



# The four-day work week: a chronological, systematic review of the academic literature

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## Abstract

Despite having been propounded for at least 50 years, the four-day work week (4DWW) has recently attracted global attention. The media headlines are dominated by the positive outcomes that can be expected by converting to a 4DWW. However, on examination the claims often have foundations that derive from reports published by advocacy groups and organisation's self-reported results rather than scholarly research. This paper turns to the academic literature and uses a chronological, systematic review method to address the questions of what positives and negatives can be attributed to the 4DWW? Does the scholarly research support the popular contemporary claims? And what can be learned from more than 50 years of scholarly 4DWW publications that can inform future research? Drawing on 31 academic articles that specifically researched the 4DWW, the conclusions found that the majority demonstrated favourable results such as increased morale, job satisfaction, cost reductions and reduced turnover whilst negatives included performance measures and monitoring being intensified, scheduling problems, and that benefits may fade over time. The impact on productivity and the environment were inconclusive. Overall, the scholarly research paints a more complicated and ambiguous picture compared to that presented by 4DWW advocates and the media. More contemporary research utilising rigorous methodologies is required.

**Keywords** Four-day work week · Compressed work week · Flexible working hours · Alternative work arrangements

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## 1 Introduction, background and research questions

*“The 4-day workweek has caught the imagination of the public. It has intrigued management and is winning guarded support from labor organizations. But the big question is unanswered: Is a breakthrough from a 5-day to a 4-day week imminent?”* (Hedges, 1971, p.33).

Considering the worldwide exposure the concept of a four-day work week (4DWW) has been attracting in recent years, one would be forgiven for thinking the above quote was contemporary. However, it is over 50 years old and the origins of the 4DWW idea go back further. For example, in the U.S. Walter Reuther bargained for a four-day, 32 h week in the 1950’s (Hartman and Weaver 1977) and U.S. drivers of fuel oil and gasoline delivery trucks were working 4DWW’s in the 1940’s (Dunham and Hawk 1977). But it was in the early 1970s that interest in the 4DWW exploded, almost exclusively in the U.S., in both the popular press and academia. It did not last. By the end of the 1970’s very little interest remained. More than half a century later, the 4DWW has made a remarkable come-back with much the same “missionary zeal” that existed then (Bird 2010).

According to global media reports countries as diverse as Japan, the United Arab Emirates, New Zealand, Spain and Scotland have either implemented, are trialling or are seriously considering, a 4DWW (Mellor 2022; Barnes 2021; Kelly 2021; Ryan 2021) and from June – December 2022, 61 UK companies were involved in a 4DWW trial with similar studies having occurred or being planned for, among others, the U.S and Canada (Stewart 2023; 4dayweek.com, 2023).

The messages from these campaign groups and media accounts are usually overwhelmingly positive about the 4DWW and claim a multitude of benefits such as increased productivity (usually foremost), employee engagement, job satisfaction, reduction of costs, environmental benefits and reduced stress (Stewart 2023; Mellor 2022).

However, the claims attributed to the 4DWW are sometimes at the point of being fanciful. For example, the 4 Day Week Global advocacy group’s website (4dayweek.com) provides case studies. One company reports a 27% increase in productivity, a reduction of single day absenteeism to almost zero and wellness scores that jumped 33%. Another reported a 30% improvement across all tracking measures (work/life balance; general wellbeing, productivity and job fulfillment) after a 12 week 4DWW trial. A law firm claimed profits increased 30% after three months on a 4DWW.

The same issue was apparent back in the 1970’s. It was remarked that the benefits attributed to the 4DWW by some companies at the time were often “absurdly large”. For example, one tire company credited the 4DWW to a 400% increase in sales (Bird 2010, p.1065). On closer examination the claims made in the 1970’s suffered because of weak methodologies and an over-reliance on opinion data (Mahoney 1978). The same accusations may be directed at contemporary popular 4DWW studies. Academic research has not been as unequivocally positive. For example, the relationship between productivity and a 4DWW has been recognised as complex, work may be intensified, the creation of greater inequalities between sectors of workers, gender

inequalities, increased managerial control, more intense performance measurement and monitoring and uncertain environmental benefits have all been noted (e.g. Delaney & Casey, 2022; De Spiegelaere and Piasna 2017; Ashford and Kallis 2013; Kelliher and Anderson 2010).

The current discourse in the field is being dominated by advocacy groups, the media, trade unions, political parties, think tanks and a small number of vociferous businesses rather than the academic community. These bodies often cite a limited number of professional research studies or evidence provided by firm's themselves that have, in some manner, trialled a 4DWW rather than scholarly academic work. For example, just two studies in particular have had an overwhelming global influence on the prevalent argument for a 4DWW. First, a two month trial in 2018 of the 4DWW for most of the 240 employees at the financial services firm Perpetual Guardian (PG) in New Zealand purportedly garnered more than 2,700 news pieces in 32 countries (Perpetual Guardian, 2019). Second, the 'overwhelming success' of an Icelandic study involving over 2,500 workers, more than 1% of Iceland's entire working population, has been used to promote the idea of the 4DWW in organizations and nations (Kelly,2021; Stone 2021). Because of the wide-ranging influence of these studies they are considered in some depth here.

The New Zealand case study trialled a 4DWW that reduced hours by 8 from the usual 40 h week (4 days x 32 h) for many (it also allowed participants to work shorter days over a five-day period if that was their preference). The experiment was a case study of a single professional services firm with both quantitative and qualitative methodologies. The trial was announced beforehand to staff and the media and it was made clear to employees that if the results were a success the 4DWW would actually be implemented. "The overwhelming majority of research participants were unanimous in their hope that reduced working hours will become an ongoing reality" (Delaney 2018, p.5). The quantitative and qualitative research reports were published on the 4 Day Week Global (which was co-established by the founder of PG) website ([www.4dayweek.com](http://www.4dayweek.com)) that advocates for the 4DWW.

The employee quantitative results all relied on opinion data that showed higher perceptions of organisational support, teamwork, readiness for change, work-life balance, work demands (lower perception), team performance, job attitudes (satisfaction, engagement and retention), wellbeing (life, health, leisure, community and a reduction in stress). In fact, an improvement on all 17 measures. Even perceived work demands which 'reflects a workers perceptions of their workload and the nature of over work' decreased. Since the number of working hours per week was decreased by 20% with the same output, at the least, expected, it may have been anticipated that this would increase.

The qualitative research results revealed that the vast majority of data detailed the benefits of the trial on workplace dynamics and a clear and consistent positive outlook on non-work lives (Delaney 2018).

The Icelandic research was equally optimistic. Overall, the report claimed that the trials 'maintained or increased productivity and service provision' and 'improved workers' wellbeing and work-life balance'. However, an examination of the Icelandic research reveals a 4DWW was never trialled (nor did the report claim that it did so), in fact, of the 66 workplaces that participated in the initial study 61 reduced

weekly working hours by three or less. Further the participating workplaces, from the Reykjavik City Council and Icelandic Government, were all service providers with no representation from other prominent sectors of the Icelandic economy such as manufacturing, construction or fisheries.

The report was published by an Icelandic non-profit organisation that has advocated the shortening of working hours since 2011 and a UK independent think tank that aims to, “promote real freedom, equality and human flourishing above all” (Haraldsson and Kellam 2021, p.2).

The implications of the report for Iceland (and as a reference for others promoting a 4DWW) are wide-reaching. At the time of the report’s publication in June 2021, 86% of Iceland’s entire working population had either moved to working shorter hours or mechanisms to negotiate shorter hours (Haraldsson and Kellam 2021). But the actual working time reduction contracts negotiated between trade unions and employers appears modest. For example, in the public sector, institutions covered by four major Unions shortened the working week by only 13 min per day (65 min per week).

These stand-out because of their global influence on the promotion of the 4DWW, but upon examination, similar limitations appear throughout the popular body of 4DWW studies. That leads to the research questions:

*Research question 1: What are the positives and negatives presented in the 4DWW scholarly literature?*

*Research question 2: Are the claims made by advocacy groups and the media supported by academic research?*

The aim and contribution of this article is a chronological, systematic review of the articles published in academic journals that specifically address the 4DWW. By doing so a conclusion can be reached whether the considerable excitement of a transition to the 4DWW is supported by scholarly research and what can be learned to shape the future research direction for the 4DWW.

*Research question 3: What can be learned from a chronological review of scholarly 4DWW publications that can inform future research?*

It is important to note that the current drive is mostly for 4DWW’s with a proportionate (or at least some) reduction in working hours with the alternative being a compressed work week (CWW) where the standard number of working hours per week are compressed into less than the standard number of days per week. But that is not always the case. In 2022 Denmark announced that employees can request a 4DWW, but would retain a 38 h working week (Bateman 2022) and in the Philippines a CWW is one of the few flexible working arrangements allowed by law (Paje et al. 2020). Consequently, both inform the 4DWW debate and so this review considers articles about 4DWW’s that are both compressed or have reduced working hours.

The paper begins with the research method that specifies how papers included in the review were identified and screened. The subsequent section begins the chronological review from the first notable rise of interest in the 4DWW in the 1970’s then

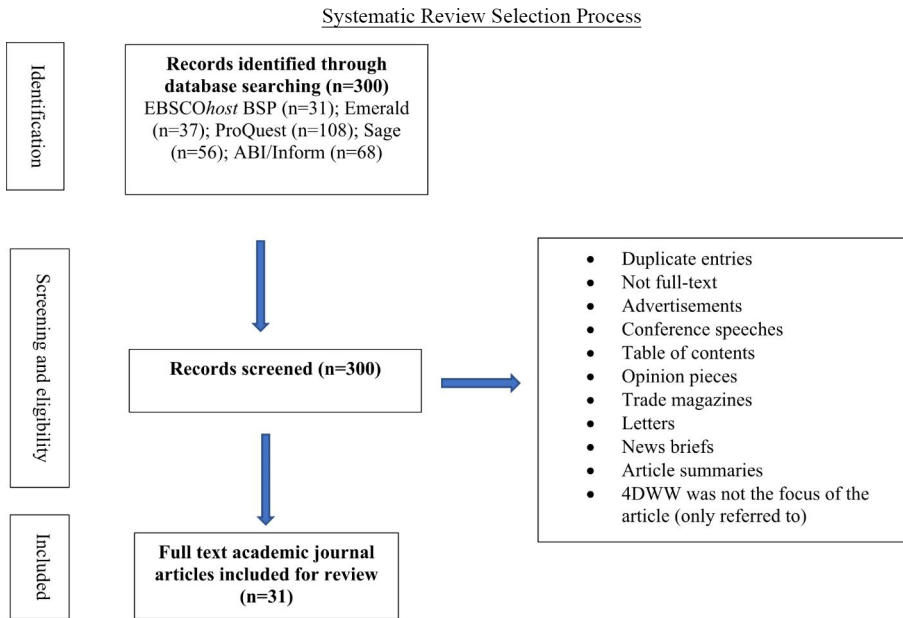
continues to chart the 4DWW scholarly journey up until the present day. The paper concludes by drawing together the findings and addressing the research questions, including the future direction of 4DWW research. As Bird (2010, p.1080) cautioned, “We would be wise to heed the lessons learned from the past and tread carefully when considering the future of the four-day work week.”

## 2 Method

This article aims to critically examine the academic literature from when the 4DWW was first widely advocated over 50 years ago and then follow the 4DWW journey up until the present. It intends to draw conclusions about whether the current passion for the 4DWW is well founded in the scholarly literature and what the future research directions may be. Consequently, a chronological, systematic review format was deemed most relevant to the aims of the article. A chronological review seeks to examine the evolution of a topic over a period of time to place it in a historical context and to identify the likely directions for future research (Saunders et al. 2016 p.74). Given the extensive body of literature accumulated over time for many topics, historical and chronological reviews argue that including all literature is normally not possible and so must be selected (Salevouris and Furay 2015). However, the 4DWW in scholarly literature has a defined boundary and therefore makes it possible to combine chronological and systematic procedures. A systematic literature review analyses and interprets all available evidence related to a specific research question in a way that is unbiased and to a degree repeatable and can be appropriate to synthesise evidence to inform policy and practice (Fan et al. 2022). Figure 1 summarises the systematic review selection process:

The first phase of the research involved searching the major business/management databases for 4DWW literature: ABI/Inform; EBSCOhost: Business Source Premier; ProQuest Central (all databases); Sage Journals Online; and Emerald Insight. The literature review was conducted mid-late 2022 with a final search in March 2023. The aim of this paper was to review articles that specifically investigate the 4DWW and not some similar variation (such as reduced working hours) or other form of flexible working. That led to clearly defined search terms of “Four day week”. After an initial preview the terms were refined to “Four day work week” to remove a number of results that dealt with a four day week in other contexts, for example, schools. In all databases the “four day work week” term was searched for “anywhere” in the article and “scholarly journals” or similar (depending on the database) box checked. In total 300 records were returned.

The second phase was screening the results to check for eligibility. Only full-text research articles (any methodology) were sought and so records were removed that were duplicates, advertisements, conference speeches, table of contents, opinion pieces, trade magazines, letters, news briefs, summaries and articles where the 4DWW was mentioned in passing but was not the subject of the paper nor constituted any significant aspect of it. That left 31 4DWW academic research articles for the review.



**Fig. 1** Systematic review selection process

### 3 Analysis

#### 3.1 1970's: a dramatic rise of interest in the four-day work week

Despite the 4DWW being seriously espoused since at least the 1950's, it was during the 1970's that a rapid increase of interest from both the public and private sectors toward the idea occurred, predominantly in the U.S. (Hartman and Weaver 1977). In Western Europe other alternative work arrangements such as flexitime were receiving more attention (Mahoney 1978) and it wasn't until far more recently that the 4DWW gained widespread global attention. This section reviews the predominantly U.S. academic literature from that time to determine why the 4DWW didn't materialise in any significant sense and what might be learned that informs the current vocal drive for a 4DWW.

The attraction of the 4DWW in the 1970's was mainly driven by newspapers and magazines that quickly caught the public's attention (Allen and Hawes 1979; Newman & Frost, 1975; Hedges 1971). The five eight-hour days a week model had been relatively standard for the previous 40 years and protected by law for most (Hedges 1971). That model had been hard-won, primarily by the union movement, and centred largely on two issues, firstly, worker fatigue was said to be contributing to industrial accidents and lowering productivity and secondly, long work hours prevented employees from participating in social, political and educational opportunities (Newman & Frost, 1975).

The 1970's proposals to change to a 4DWW were for different reasons. Improved efficiency, less absenteeism and turnover, greater job satisfaction, lower labour costs,

and increased productivity were common arguments and the 4DWW drive was not primarily by the labour movement but rather by management (Allen and Hawes 1979; Gannon 1974; Hedges 1971). Many of the proposals did not suggest reducing the 40 h week, rather, compressing the same number of hours into four work days (Allen and Hawes 1979; Newman & Frost, 1975). But by no means entirely. Hedges (1971) wrote that in mid-1971 about 600 US firms offered some form of the 4DWW (ranging from less than 30 h per week to over 40) for at least part of their workforce. That amounted to about 1 in every 1,000 US workers. The firms were generally small, didn't compete in world markets and not capital intensive. A few years later Gannon (1974, p.74), citing an American Management Association report, put the figure at about 100,000 employees in 700 to 1000 organisations working on some form of the 4DWW with about 40% with reduced, rather than compressed, hours.

Although the working context was very different over 50 years ago, there are a number of findings that are germane to the contemporary push for a 4DWW. Newman & Frost's (1975) research found 55% of participants favoured a 4DWW, even if there was no reduction in hours, compared to 34% who disliked it. Similarly, another study using a sample selected to be representative of the general U.S. population revealed 70% favoured the 4DWW (Allen and Hawes 1979) even without reduced hours. Workers preferred to extend the workday in order to achieve longer weekends (Hedges 1971), but unsurprisingly, if given the option would prefer reduced working hours.

Other evidence suggested it was the perception of increased and better arranged leisure time rather than factors related to the job or improving job satisfaction that were more important for employees choosing a 4DWW (Allen and Hawes 1979; Mahoney 1978; Hartman and Weaver 1977; Mahoney et al. 1975). Dunham & Hawk's (1977) research found that the workers most likely to have a positive view of a four-day CWW have low attitudes toward work and the work environment. They speculate, concurring with Wilson and Seltzer (1971) and Fraser (1971), that the four-day CWW may be viewed most favourably when it is considered as a partial getaway from negative work and work-related factors.

Although there were some problems with a 4DWW reported such as worker fatigue because of intensification, scheduling problems and increased workload on the first day back (Allen and Hawes 1979; Hodge and Tellier 1975) the vast majority of articles were favourable and mentioned positive outcomes such as increased morale, improved productivity, better job satisfaction, as well as reduced turnover and absenteeism (Hartman and Weaver 1977; Calvasina and Boxx 1975; Hodge and Tellier 1975).

However, Hellriegel (1972 cited Hodge and Tellier 1975) wrote about the 4DWW, "The writing on the subject has been highly impressionistic, emphasising the perceptions of individuals, managers, union leaders, or journalists of what they see to be the present or future effects of conversion." (p.25). Much of the early evidence reported was anecdotal and inconclusive (Mahoney 1978; Calvasina and Boxx 1975) questioned whether opinion data, collected by means such as personal interviews or questionnaires, reflected valid results of the various effects attributed to the 4DWW. Nord and Costigan (1973, p.60) summarised, "While considerable speculation and

anecdotal information has been published, to date there is little reliable empirical evidence about the effects of the four-day week on workers”.

It was also questioned whether the prevalence of cross-sectional research designs were appropriate. Because workers had more days available for leisure there was likely to be early enthusiasm. After some time, it was conceivable that fervour may wane (Ivancevich & Lyon, 1977). Further, the possibility of the Hawthorne Effect began to appear in the literature (Fottler 1977; Gannon 1974).

A particularly inconclusive issue was the effect on productivity (Fottler 1977; Gannon 1974; Steward and Larsen 1971). When writing about the implications of a 4DWW with 32 h (compared to 5×40 h) in 1968, the economist Wernette (1968) noted that if every business in the US reduced working hours by one-fifth, the total production of goods and services would drop and the American standard of living would fall. Wernette (1968) wrote that even if output per worker-hour rises, workers can produce more in 40 h than in 32 h. “Anybody who claims that Americans can have more leisure without paying for it is either throwing up a smoke screen, or is indulging in a pipe dream” (p.16).

Given the methodology concerns, Calvasina & Boxx (1975) were one of the few to have used direct (rather than opinion) methods to assess productivity. They collected production data from two similar factories of the same firm. The data consisted of the individual’s weekly output (sewing activities) and the time taken to produce the output. Data was collected for two sample groups of experienced workers during a one-year period before a change to a 4DWW as well as one-year afterwards. Prior to the change the factories operated on a 5-day, 40 h workweek. After the change, they utilised a 4-day, 38 h workweek. The authors found no significant change in group productivity for either group.

Another rare study that used objective data was LaCapra’s (1973) CWW (4×40 h) experiment conducted at The Port Authority of New York and New Jersey. The Authority collected actual workload statistics and with regards to productivity and reported the ‘case was not clear cut’. No discernible trend in either direction was found when compared to like periods.

Conversely, Swierczewski (1972 cited Calvasina and Boxx 1975) did find a productivity improvement when using a 4DWW, the different outcome being attributed to the machine-paced workplace studied having start-up and shutdown periods that were reduced. The conclusion from early 4DWW research was that any increase or decrease in productivity would likely depend on many potential mediating variables.

Evidence also began to emerge that the positive reactions to the 4DWW may fade. Fottler (1977) examined the introduction of a 4DWW at a hospital department and found that only 56% of employees voted to continue the arrangement six months after inception. Ivancevich & Lyon (1977) similarly found that when employees on a 4DWW were surveyed 13 months after the introduction, attitudes were significantly more positive when compared to a control group at the same company who remained on a 5-day schedule. But when surveyed again after 25 months, almost all improvements were reported to have disappeared. However, a decline of positive attitudes was not always the case. A longitudinal study of pharmaceutical workers by Nord & Costigan (1973) that had reduced working hours from a 5 day x 8 h schedule to a 4 day x 9 ½hr found that attitudes were generally positive when measured 6 weeks



after the trial period, again at 13 weeks, then about 1 year after it began. But these authors claim that perhaps the most important implication of their study for future research was a tendency for few significant patterns of response to occur soon after the implementation but a larger number of patterns over the period of one year. They write, "...studies of the four-day week may yield sharply different results depending on how long after the change they are conducted" (p.66).

Finally, there were other issues that authors identified. Hedges (1971) noted that the selection of workdays was not uniform, either from firm to firm or within a firm, or even for the same workers week after week. Weekends may be Friday through Sunday, Saturday through Monday, or even in the midweek. This has implications for the acceptance of a 4DWW. A survey by Kenny (1974) found that 68% of respondents were in favour of a 4DWW (4×10 h) with Monday or Friday as the day off, but just 24% were in favour of a 4DWW if the days off were during the week.

Although there was an increase in the 1970's of firms offering a 4DWW, eventually the idea never gained widespread acceptance (Mahoney 1978; Gannon 1974) cited the Wall Street Journal on April 30, 1973:

*"When John Roberts went to the four-day week, it was in the forefront of a trend. And now it's turning out that the company may also have been in the forefront of a trend when it went back to the five-day week."* (p.75)

And according to Newman and Frost (1975, p.32):

*"Some accounts with the four-day week report favourable effects on absenteeism, turnover, and productivity; other accounts report abandonment of the experiments, largely because of reactions of the affected workers".*

Gannon (1974) noted that the evidence presented for the positive outcomes of a 4DWW should not have been so readily accepted. He claimed many executives who would normally demand rigorous justification for decisions uncritically accepted the 4DWW based on scant experimental evidence.

Hedges (1971, p.35) concluded at the time:

*"The 5-day, 40-hour week represented a national standard based on worker health and efficiency and on the sharing of jobs. The impetus now is for work schedules designed to fit the technological and other requirements of an individual firm and the needs and preferences of its workforce. Rationalization rather than standardization is the guideline".*

### 3.2 1980's – 2000's: the journey to a four-day work week stutters

Subsequent to a judicious body of 4DWW research in the 1970's (Ronen and Primps 1981), albeit predominantly in the U.S., the concept began to stall and academic studies waned (Hung 1996). Flexitime and other alternative working time arrangements gained prominence in research and practice. Of the 4DWW research that did

continue, it was largely CWW's. The most common model being in the 1980s and 90s, as it was in the 70s, a 10 h x 4-day week.

Smith (1986) noted that employment in CWW schemes grew about 4.5 times faster than total employment during the 12 years preceding May 1985. But the actual numbers on CWWs was small in comparison to the standard workweek and, "it would probably take many years of accelerated growth for these schemes to become popular alternatives to those with which we are most familiar" (p.9). Moores (1990) reviewed 47 CWW studies and concluded that CWW's were positively correlated with reduced employee absenteeism, productivity, job satisfaction, lower turnover, decreased commuting costs, less sick leave, and easier organisational recruiting. Employee fatigue was the only disadvantage. Moores (1990) did recognise the lack of longitudinal studies as being a weakness due to the possibility of Hawthorne effects.

A later CWW meta-analysis by Baltes et al. (1999) also found a CWW positively impacted job satisfaction, satisfaction with the work schedule, but absenteeism did not decrease. Perhaps the most noteworthy result involved productivity. When using more objective measures of productivity, there was no increase. However, the subjective supervisor rated performance criteria did increase. The authors note that prior research had found very low correlations between objective and subjective measures. Again, the caution expressed by the 1970's researchers about using subjective measures appears.

Studies that looked at hours worked and health became more apparent at this time and grew over the next decade (Burke 2009; Sparks et al. 1997). For example, Martens et al. (1999) found participants on CWWs had significantly more health complaints, more problems related to their psychological performance, and more sleeping problems compared to a control group with non-flexible work schedules. Cunningham's (1981) study of police officers was no more positive. Although a small sample size 'the study suggests that a 10hr (4x40hr) compressed shift schedule has little potential for increasing the well-being of individuals in relation to their jobs'(p.221).

### 3.3 2000's – current: waves of resurgence

To gain an indication of when the popular interest in the 4DWW began to re-emerge, a ProQuest Central search was conducted in March 2023 of 'Newspaper articles' containing the terms "Four day work week" from 'Anywhere' in the article (Fig. 2).

**Fig. 2** ProQuest Central newspaper article search for "Four day work week" anywhere in 'newspaper' (duplicate entries removed)



There was a noticeable spike in popular interest between about 2008–2012 (the first contemporary wave) and another more recent spike from about 2019 (a second contemporary wave).

### 3.3.1 The first contemporary wave (2008–2012)

The first wave has been attributed to the fallout from the global financial crisis and a jump in fuel prices. West, Condrey & Rush (2010, p. 68) wrote, “The urgency resulting from the rapid rise in gas prices created a policy window in which change involving a compressed workweek was deemed a desirable policy option”. Bird (2010) noted that the most intense interest in 4DWW’s in the 1970s coincided with the 1973 oil crisis and resulting dramatic increase in prices. It appears commuting and operations costs have been a significant motivator for the 4DWW. However, when gas prices stabilised, coupled with the economic fallout of the global financial crisis, the 4DWW stalled again. Any move to a 4DWW was likely to be seen as an excessive ‘perk’ in a time of economic stress.

Of the academic research that emerged around this time, there was evidence that the interest in the 4DWW was being converted to practice. West, Condrey & Rush (2010) surveyed 94 h Directors in the U.S. and found 23% of respondents had implemented a 4DWW for at least some of their staff. Of that number 18% reported the policy had been in effect less than one year suggesting energy costs did influence the move. When asked what the consequences of a CWW (4×40 h) would be, the HR Directors were less optimistic compared with earlier studies, perhaps unsurprisingly given their organisational position. For example, 76% believed employer costs would either increase or stay the same, 53% predicted childcare problems would increase due to the longer work day and 51% a potential loss of productivity. But 70% believed it would enhance morale and 60% improve work-life balance. Other studies supported familiar results such as a positive employee experience with the 4DWW, perceptions of increased productivity (Golden 2012; Facer & Wadsworth, 2008) and on the negative side, absenteeism would increase (Dionne and Dostie 2007).

A review by Golden (2012) found that a majority of employees have a preference for shorter working hours but that proportion drops considerably if the reduction in working hours is accompanied by lower incomes. The same review shed some more light on the productivity issue by citing evidence from the manufacturing industry that lengthening the number of hours per employee (as in a 4-day CWW) was likely to add to the level of production per worker, but the output per worker hour (productivity) is diminished (ibid.).

Environmental effects were being considered and Kallis et al. (2013) summed up the general position at the time that “Environmental benefits are likely but depend crucially on complementary policies or social conditions that will ensure that the time liberated will not be directed to resource-intensive or environmentally harmful consumption” (p. 1545).

### 3.3.2 The second contemporary wave (2019-current)

Since about 2019 there has been a second contemporary wave of popular interest in the 4DWW, but the scholarly publications are few. As it was with previous interest, it has not been driven by the academic community, rather by the media, political commentators, trade unions, political parties, advocacy groups, think tanks and some businesses who claim various environmental, community, economic, family and individual benefits (Delaney, 2018; Srnicek 2018).

As has been previously introduced in this review, two studies in particular have driven the popular appeals for a 4DWW – the Icelandic study conducted between 2015 and 2019 and Perpetual Guardian in New Zealand. But after inspection of the 82 page Icelandic report's findings, it was evident that the research did not examine a 4DWW (Haraldsson and Kellam 2021) and the Perpetual Guardian research was methodologically questionable.

Turning to the scholarly literature, Paje, Escobar, Ruaya & Sulit (2020) researched a CWW by gathering self-report data from Metro Manila employees and found that job stress was reduced and the less stressed participants were, the more productive they became. However, no relationship was found between CWW's and work-life balance. A small sample of municipality workers in Canada piloted a CWW and described overall positive results such as improved work-life balance and increased job satisfaction but some issues with childcare (Spicer and Lyons 2022).

A particularly significant scholarly paper was authored by the academic lead for the qualitative analysis at Perpetual Guardian with a colleague (Delaney & Casey, 2022). It was noticeable that the article was not as positive about the experiment when compared to the previous report Delaney (2018) had published on the 4 Day Week Global website ([www.4dayweek.com](http://www.4dayweek.com)). Although the paper's findings noted that the promise of a four-day week was favourable with employees and had individualised benefits, however, "entrenched managerialist practices of performance management, monitoring and productivity measures were intensified. Pro-social and collective interests evident in labour-led campaigns were absent" and the authors urged for greater critical scrutiny into the 4DWW business case (Delaney and Casey, 2022, p.176).

Because it was made clear to employees beforehand that only if the trial was successful would the 4DWW be implemented, and intense media interest, meant participants needed and wanted to make the trial work (Delaney & Casey, 2022). After the trial, the 4DWW (termed the 'Productivity Week Policy') was implemented, but on an individual opt-in basis that may or may not be granted depending on the employee's performance rather than the opt-out policy of the trial.

Delaney and Casey (2022, p.186) concluded:

*"...in order to gain some freedom from work, employees were prepared to relinquish some freedom in work. Hence, this version of the four-day week joins a long line of other work-life flexibility initiatives that promise freedom and yet ultimately serve to strengthen employees' investment in capitalist work and organizations"* (Bloom 2016; Fleetwood, 2007; Gattrell and Cooper, 2008).

## 4 Conclusion and the path ahead

The aim of this paper was to chronologically and systematically review the academic literature that focused on the 4DWW with or without reduced hours. It proposed three research questions:

*Research question 1: What are the positives and negatives presented in the 4DWW scholarly literature?*

The findings that can be drawn from the review are summarised in Table 1:

*Research question 2: Are the claims made by advocacy groups and the media supported by academic research?*

**Table 1** Four-Day Work Week Positives and Negatives in the Scholarly Literature

Findings	Academic Support
The majority of articles reported favourable 4DWW outcomes such as increased morale, productivity, job satisfaction, cost reductions, reduced turnover and absenteeism, decreased commuting costs and easier organisational recruiting.	Steward & Larsen (1971); Hodge & Tellier (1975); Calvasina & Boxx (1975); Hartman & Weaver (1977); Moores (1990); Pierce & Dunham (1992); Puntenney (1994); Baltes et al. (1999); Facer & Wadsworth (2008); Golden (2012); Delaney & Casey (2022); Spicer & Lyons (2022)
Issues found with the 4DWW included worker fatigue, scheduling problems, increased workload on the first day back, childcare problems, increase in absenteeism, and performance management, monitoring and productivity measures were intensified.	Steward & Larsen (1971); Hodge & Tellier (1975); Allen & Hawes (1979); Lankford (1998); Dostie (2007); West, Condrey & Rush (2010); Dionne and Delaney & Casey (2022); Spicer & Lyons (2022)
The rigour of results, due to weak research methodologies, was being questioned.	Hellriegel (1972); Nord and Costigan (1973); Gannon (1974); Calvasina & Boxx (1975); Ivancevich & Lyon (1977); Fottler (1977); Mahoney (1978)
The impact of the 4DWW on productivity was inconclusive.	Wernette (1968); Martin (1971); Steward & Larsen (1971); Swierczewski (1972); LaCapra (1973); Gannon (1974); Calvasina & Boxx (1975); Fottler (1977); Baltes et al. (1999); Golden (2012); Delaney & Casey (2022)
Employees prefer the idea of a 4DWW (compared to the traditional 5DWW) even without a reduction in hours as long as it is not accompanied by lower incomes.	Newman & Frost (1975); Allen & Hawes (1979); Golden (2012)
Employees primarily view the benefit of a 4DWW as an escape from work rather than as a tool to better tackle it.	Fraser (1971); Wilson & Seltzer (1971); Mahoney, Newman & Frost (1975); Dunham & Hawk (1977); Hartman & Weaver (1977); Mahoney (1978); Allen & Hawes (1979)
The effect on employee health is inconclusive.	Cunningham (1981); Sparks et al. (1997); Martens et al. (1999); Burke (2009)
Positive reactions to the 4DWW may fade over time.	Nord & Costigan (1973); Fottler (1977); Ivancevich & Lyon (1977)
If workers do not get a 3-day weekend, then the 4-day week is less acceptable.	Hedges (1971); Kenny (1974)
Any environmental benefits will be dependent on how the time liberated is spent.	Catlin (1997); Kallis et al. (2013)

Overall, the scholarly research reviewed paints a more complicated and ambiguous picture compared to that presented by 4DWW advocates and the media. Some of the most prominent popular claims are improved (or at least not diminished) productivity, reduced costs, enhanced employee engagement and job satisfaction, and environmental benefits (Stewart 2023; Mellor 2022). In the case of productivity and cost reductions the scholarly studies suggest there are many possible mediating variables. Some academic studies indicate employee engagement and job satisfaction may well be improved but others show the attraction of a 4DWW was additional leisure time rather than being more engaged or satisfied with work. And any environmental benefits are likely to depend on how the time liberated is spent.

#### 4.1 Future research directions

*Research question 3: What can be learned from a chronological review of scholarly 4DWW publications that can inform future research?*

The findings have a number of implications for future research. First, this review has established that despite there being over half a century of dedicated research, scholarly publications are notably skewed towards the 1970's with a scarcity of contemporary research. Second, given that the majority of employees prefer a 4DWW, with or without reduced hours, self-report survey data has an inherent problem of participant bias. Alternative methodologies and methods need to be considered to provide a richer picture. Third, a greater number of studies are required that specifically research a 4DWW rather than some other flexible working arrangement with the results being generalised to the 4DWW scenario. Fourth, longitudinal research will provide a better perspective about whether 4DWW outcomes (positive and negative) endure or fade over time. Finally, the majority of the existing research uses small organisation's or small, homogenous samples (for example, from a single department or job role) from larger firms. Increasing the scale and heterogeneity of samples would provide better insights into which employee's, organisation's, or positions within an organisation the 4DWW may suit best.

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