However, the UK pilot program provides different results regarding the care provided by fathers to their children: the time men spent looking after children increased by more than double that of women (27% vs 13%) while in the Australasia evaluation 17% of men in heterosexual relationships and 11% of women increased their share of childcare, and 27% of men and 15% of women increased their share of housework. Additionally, employees involved in the USA/Ireland and UK pilots reported a reduction in childcare costs (likely due to one less day of day-care for parents of young children). The South Africa pilot does not exhibit such trends: researchers found little to no change in childcare costs.

The last impact analysed by the researchers, the impact on the environment, was, as researchers hypothesized, influenced by the energy crisis context of the USA/Ireland experiment, which took place from February to September 2022 and pushed the prices upwards. However, as expected, researchers observed a decrease in commuting time: the proportion of employees using their car for these journeys decreased from 56.5% to 52.5% between the beginning and the end of the experiment, while the time spent on these journeys during a week decreased by an average of one hour (from 3.56 hours to 2.59 hours). The figure for Australasia reveals a decrease of commuting time by 36 minutes per week. It is important to keep in mind that a large proportion of the employees involved in the USA/Ireland trial were teleworkers.

More significantly, the time spent on non-work-related travel did not increase during the experiment's duration. This led the researchers to conclude: "*Rather than using their three-day weekend for low-cost, international, or domestic trips, the participants in the experiment used it for leisure, household tasks, and personal care.*" Furthermore, the researchers noted a slight but significant increase in recycling behaviour and the practice of walking and cycling instead of using the car. In the Australasia report, authors report an absence of “travel rebound” with 42% of employees who did more “*environmentally friendly activities during the trial, such as recycling, buying eco-friendly items and walking and cycling rather than driving*”. However, the specific analysis of the Irish case nuances this overall finding as researchers found a significant increase in average domestic travel over the trial as well as a slight increase in international travels (Kelly et al, 2022). The findings for South Africa seem also to deviate from the general trend towards environmentally friendly behaviours: indeed, 51% of the participants in the South African experiment increased their travels for leisure purposes, while researchers noted a lack of change in behaviours favouring the environment

Key lessons from experiments conducted in two pioneering companies

We conclude this focus on the 4-day workweek with reduced working hours by reporting on evaluations conducted in two pioneering companies. The first is based in New Zealand and played a significant role in disseminating the 4-day workweek model across the world, starting in 2018. The second introduced the 4-day workweek in France with the same principles (4-day/32h), as early as 2019—i.e., before the emergence of the Covid pandemic.

Perpetual Guardian

Perpetual Guardian in a previous section has already been mentioned for its role in spreading the idea that a 4-day workweek with reduced working hours and no loss of pay was beneficial for both employees and the company. The experiment of interest took place between February and March 2018 for 8 weeks, during which the working hours were reduced from 37.5 hours to 30 hours (a 20% reduction) (Barnes, 2020).

In his evaluation report (2018), Jarrod Haar, a professor at Auckland University of Technology, reports a positive association between the implementation of the 4-day workweek and a range of indicators related to both employee engagement and well-being. The methodology adopted by Jarrod Haar is quite similar to that of the teams that evaluated the experiments initiated by 4-Day Week Global with two questionnaires sent to employees, one before the start of the experiment and the second one, at its conclusion. He also introduced a comparison with the average of these indicators across New Zealand's companies.

It is significant to note here that for the majority of these indicators, the scores recorded before the start of the experiment at Perpetual Guardian were higher than the average observed in New Zealand. This leads to the hypothesis that the 4-day workweek is implemented in companies that are already attentive to employee well-being. This is revealed by the first set of indicators selected by Jarrod Haar : *Perceived Organizational Support* and *Psychosocial Safety Climate*. The initial values of these indicators were very high compared to the average in other NZ companies. They further increased during the course of the experiment. The same occurred for the *Team psychological capital,* a set of indicators that Haar defines as the strength of the team in regard to having hope, confidence, resilience and optimism, as well as the *Team cohesion* which reflects perceptions of the way their team operates together. The high level of trust that employees have in their company's policy impacts their readiness to change which is higher than the NZ average and which also increased during the trial. Jarrod Haar also looked at how employees involved in the experiment perceived their *work-life balance* (WLB) as well as their *workload*: the assessment of their WLB was in line with the NZ average at the start of the experiment and it showed an increase at the end of it, while, surprisingly, *workload* registered a decrease. For J. Haar, this last result is the consequence of the higher concentration needed to do in 30 hours/4 days what employees used to do in 37.5 hours/5 days : "*psychologically this has enabled them freedom to focus on work in the four days*". He also tested three other significant indicators of employees' relationship with work: *job satisfaction*, *work engagement*, and *retention,* all of which were at high levels compared to the averages in NZ, at the beginning of the experiment, and have significantly increased during the experiment. The high scores recorded by the indicators of attitudes towards work even before the start of the experiment are explained by Haar as an effect of the announcement of participation in the experiment (which happened in November 2017).

All indicators considered significant for how employees perceive their well-being (*life satisfaction*, *health satisfaction*, *leisure satisfaction*, *community satisfaction*, *stress*) have all evolved in a positive direction, especially leisure satisfaction which increased by 11 percentage points and stress levels which decreased by 8 percentage points. Another key point in Jarrod Haar's evaluation is that there is no significant difference in the evolution of these indicators based on gender.

Regarding time uses, Haar notes few changes in the nature of activities but emphasizes that employees report being able to devote more time to activities they engaged in previously. They spend more time with family, have more time for themselves, for sports and exercise, for household chores, especially cooking, doing gardening and DIY activities around the house and for rest.

A more qualitative analysis (based on interviews) also highlighted that higher stress occurred when colleagues in charge of certain files were absent and other colleagues had to deal with a request related to her/his files.

In conclusion, Haar emphasizes that the majority of employees express positive feelings regarding the experiment, even if some feel that their workload remained the same while working 30 hours instead of 37.5: "*This resulted in longer days when I was working, which wasn't so conducive to a balanced work-life."* Two other comments, according to Haar, reflect the general feeling: "*Can't think of anything better to be honest. An extra day off to focus on yourself is what everyone needs. Work should come second in life*," indicating the need for work to take up a less important place; "*I can't stress how good the pilot program has made me personally feel about things. Yes, during the four other working days you're busier and more concentrated on your work but by taking a midweek day off I feel I come back in on Thursday re-energized and refreshed for the last two days in the office, ready to get stuff done*."

Alongside this mainly quantitative self-reported questionnaire-based study, Professor Helen Delaney from the University of Auckland Business School conducted a qualitative investigation. She formed 8 research groups (40 employees involved in these groups in total) who began working the experiment prior to its start. During this preparation phase, "*the planning discussions stimulated employees' intellectual engagement, because they had to think differently about their work both individually and as a team*" (Barnes, 2020, p86). These preparatory discussions "*resulted in many employees designing and implementing innovations and initiatives to work in a more productive and efficient manner. These practical micro-initiatives included automating manual processes, changes to meeting behaviour (shorter, focused, only when necessary), sharing email inboxes, phone call forwarding systems, using new smartphones applications, installing instant chat functions for team communication, and using technology to connect with clients (phone call instead of face-to-face, to save commuting time)*" (ibid).

Helen Delaney's observations appear to differ from Haar's regarding the intensity of work. She reports that employees are now working during their lunch breaks, prioritizing and focusing on their work by reducing or eliminating non-work-related internet usage. According to her, this results in increased levels of concentration and presence, meaning individuals are more focused on their work: "*the reduced hours meant that employees could sustain a more intensive work pattern, and they were more motivated upon returning to work*" (ibid, p. 87). She also notes a higher degree of collaboration and teamwork during the experiment, with a willingness to help one another, especially through new communication methods. There is also an increased ability to share information between teams and to delegate tasks.

She also observed that employees shared a commitment to the purpose of the trial from a business perspective. This means that, according to her, the reduction in working hours can only be viable if employees meet – and where possible exceed – the agreed productivity measures. The trial saw an increase in motivation levels. In fact, according to her, most employees view the reduction in working hours as a "*gift and a privilege, not a right*", which translates to "*a sense of goodwill and*

reciprocity towards the organization, which manifested in an openness to, they said, 'go the extra mile' and think about 'what I can do to give back'". Many employees were willing to work on their day off. This was particularly the case for managers who worked under the "compressed week" arrangement, often from their homes, as they were expected to set an example.

We will revisit this employee endogenization of company objectives in the next section of this literature review, as a mechanism for constructing this is through implementing a measure that aligns with the (assumed) expectations of the employees.

Welcome to the Jungle

Established in 2015, Welcome to the Jungle (WTTJ) is a media company focused on work and changes in work, work methods, which offer innovative solutions to businesses to enhance their employer brand and strengthen their attractiveness. In practical terms, this company provides support tools to transform the work experience, including a recruitment platform for its clients, an application management tool, and a tool to enhance the internal engagement and visibility of employees. WTTJ implemented the 4-day workweek in 2019, following the same 100-80-100 principle. The main aim of this shift (to a 4-day workweek with a 20% reduction in working time) was to explore how to boost profitability while at the same time, promoting employee satisfaction. At the time of the experiment's launch, WTTJ had over a hundred employees mostly in France with settlements in Barcelona, Bratislava, and Prague. The experiment which was conducted between June and October 2019 involved the 86 employees working in France. It's important to note that WTTJ is a young company (the average age was 30 at the time of the experiment) in a growth phase. Nearly all the WTTJ's employees were "autonomous executives" on a "forfait jour" basis, with their actual weekly working hours before the reform averaging between 40 and 45 hours.

The experiment was supported/monitored and evaluated by an organizational consulting firm and a neuroscientist. The results provided below come from a report on this experiment published by WTTJ themselves (2019).

Initially, employees could choose their day off, except for Mondays which were reserved for meetings. Half chose Friday, a quarter chose Wednesday, and the rest were divided between the other two days. After three months, the choice of the day off was limited to either Wednesday or Friday, as free choice over four days made organisational scheduling complex. Similar to what had been observed at Perpetual Guardian, the number and duration of meetings were reduced, internal communication processes redesigned, task automation tools were introduced, and performance indicators were revised. The experiment led to structural reorganizations, especially in the sales department which tended to focus on high-value projects at the expense of smaller clients and prospecting activities. A dedicated team for identifying and acquiring new clients was created. The general observation from an organisational perspective is that, with an equal workload, the shift from 5 to 4 working days accelerates the identification of weaknesses and anomalies within the workplace. Therefore, the shift to reduced work week over 4 days is conducive to reorganisations which might increase the efficiency and productivity.

The beginnings of the experiment were difficult because the same workload was concentrated over 4 days instead of 5, but as at Perpetual Guardian, the motivation and commitment of the teams towards the project – to save one day for personal chores - played a key role in overcoming these

difficulties. Time resources were freed up through a reduction and shortening of meetings - "*the purpose of meetings was studied to keep only the most useful ones and their preparation improved*" - as well as, for the technical team, their virtualization through communication tools. Additionally, break times during the day were halved (but not lunch break). At the end of the experiment, an increase in the average daily duration of about 28 minutes per day was observed (from 8h86 to 9h14), however with significant differences across teams: an increase of 1h per day between the start of the experiment and its end for the marketing team, while the editorial team recorded a 29 min decrease. On average, at the end of the experiment, employees worked about 1 hour and 30 minutes on their day off. Those who used to work on weekends shifted this time to their day off, while those who did not used to work on weekends tended not to work on their day off: an employee stated, "*working on weekends is a thing of the past... working in four days is becoming the norm*."

Regarding performance, at the end of the experiment, it remains difficult to assess the result as the evaluation report only specifies that the 20% reduction in working hours did not result in a 20% decrease in performance. It is also difficult to determine the employment impact, as it is challenging to separate the employment impact from the growth of the activity (four years after the 2019 experiment, the number of employees has jumped from around 100 to 300 persons) and internal restructuring (creation of a development team in the sales department due to a tendency to neglect prospecting and longer lead times for new contracts). Some departments have also outsourced time-consuming and low-value-added activities.

As for the well-being of the employees, the majority of whom wished to permanently adopt this 4-day workweek after the experiment, the level of fatigue remained constant, as did anxiety and job satisfaction. However, satisfaction with family life and social life improved. In contrast to Perpetual Guardian, the level of stress also increased during the experiment, but the new 4-day workweek generated better stress management. To a lesser extent, we see a somewhat similar mindset to the previous New Zealand case, with the observation from the neuroscientist that the 4-day workweek is not perceived as one day less of work (because they do roughly the same amount of work in 4 days as in 5 days), but rather as one extra day of rest.

Box 2: **What about the compressed workweek?**

The compressed workweek typically involves maintaining both the existing weekly working hours and employee salaries at the time of its introduction while reducing the number of days during which work is being.

This model of working time reorganization has been in practice for many years in some countries, especially in the USA where examples can be traced back to the 1970s (Hung, 1996; Golden, 2010; Bambra et al. 2008; Veal, 2022). This is the modality introduced with a law in Belgium in the autumn of 2022. It has been implemented also in other countries, particularly by local governments like in Utah (USA) as already stated or in France where the Metropolis of Lyon and of Strasbourg, have planned to experiment this work organisation (already underway since October 2023 in the Metropolis of Lyon). From a regulatory point of view in the case of France, local authorities as well as

governmental bodies cannot reduce working hours below 35 hours per week or 1607 hours per year, with the exception of categories subject to specific hourly constraints (night work, weekend work, split shifts, early morning or late evening shifts). This condition implies that when transitioning to a 4-day workweek, there is an extension of the daily working hours, and therefore, this new arrangement does not apply to all employees as is the case in the 4/32 model. It is offered to employees who can then volunteer to adopt it.

Recently, during his general policy speech on January 30, 2024, the French Prime Minister, Gabriel Attal, encouraged the ministers of his government to experiment with the 4-day workweek "*without reducing working hours*" across central and decentralized administrations. When he was Minister of Public Accounts in 2023, he had already announced an experiment with a compressed 4-day workweek with a weekly working duration of 36 hours (meaning a 9h working day) in a regional delegation of URSSAF, which is a social protection institution for independent workers. Out of nearly 200 employees, only 3 volunteered to shift to compressed week. In fact, the extension of the daily working hours (9 hours per day instead of 7 hours in the case of a 35-hour workweek over 5 days) made it incompatible for many employees to reconcile their roles as parents with their work. Furthermore, especially for those whose displayed duration was greater than 35 hours and who benefited from “reduced working hours days”, the 4-day system appeared more rigid (because they had no choice of their day off). A similar experiment was conducted in 2023 at the CNAV (National Old Age Insurance Fund, which is the public retirement service): out of the 3,500 employees in this institution, only about twenty volunteered to experiment with the compressed 4-day workweek. According to the person in charge of monitoring this experiment internally, the employees who volunteered do not want to go back. Furthermore, an indirect effect of this experiment has been to allow part-time employees (who previously worked at 80% of full-time to have Wednesdays off to take care of their children) to switch to full-time.

Under the compressed workweek model, the 4-day workweek results in longer daily working hours, depending on the legal or conventional duration in force (10 hours per day in many countries, 8 hours and 45 minutes in France), which can have detrimental effects on workers' health, work-life balance, and productivity which tends to decrease proportionally with the extension of working hours as discussed in the previous section and indeed confirmed by authors who evaluated experiments of compressed workweek (Volle et al, 1979). Several studies show that positive impacts of a compressed workweek on workers’ well-being depend on the employee having a choice of working schedule (Hyatt and Coslor, 2018; Wadsworth and Facer, 2016). However, other authors, such as Higgins et al. (2014), have shown that among various work schedule arrangements (standard workweek, compressed workweek, flexitime, and telework), standard and compressed workweek are preferred by employees due to greater predictability of schedules, which limits work/family conflicts and family/work conflicts. Based on a sample of 16,145 full-time employees with child and/or eldercare responsibilities who chose one of those four work arrangements, Higgins et al. show that employees who worked regular, predictable work schedules (standard 9-5 and compressed work week) reported lower levels of work family conflicts than those who had variability with respect to work start and stop times (flexitime) and location (telework).

Very few evaluations to our knowledge, have been conducted on the economic and social impacts of recent initiatives of compressed week. We have identified one experiment conducted in a local municipality in Canada in September 2020 (Spicer and Lyons, 2023). The aim of the experiment was to provide greater flexibility to employees in the wake of the Covid-19 pandemic. They organized

employees into two overlapping teams (team 1 working from Monday to Thursday, team 2 from Tuesday to Friday both working from 8:00 am to 5:00 pm) over the week to maintain opening hours for 5 days and even extend them due to the longer daily duration (an additional opening time by 12,5% a week). The evaluation highlighted an improved work-life balance and increased job satisfaction among the staff despite the lengthening of working days. It is interesting to note that while some did not appreciate working longer days, an extra day off per week appears to be adequate compensation. One of the most negative aspects reported in the surveys was the difficulty of synchronizing with childcare opening hours. This survey conducted on a current compressed work week experience highlights a characteristic of the 4-day work week, the effects of which are further accentuated in the 4 days/32 hours configuration: the interest for workers in having an extra day off in the week, which is doubly disruptive in the sense that it breaks the standard of the working week as 5 eight hours days that was thought to be immutable (although only dating back about a century when Ford shifted from a 6 days working week to a 5 days one in 1926) and it leads to thinking about weekly working time more in terms of days rather than hours (as is also the case with the French *forfait-jours* we referred to previously).

Other evaluations have been conducted on past implementations of the compressed workweek. Two papers conducted literature reviews, one on the implementation of the compressed workweek for shift workers (Bambra et al. 2008), and the other being of a more general nature consisting of an annotated bibliographic review (Hung, R. 1996). Bambra and colleagues found about forty studies, mainly based on self-reported surveys, the methodological quality of which they consider to be not very robust. Their main conclusion is that while the compressed workweek does not always improve the health of shift workers, there were no detrimental effects on self-reported health. On the other hand, work-life balance was reported as improved.

In his paper on the links between working hours and productivity Golden (2012) cites the work of Baltes et al. (1999), who found that compressed workweek schedules were positively related to employee satisfaction with both the job and the work schedule, but unrelated to absenteeism and productivity. He also cites another more recent study (Facer and Wadsworth, 2008), which shows that employees working on a 4/40 schedule were relatively more productive than those not on such schedules but did not have greater job satisfaction. An interesting result for the orientations emphasized in France for the public sector emerges from another study by the same authors (Facer and Wadsworth, 2010), conducted with a sample of city government employees, which shows that productivity gains are maintained while other benefits are gained particularly in terms of energy costs.

Main lessons from evaluation studies: 4/32 model or 6/30 model of working time reduction ?

As mentioned before, the 6/30 model and the 4/32 model of working time reduction do not exert the same **geographical influence**: the 6/30 model remains largely confined to the Scandinavian countries, although some companies have adopted it in different countries (Soojung-Kim Pang, 2023), albeit with a perspective different from the one that characterizes the experiments conducted in Sweden. The four-day workweek arouses much broader interest and is being experimented in several countries, particularly in the post-Covid 19 pandemic period.

The **underlying principles** of these two forms of working time reduction/reorganization differ in that the 6/30 model aims primarily at improving employees' working conditions and well-being, while the 4-day week model is implemented with more diverse objectives. Some four-day week experiments emphasize either the goal of improving employee well-being and are therefore open to possible compensatory hirings (de la Clergerie, 2023), while others focus on maintaining production at the same level as before the reform, thus aiming for increased productivity from their employees (Barnes, 2020). In the 6/30 model, the improvement in service quality and/or productivity is a positive consequence of enhancing the well-being of employees both in work and outside work, whereas in the second case, it is this latter element that is considered as the lever for increased productivity. In companies like Perpetual Guardian, it is widely assumed that in the absence of positive economic outcomes such as increased productivity which allows to maintain the same level of production or service, employees will revert to the standard five-day workweek. In their recent paper, Fan et al. (2023) explain that the experiments they have followed are based on the principle of 100-80-100, and that in some cases, employees explicitly commit to maintaining production at 100% of its pre-experiment level.

For authors like Delaney and Casey (2022) (who based their analysis on the single case of Perpetual Guardian) there would even be, in terms of the objectives announced by employers, namely an improvement in the well-being of employees and maintaining production at the same level as before the reorganization, a kind of compromise unfavourable to the employees.: "*While benefits to individual well-being and environmental effects are referenced, these are secondary to profit and productivity*." David Spencer (2022) wrote a critical paper on the 4/32 model, arguing that proponents of this work organization convey a "post-work" ideology, suggesting that work is detrimental to well-being and that individuals can better fulfil themselves in their free time. Using the example of Perpetual Gardian, he highlights that the goal of increasing productivity has dominated over other objectives, such as improving well-being.

Also, beyond the differences in terms of implicit objectives, the **implementation methods of** each of these two models present notable differences**.**

The 6/30 model

As experimented in the Nordic countries, this kind of organisation follows a set of common principles. Since its primary goal is to assess the impact on workers' health of a reduction of working hours on living and working conditions the reduction in working hours is done at equal pay and, most importantly, accompanied by compensatory hirings to avoid increasing the workload of employees. The results of rigorous scientific evaluations conducted on these experiments have highlighted the positive outcomes that this reduction in daily working hours has on the physical and mental health of workers, well-being and balance between work and non-work life.

The studies also revealed that this improvement in the health and social well-being of employees had a positive effect on the quality of work, particularly in the case of care activities, but also in other services activities when a 6+6 model allows for lengthening the service opening time like in the Toyota car dealership and garage. Ultimately, the 6/30 model of working time reduction had a positive impact on the economic health of the organisations implementing them, through a

generally observed decrease in absenteeism and an increase in staff engagement which is conducive to an improvement of economic efficiency. Despite these positive results, both economically and socially, the 6/30 model rarely goes beyond the experimentation stage, mainly due to the costs associated with hiring employees. Initiators of these experiments challenge these conclusions, citing the positive externalities that this model has on social accounts (unemployment, social security).

The 4/32 model

The underlying logic of the current *4*/32 h model implemented under the principle 100-80-100 differs from that which governs the implementation of the 6/30 model in the sense that the two objectives of improving the well-being of employees on the one hand, and improving the firm's productivity on the other are most often intertwined when launching the experiments. The positive economic outcomes would also result from the attractiveness of this form of work organization in a context of a shortage of labour shortage. The improvement of employee well-being, which is also stated as a central objective of the shift to a four-day workweek, appears as a condition for enhancing the company's efficiency (Delaney and Casey, op.cit.; Spencer, op.cit.)

From this perspective, proponents of this model align with the social and economic dynamics characteristic of the late 19th century and much of the 20th century periods during which reductions in working hours were accompanied by productivity gains. According to Pedro Gomes (2021), the same line of reasoning led Ford to shift his factories from operating six days a week to five, although it's worth noting that what Ford primarily sought was to ensure his own workers had time to buy and use the cars produced in his factories.

When the 4-day workweek is implemented with a reduction in working hours, employees may face an intensification and densification of work, especially if the workload remains the same. We have seen in all experiments with the 4-day work week based on the 100-80-100 principle that the workload is not modified, and time resources are sought by eliminating "dead" time, primarily meetings labelled as "unnecessary," reducing their duration and frequency, as well as reducing formal and informal breaks. As an example, the Japanese subsidiary of Microsoft, which experimented with the 4-day workweek in 2019, limited the duration of meetings to 30 minutes and the number of participants to five (Workforce Institute, 2019).

Finally, gains in well-being, work-life balance and time uses, as well as the economic and employment effects, are dependent on the company specific starting situations, which makes comparisons between countries or even between companies quite difficult. The duration often put forward as mathematically adequate for a 4-day workweek is 32 hours, or 8 hours per day. This reference has different implications depending on whether one is in France, where the legal duration is 35 hours and where a 4-day/32-hour week would imply an increase in the daily duration of 1 hour (from 7h a day to 8h a day), or in most other countries where the legal or conventional duration is between 38 and 40 hours per week. In the former case (38h a week), the transition to 32 hours would mean an increase in the daily duration of 24 minutes while in the second case this will mean an unchanged daily duration. One might think that the effects on well-being (both mental and physical health) as well as on the balance between work and family/social life are not the same in the case of an increase in the daily duration of work by 1 hour compared to maintaining the same daily duration. The differentiated impact on well-being and work-life balance due to different regulatory contexts may have differentiated effects on economic indicators such as productivity,

absenteeism etc, which may be less favourable in the former case (1-hour daily increase in working time) than in the latter (maintenance of the same daily duration). However, this type of comparison is not, to our knowledge, available in the current scientific literature.

5- Discussion: limits of current approaches, moving forward

Critical analysis of 4-day week evaluation

This literature review includes critical papers regarding the evaluation methods of pilot programs initiated by 4-day week global. However, there were less critical papers on the evaluations conducted on the 6/30 model. It is true that these experiments are generally conducted over a relatively long period (about 2 years) and with control groups in all cases.

4 days/32 hours method: a magic solution?

Proponents of the four-day workweek (Coote et al., 2021; Soojung-Kim Pang, 2023; Barnes, 2020; Gomes, 2021) contend that implementing this model of working time model improves the well-being and health of employees, increase business productivity, contribute to job creation or preservation, and positively impact the environment through reduced consumption and new ways of producing and commuting.

To put in a nutshell, reading these books and papers or even the evaluations carried out by academic teams of high scientific value, it seems that employers and employees agree to see only positive impacts following the implementation of the 4 days/32 hours model. To illustrate, based on the surveys carried out under the aegis of 4-Day Week Global, around 90% of companies and 95% of employees wished to continue with the 4-day/32h workweek following experimentation (Fan et al. 2023). As we discussed in the third chapter of this report, achieving positive impacts in all these areas through a reduction in working hours requires either a very favorable economic growth context, reorganisations of the work process, or possibly government financial assistance as it has been the case in countries like France or Belgium (OECD, 2022). The 4/32 experiments we have reported on did not receive government support nor financial support from other channels. Moreover, as emphasized by Fan et al. (2023), the organisations involved in the pilot programs must now make a small donation or pay a symbolic amount.

Furthermore, factors such as the economic situation of the companies, which, let's remember, volunteer to transition to a 4/32 organization, as well as work reorganisations including reductions in meeting and break times, the elimination of deadtimes, and the introduction of more collaborative working ways explain the economic results obtained from various experiments. The evaluations conducted on these experiments also highlight the positive relationship between economic outcomes and improvement in employee well-being (Fan et al, 2023).

Some authors (Cuello, 2023; Veal, 2022) believe that research teams evaluating the 4/32 experiments tend to present the results in a sometimes overly positive manner. However, as we saw in the previous section, the latest publication from the research team (Fan et al., op.cit.) confirms robust positive relationships between the 4-day workweek with reduced working hours and employee well-being, both in terms of job satisfaction and physical and mental well-being, (see box 1 in section 3). From other evaluations, like those conducted at Perpetual Gardian or WTTJ, the impacts are also positive in terms of an improvement of well-being at work, balancing work-life and personal life, and the time use of employees. However, regarding these various social and health indicators, the short duration of the experiments is presented as one of their main shortcomings

(Veal, op.; Cuello, op.cit.). Indeed, all the experiments which were evaluated took place over a short period: 8 weeks in the Perpetual Gardian case, 5 months in the Welcome to the Jungle case and 6 months in the experiments initiated by 4-Day Week Global. The same limitations can be said regarding the economic results of companies that have implemented the four-day week with a reduction in working hours. These companies sometimes record impressive productivity gains (+40% in the Japanese subsidiary of Microsoft – Coote et al, 2021), an increase in their turnover, a decrease in absenteeism and resignations. The evaluations conducted by the Boston College team are consistent with these results, as shown in Chapter 4.

The results of these experiments seem to be less convincing regarding the working conditions of employees. Taking the results from the evaluation conducted on experiments which took place in the USA and Ireland (Shor et al., 2022, just over a third of employees (35.32%) feel that work intensity decreased, while a similar proportion (37.23%) reported an increase. Similarly, regarding the complexity of work, 42.55% of employees believed it increased compared to 41.06% who believed it decreased. The same goes for the workload which increased for 16.8% of employees compared to 5.9% who believe it has decreased, and also for the pace of work, which increased according to 52.63% of employees compared to 4.39% who reported a decrease. However, the statistical analyses conducted by the research team at Boston College on aggregated data drawn from all the experiments they followed (Fan et al., op. cit.) reveal overall more positive results, particularly in terms of perceived work ability, work intensity, sleep, and fatigue (see Box 1 in chapter 4).

In the same vein employment outcomes are not very conclusive: while companies involved in the experiment conducted in the USA and Ireland reported a growth of around 12% in workforce (for a theoretically 20% reduction in working hours), those involved in the experiment conducted in the UK reported a decrease of about 1.3%. The UK result can be analysed in light of strong work intensification at the times in UK: an increase in pace of work for 63% of British employees versus 37.23% for those involved in the USA/Ireland experiment.

Finally, the positive environmental impacts from these experiments are also not very convincing according to the researchers themselves who conducted the evaluation, especially since, as they explain, these experiments took place in a period with complicated energy consumption patterns due to price increases linked to the war in Ukraine. However, they do observe limited rebound effects - meaning adverse behaviours towards the environment due to increased free time while maintaining purchasing power - to the extent that researchers have highlighted a predominant tendency to engage in activities in and around the home, as well as less energy-intensive practices in terms of mobility and nutrition.

The impact on the environment also stems from reduced energy consumption, especially when a company suspends its activities for three days a week. This was the case with Microsoft Japan, where a reported decrease in energy consumption of 23.1% and a 58.7% reduction in the number of printed pages were observed during the experiment month (Coote et al., 2021).

A Fragile Evaluation Methodology

According to several observers, the weakness of the results from these evaluations relates to a dual register. On one hand, in addition to the duration of the experiments, it concerns how companies are recruited, and the data collection methods (Veal, 2022; Cuello, 2023). On the other hand, these authors highlight a tendency among researchers to overemphasize the positive aspects

of these experiments. It's as if these innovations, which are disruptive compared to standard methods of organizing working hours, exert a kind of fascination on researchers who underestimate social desirability who underestimate the social desirability bias in the answers given to self-reported questionnaires (Delaney and Casey, 2022).

Several papers highlight the **biased nature of the samples** by pointing out that companies volunteered to adopt the 4-Day Week Global model (Veal, op.cit..; Cuello, op.cit.). This particularity leads to the hypothesis that the companies embarking on this type of experimentation have favorable economic and social characteristics, as the evaluation conducted at Perpetual Guardian seems to demonstrate (see previous section). Unfortunately, this type of information about the economic and social situation of the company before its entry into the experimentation program is not available in the evaluation reports included in this literature review. In addition, the innovative and disruptive nature of new work organisation naturally generates strong interest from employees. This is evident in the surveys conducted in different countries. For instance, a survey conducted by Henley Business School in 2021 shows that 69% of employees believe the four day week was a good option for them. A survey conducted in France in May 2023 indicated that 75% of the French population was in favour of the four-day workweek.

According to Delaney and Casey (2022) who qualitatively evaluated the Perpetual Guardian case, **the popularity of the four-day workweek might contribute to masking a form of instrumentalization by management.** According to these authors companies are appropriating employees' aspirations for more autonomy, improved well-being, better work-life balance, and their attraction to working one day less, in order to introduce work-time policies that lead to an intensification of work and an increase in productivity, "*which ultimately undermine workers' well-being and erode employees' rights and freedoms within the workplace.*" While this manipulative dimension cannot be dismissed outright and should be considered in future case studies, it should be nuanced by the largely positive assessment given by the employees involved in experimentation. However, this overwhelmingly positive assessment of the effects on well-being, absenteeism, task performance, and productivity must be examined in light of the data collection methods, namely the use of self-reported surveys. Especially since with the absence of a control group, it is difficult to determine if these positive results are linked to the transition to the new work organisation or to other unconsidered factors. This criticism refers to a well-known observation in sociology, the so-called Hawthorne effect (see Roethlisberger and Dickson,1939.): employees who are aware that they are being evaluated as part of an experiment tend to adopt virtuous behaviours that may not persist in the medium to long term. Indeed, the duration of the experiments does not allow for sufficient time to fully assess the impacts of the four-day workweek. This is particularly true for arrangements related to work-life balance or for

Moreover, a desirability bias can influence employee responses to research questionnaires, especially in companies characterized by a progressive and inclusive management style. Indeed, the evaluations highlight in the absence of employee involvement in the decision-making process, a strong commitment from employees in the process of implementation of the 4-day workweek when the company decides to delegate its realization to the teams: this is deeply acknowledged in the

Perpetual Gardian and WTTJ cases but also in others like LDLC in France (de La Clergerie, 2023). According to the evaluations, this results in a greater sense of support and collaboration between teams and internally within teams, especially when reorganisations lead to the implementation of employees' pairs. Another desirability bias that could influence questionnaire responses lies in the appeal of the four-day workweek to employees who, according to evaluation results, overwhelmingly wish for it to become a permanent installation. Still related to the tendency to focus on positive outcomes, Cuello criticizes the statistical methodology of providing only the p-value while neglecting the confidence intervals, standard errors, and standard deviations (Cuello, op.cit.). However, in their most recent publication, Fan et al (2023) provide much more convincing results in terms of the statistical methodologies used (see box 1 in chapter 4).

Other criticisms frequently directed at the conducted experiments include the absence of a control group to isolate the effect specific to the modification of working hours and organisation. While this was a constant element in experiments conducted on the 6/30 model, it is absent from all four-day work week experiments that have been evaluated. Fan et al (op.cit.) are well aware of this limitation, which they attribute in part to the majority of companies being small in size, making it difficult to divide the population into two groups. Additionally, the new organisation applied to all employees, and the duration of the experiment did not allow for finding other companies with equivalent characteristics to establish a control group.

The sample sizes are also questioned by Cuello (op.cit.), but it seems to us that this criticism is more challenging to address given the marginality of the phenomenon (Eurofound, 2023).

Conceptual Framework for Further Case Studies: preliminary ideas

Moving forward, it is critical for future case studies to combine qualitative approaches (through semi-structured interviews) with quantitative approaches through questionnaires. It is also imperative to conduct retrospective analyses by selecting companies that have implemented the four-day workweek for at least one year or more if possible. First, this would help to better understand the medium/longer-term economic and social impacts, but also in terms of changes in the meaning and value attributed to work, issues which are completely absent from the evaluations. Secondly, to address the impacts on social cohesion within the company, which several authors highlight as a possible vulnerability due to an employee' s focusing attitude on work activity – "it has become taboo to disturb a colleague" wrote Delaney and Casey (2022) - and a potential process of individualization that would add to that caused by remote work. Concerning this latter issue, evaluations tend to exhibit a decrease in the incidence of telework in firms which shifted to a 4-Day work. Our personal observations conducted in three French companies that transitioned to a 4-day/32-hour workweek reveal that in two out of three cases, telework was significantly reduced due to this new organization in order to maintain social cohesion within the company.

Evaluations of experiments, like those initiated by 4-Day Week Global, can also be better conducted by ensuring the formation of a control group, either within the same company (this implies involving companies of a larger size and a process of implementation that does not involve all employees) or by finding companies with similar characteristics that do not modify their organisation.

To conduct additional case studies beyond the ones analysed in this report, it is essential to establish a conceptual framework. Initially, we can formulate questions to serve as a basis for developing a questionnaire and the framework should build on the work carried out by the experiment evaluation

teams. If we follow the statements of the Boston College team which conclude the report on the pilot program conducted in the USA and Ireland (Schor et al., 2022), there is a need to ponder the significance of the four-day/32-hour workweek in the context of the temporal organisation of our societies. The authors state: "*These calculations should serve as a strong signal to employers that it's time to retire the nearly hundred-year-old convention of the five-day, forty-hour week and begin to embrace a four day, thirty-two hour week".*

Is the four-day/32-hour work week the brink of a paradigm shift or is it rather a more limited organisational change applicable to a specific type of company? Could the four-day/32-hour workweek become a new standard for work organisation and time management, much like the five-day week and, before that, the six or even seven-day workweek? Are we witnessing the emergence of a new work-time arrangement alongside others (such as the 6/30 model), each of which needs to be evaluated for its impact and suitability for certain types of companies and work activities? Intuitively, both modalities discussed in this literature review seem to align with specific work-related constraints. For instance, the Scandinavian model of six-hour workdays over five days appears to be more suitable for roles that involve both daily cognitive and physical engagement, such as staff in retirement homes. Extending the workday for these categories doesn't seem reasonable. From a conceptual standpoint, we must ask whether we're dealing with a process of streamlining time management, where we need to find the most suitable methods for different professions, or if we're facing a more radical shift in our temporal organization.

The enthusiasm for the 4-day/32-hour workweek, the fascination it exerts, even on researchers, lies in its disruptive nature: having an extra day in the week, rather than one or two extra hours each day, seems to open up a vast range of opportunities in terms of time use. The analysis conducted by time use researchers on the case of the Belgian company transitioning to a 30-hour workweek (see chapter 4) clearly illustrates the appeal of gaining an extra day of free time compared to just 1 or 2 extra hours each day (Mullens, Glorieux, 2022, and 2023). However, their analysis also shows that the increased intensity observed in work activity due to the concentrated schedule over 4 days can lead, for some, to a spill-over effect into the realm of non-work. For others, on the contrary, and this seems to be more often the case according to evaluations, having an extra day of free time in the week allows for greater control over one's temporal structures and greater autonomy in allocating this extra available time. This would resonate more with the desire for deceleration identified by several studies (Dubois et al., 2023).

A final aspect that is important to consider before conducting new case studies is how the 4-day/32-hour workweek impacts relationships with work and work itself as a human activity. Two dimensions need to be distinguished: (1) how does the 4-day/32-hour workweek affect work practices and the collective dimension of work, the social and societal aspect of work; and (2) how does this same 4-day/32-hour workweek reframe our understanding of work's meaning and its place in our lives? This kind of questioning motivates the critical analysis carried out by Spencer (2022). He questions the decision-making mechanisms that govern the implementation of the 4-day/32-hour week, from the perspective of workplace democracy. The fact that employees are not involved in the decision-making process, that they cannot discuss beforehand the impact it may have on actual work, contributes to ignoring the consequences this may have on the democratic process within the company, and on the other hand, on the role of work in our societies.

It seems to us that it is from these various questions that the guidelines for new surveys should be discussed as proposed in Box 3.

Box 3: Outline of a strategic approach and key questions to consider in the perspective of evaluating a 4-day work organisation (with or without a reduction in working hours)

How to conduct the evaluation?

Control group: A choice arises for researchers: real time or ex-post. The first option(real time) implies to follow experiments according to the model developed by 4-day week global and look for employees, in companies or organisations which offer four day week models, who don't work in the new working time regime. The second option (ex post) aims at evaluating longer-term developments by selecting companies that have made the change for a period exceeding, for example, one year. The control group in that case would be a company or organisations with similar characteristics and reconstruct developments over the year. Both evaluation modalities (real-time or ex post) can be conducted by different groups of researchers.

Another comparison appears relevant: to compare the economic, social, and environmental impacts of companies that have transitioned to a 4-day workweek with reduced working hours with those of companies which have adopted compressed workweeks schedules.

The different aspects to evaluate

Contextual background: to have a comprehensive understanding of the organisations' characteristics including activity, size, culture. Analyse the reasons that prompt employers and/or employees and their representative organisations to embark on a four-day workweek organisation.

What are the primary goals of implementing a 4-day workweek? Are these objectives related to improving employee well-being and work-life balance, increasing productivity, reducing costs, or other factors? Of these objectives, which are higher-order concerns? Is there an expected causal relationship between these objectives?

Identify Stakeholders: Who are the key stakeholders involved in the transition to a four-day workweek? How will their interests and concerns be addressed during the evaluation process?

Implementation strategy: What kind of model is adopted (compressed workweek or 100-80-100 model) and why? Did the unions or employee representatives have a role in designing the new organisation? Was an agreement signed? Were there any training sessions before and feedback mechanisms designed to adapt to this new form of work organisation ? What form of internal communication was implemented? Were other partners, suppliers, or clients informed about the new organisation? What are the implications regarding wages, telework or calculating holidays?

Economic impacts: Evolution (quantitative and qualitative) of production or service; financial effects including cost savings or additional expenses. Evaluate whether there were any changes in revenue, profitability, and/or operational costs. Have there been any new hires due to the new organisation or redundancies? What has the evolution of absenteeism and dismissal rates looked like? What are the key performance indicators before and after the change in the organisation?

Social impacts: mainly focused on employees' perception of the new organisation.

In the sphere of work: How were employees informed of the change? What was their initial reaction (expected impossibility to complete the work previously done in 5 days/40-35 hours or in 4 days/32 hours, or a completely feasible prospect)? How has changed their work time duration, wage levels, methods of working, and how have employees adapted to the new organisation ? On which work modalities did they focus their adaptation on? What is employees' perception of the evolution of workload intensity? How do employees perceive the evolution of their productivity and performance? How does the new schedule affect collaboration in the organisation, telework and communication?

Measure changes in work-life balance, job satisfaction, stress levels, and overall well-being categorized by age, gender, socio-professional categories (managers vs employees; blue-collar vs white-collar workers; teleworkers vs those whose job does not allow telework, etc.)

Regarding changes in their non-work life: how do they use this day off? Have they developed new leisure and/or sports activities and/or taken on a greater share of domestic work? Care work (for children, elders, social environment)? Is free time devoted to civic activities? Differences based on gender, social category, age, etc. Have they adopted more eco-friendly behaviours (diet, transportation, etc.)? What were the reactions of their relatives (family, friends)?

Relation to work and the company: Has their relationship with work changed (by gender, age, socio-professional category)? In what way: meaning, value attributed to work, place of work in their existence? How do they assess the evolution of the quality of their work?

Has this changed their relationship with the company? Increased detachment or stronger attachment?

Sustainability in long-term viability (to be asked to employer and employees as well as unions or employees' representatives): consider the sustainability of the 4-day work week over the long-term; identify potential challenges and opportunities for continuous improvement; discuss strategies for maintaining the benefits and addressing any drawbacks

Expectations: Continue with 4 days or return to 5 days? Under what salary, content of work, or employment status conditions? How to improve the 4day-week model? going further?

6 - Conclusion

Since the middle of the previous decade, the question of working time reduction has resurfaced on the social scene through media articles and scientific articles addressing the 6/30 and the 4/32 models. However, as demonstrated by the analyzed cases, the resurgence of working time reduction now encompasses very different forms, modalities, and objectives compared to previous periods, notably that of the 1980s/90s. Indeed, the primary actor initiating this change is the employer: this holds true both in the experiments with the 6/30 model in Scandinavia and, in experiments with the 4-day workweek regardless of the configuration it takes (compressed work week or 4-day/32h. Unions and the workers' movement more broadly, who were the main drivers of working time reduction since the 19th century, are, at best consulted, and at worst completely ignored in shifts to different working models (Veal, 2022). David Spencer (2022) believes that this could have a detrimental impact on union bargaining power and on a firm's internal democracy.

There are of course exceptions, as we have seen in Iceland where labour organisations initiated the campaign for the reduction of working hours, or in Germany where IG Metall often leads successful campaigns for reducing working hours. For instance, in 2018, an agreement was signed in the metal industry allowing any employee to reduce their weekly working hours to 28 (with a corresponding reduction in salary) for a period of up to 2 years because of reasons such as caring for family members (children, parents), further education, or any other reason related to a need for personal time off. The same agreement also gave the choice between a wage increase and 8 additional days off for certain categories of workers: employees with children up to the age of 8 years and employees with dependents in need of constant care and also shift workers. While the first option of "short full time" (28h) had little success due to the wage reduction, the second option, which involved choosing an additional 8 days of free time instead of a wage increase was remarkably successful, especially among shift workers (Müller, 2023).

In this case, the focus on balance between professional and family/social life through a relinquishing of time and money further attest to the difference between working time reduction now and during the 1980s/90s period. Indeed, working time reduction from the 1980s/90s was adopted in several European countries with the aim of combating unemployment. With the 6/30 or 4/32 experiments, the explicit issue that emerged during the second decade of the 2000s is an improvement in the balance between professional and personal life and an enhancement of employees' well-being through an increase in leisure time. Sometimes there was also another explicit objective of increasing the productivity of employees and the efficiency of the company. Employment is no longer a central issue in the 4-day workweek experiments, even though unemployment rates in some EU countries (France, Spain, Greece, Sweden) remain high[1]. If we add the chronic underemployment in certain countries like France, linked notably to successive unemployment reforms, what is referred to as the "unemployment halo," we can argue that tensions in the labour market are both quantitative and qualitative in nature (lack of training among employees, poor working conditions in certain sectors).

However, this question of the link between reduced working hours and employment is indeed present in the minds of employers implementing the 4-day/32-hour week or the 6/30 model with the aim of attracting and retaining the workforce. Evaluations conducted after the implementation of the four-day week underscore a strong reluctance among employees to revert to the 5-day week.

The company's image is enhanced, highly skilled individuals can be attracted, while low staff turnover, which may have negative long-term effects by preventing workforce renewal, and reduced absenteeism can contribute to increasing the company's competitiveness.

Finally, another difference from previous periods lies in the fragmented nature that characterizes the 6/30 and 4/32 experiments. As we saw in Section 1 of this report, the 1980s/90s were marked by reductions in working time carried out at the national or sectoral level. Today, whether it's the 6/30 model or the 4/32 model, the initiative is taken by individual companies.

As mentioned earlier, while bills have been submitted (in the UK, USA), few countries are considering legislating on the 4-day week, except for Belgium, which took the step in the autumn of 2022. However, this piece of legislation was not all encompassing, it was rather about opening the possibility of a compressed week to volunteers. Governments, who are the most open to the idea of a four-day week with reduced working time (in Spain or Portugal for example), proceed cautiously by first conducting experiments, which is also a new development compared to previous periods.

From this literature review, it is also noteworthy that evaluations conducted on both the 6/30 experiments and those organizing work in 4 days with reduced working hours, demonstrate positive results both in terms of the economic health of companies and the well-being of employees, their mental and physical health, their satisfaction regarding the work sphere as well as the non-work sphere.

The difference from the literature analyses conducted in chapter 3, which highlighted the difficulty in obtaining convincing results of a reduction in working time across all economic, social, and environmental indicators, may lie in the level at which the analysis is conducted. Indeed, these chapter 3 analyses are primarily conducted at the macroeconomic level (evaluations of the impact of the reductions in working hours implemented at the country level – France, Portugal, etc. – or at the industry level – Germany), whereas in the case of the 6/30 and 4/32 models, the evaluations are conducted at the firm level. The fact that companies volunteer to participate in a 100-80-100 pilot program or that employers unilaterally decide to switch to this 4/32 organisation – as seen in cases like Perpetual Guardian, WTTJ, LDLC, etc. – may suggest that economically healthy companies are involved. They can therefore allocate resources to implement a new work organisation (the 4/32) which they believe will enhance their competitiveness through expected positive impacts on employee well-being and engagement.

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WPEF24029

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) is a tripartite European Union Agency established in 1975. Its role is to provide knowledge in the area of social, employment and work-related policies according to Regulation (EU) 2019/127.