Junior Management Science 10(4) (2025) 831-857

Junior Management Science

www.jums.academy
ISSN: 2942-1861

Work Less, Live More? The Impact of an Introduction of the Four-Day Working Week on Happiness in the Context of the Icelandic Four-Day Working Week Experiment

Marie-Claire Joyeaux

University of St Andrews

Abstract

In our current age, the quest for a better work-life balance is becoming paramount to increasing numbers of people. The concept of the Four-Day Working Week (FDWW) therefore emerges as a potential solution, promising to revolutionise our traditional understanding of worktime and well-being. By focusing on the world's largest FDWW trial at the time, Iceland's FDWW experiment from 2015 to 2019, and using data from the European Social Survey, the FDWW's impact on happiness is critically examined. Ordinary Least Squares regressions are employed to analyse the association of working hours with happiness amongst Icelandic workers and to conduct an evidence-based policy evaluation. Contrary to widespread expectations and existing media narratives, the findings reveal no significant impact of working hours on employees' happiness scores. This outcome challenges the conventional wisdom that less work leads directly to more happiness. The findings thereby contribute significantly to debates on the future of work, suggesting that the FDWW should be viewed with caution until more conclusive evidence is available. This absence of definitive proof calls into question the notion of the FDWW as a universally effective solution to the economic and social challenges faced by contemporary society.

Keywords: employee well-being; four-day working week; future of work; workplace happiness; work time reduction

1. Introduction

Work less, live more? Today's rapidly evolving work environment is an era where the boundaries between work and life blur, focused on the relentless pursuit of progress and productivity and leading society to overlook the fundamental question of whether more work truly leads to a more fulfilling and happier life. As the new generation Z (born 1997-2012), who likes to work autonomously in a flexible workplace, slowly enters the labour market and challenges this long working hours culture of modern societies and liberal welfare states (Bulut & Maraba, 2021), the *Four-Day Working Week* (FDWW) emerges as a contemporary concept that places the notion of less work and more life outside of work in the foreground. It serves not only as a policy experiment, but as a beacon of hope that has the potential to bridge gaps and provide a solution to pressing matters of individuals, organisations, and politics alike (T. T. Campbell, 2023), such as well-being, labour shortages, or environmental concerns.

The idea of reducing working hours has its roots in the labour movements of the early 20th century, gaining significant traction in Western Europe during the post-World War II period (T. T. Campbell, 2023; Mahoney, 1978). Notably, Scandinavian countries are early adopters of progressive labour policies, laying the groundwork for contemporary discussions around the potential of the FDWW as a novel approach that challenges traditional work models by reducing working hours while paying workers a full wage (Chung, 2022). Nonetheless, despite receiving positive media coverage, the scientific evidence supporting the benefits of the

My sincere thanks go to the Department of Finance & Economics at the University of St Andrews for fostering an intellectually open and supportive environment, which enabled me to pursue this work at a high level of quality with independence and purpose. Above all, I am deeply grateful to my family for their unwavering support, encouragement, and love throughout this journey. Special thanks to my wonderful St Andrews friends, whose kindness and companionship sustained me in more ways than words can say

DOI: https://doi.org/10.5282/jums/v10i4pp831-857

FDWW remains inconclusive. Modern happiness economics argues that there is a positive aggregate effect of work that increases life satisfaction (Frey et al., 2007), while neoclassical economic theory points to the disutility effect of labour at the margin (Rätzel, 2012), highlighting inconsistent results across various studies (Shao, 2022). Therefore, the current literature fails to identify consistent effects of reduced working hours on happiness, as the state of evidence is not robust, often affected by methodological limitations and a lack of comprehensive data (T. T. Campbell, 2023). Additionally, since the concept of a reduced working week is not merely a logistical change, but represents a fundamental shift in how society views the balance between work and leisure, it becomes of importance to investigate both the underlying relationship between working hours and happiness and, consequently, the effect of the FDWW itself. The interest in answering these associations is motivated by the current state of evidence surrounding working hours and happiness, which suggests that while the effects of working hours on overall life satisfaction (Shao, 2022) and different outcomes like income (Clark et al., 2008) or productivity (Golden, 2012) are well-studied, the direct relationship between (reduced) working hours and specifically happiness remains underexplored (Golden & Wiens-Tuers, 2006). It is proven that there is some association, however, existing studies offer only conflicting results or are limited in scope (for example, see Booth and van Ours, 2008; Meier and Stutzer, 2004; Pouwels et al., 2008).

Accordingly, it becomes of interest to study the association of the worktime - happiness nexus independent of the true question of causality, to determine whether a reimagined work schedule can indeed reshape the dynamics of workplace happiness. The world's largest FDWW trial at the time, conducted nationwide in Iceland between 2015 and 2019 and involving 1.3% of Iceland's total workforce (Haraldsson & Kellam, 2021), provides a unique empirical setting to carry out an evidence-based policy evaluation that addresses the research question of whether the FDWW has the potential to provide greater happiness. More precisely, in the context of the Icelandic FDWW trial, the aim of this thesis is to provide a comprehensive analysis that contextualises the trial's outcomes within the broader theoretical frameworks of working hours and happiness. This contribution to ongoing discussions about the role of working hours in relation to happiness and insights into the applicability of the FDWW could not only guide future academic discourse, but also inform policy-making on a global scale. Therefore, this research adds to this field by considering empirical evidence from the Icelandic FDWW trial, exploring the nuanced relationship between working hours and happiness, and highlighting the potential and limitations of a FDWW as a policy measure to enhance well-being.

A weighted, clustered, and stratified analysis, employing Ordinary Least Squares (OLS) regressions to detect effects of working hours on happiness is conducted, based on the European Social Survey (ESS) dataset on Iceland (ESS, 2024b). The findings of this thesis from the analysis in the Icelandic context provide valuable insights, highlighting a paradox contrary to some expectations, as working hours do not show a straightforward or significant impact on overall employee happiness. This counterintuitive outcome challenges prevailing assumptions within both academic circles and practical policymaking, namely that less work automatically leads to more happiness, suggesting a more complex interaction between working hours and happiness. The outcomes of this thesis therefore raise pivotal questions about (i) standard economic models, as the results indicate that happiness could be increased by more than just leisure time, and especially about (ii) the applicability of the FDWW concept, as no evidence of its success can be presented. In fact, there is no evidence of potential benefits of the FDWW to begin with, challenging the positive voices from the media and suggesting that this concept is rather a privilege of modern Western states than a future-proof concept for all.

To facilitate the analysis, the thesis is divided into four main sections that will explore the above-mentioned research question. The first section reviews the relevant literature around happiness economics and working hours, thereby setting the stage for a deeper examination of the FDWW trial by contextualising the thesis' topic within broader economic and social debates. Then, the methodology chapter details the dataset and analytical strategies employed, linking theory to the analytical framework used for analysis. Next, the results section explores the core findings from the analysis, considering several model specifications and robustness checks to ensure reliability and validity of the findings. Finally, the discussion section engages in a thorough analysis of the results, examining limitations of this work, integrating findings with the existing body of research, and considering future prospects to draw conclusions about the topic at hand.

2. Literature Review

This literature review sets the stage for understanding the contemporary discourse surrounding the FDWW experiment in Iceland and its potential impact on happiness by delving into two intertwined domains. First, the multidimensional aspects of happiness within happiness economics are analysed, and second, the historical shifts in work dynamics are traced, in order to establish hypotheses, the research question, and research objective.

2.1. Happiness Economics

The field of happiness economics is expanding globally, exploring the relationship between happiness and various economic factors. The following subchapters offer an exhaustive review of the literature, covering definitions, methods and critique, applications, and theory.

2.1.1. The Concept of Happiness and Happiness Economics

A comprehensive understanding of *subjective well-being (SWB)*, a multidimensional concept that encompasses distinct ways of how a person's well-being is perceived (A.

Campbell, 1976), is provided by considering two distinct components, namely cognitive well-being and affective well-being (Diener, 1984; Luhmann, Hawkley, et al., 2012). Whereas cognitive well-being refers to the cognitive assessment of one's own life satisfaction (Diener et al., 2010), affective well-being involves the affective judgement of positive and negative moods and emotions (Luhmann, Hofmann, et al., 2012), with both elements critically influencing overall life quality evaluations, drawing on standards of a good life (cognitive) and hedonic affect levels (Veenhoven, 2008).

Under the umbrella term of SWB, two different concepts are united, *happiness* and *satisfaction*, which scholars often confuse and use interchangeably despite being distinct, as life satisfaction concerns cognition, while happiness concerns affect (Golden & Okulicz-Kozaryn, 2015). While the pursuit of happiness has been a central theme throughout all of human history, it has only become a focus of diverse scientific studies since the mid-20th century (McMahon, 2008), yielding varied definitions influenced by disciplines, historical, and cultural contexts (Frey, 2018). For this thesis, it is important to take into account that happiness, which pertains more to affect and short-term emotional states, is particularly sensitive to changes in daily routines like those introduced by the FDWW, as emotional responses are often more sensitive to adjustments in work-life balance than long-term cognitive evaluations like life satisfaction.

The general understanding of the term happiness is considered to be individualistic, in its broadest sense defined by Michael Argyle and Jill Crossland (1987) as an individual having a positive inner feeling towards particular aspects in life and drawing on cognitive and judgmental thoughts to approach both positive and negative emotions, ultimately constituting an individual's happiness (Andrews & Withey, 1976). The overlapping definitions of life satisfaction and happiness do not only show that the concepts are closely related to each other, but moreover highlight the reason for the lack of effort in the literature to distinguish between the two terms (MacKerron, 2012). The distinction, however, is critical for this thesis where happiness is chosen to assess SWB, as it provides a more immediate and affective measure of well-being (Kahneman & Deaton, 2010). For while life satisfaction is a valuable measure in many contexts, it may not accurately reflect the direct impact of workplace interventions like reduced working hours, which are more likely to have a noticeable effect on daily happiness, that is, people's affect (Krueger et al., 2005), rather than on a comprehensive assessment of life satisfaction.

The burgeoning research field of happiness economics has consequently emerged out of applying these concepts in an economic context. By examining the psychological underpinnings of well-being alongside economic indicators such as income, employment, and work hours, this interdisciplinary approach clarifies how economic conditions impact SWB, offering a nuanced understanding of the relationship of happiness in the intersection between economics and psychology (Nikolova & Graham, 2020). Furthermore, the idea of happiness economics is built upon the broader understanding of utility and welfare, including interconnected utility functions and emphasising the significance of non-pecuniary life events in shaping individual's SWB (Graham, 2005), recognising happiness and well-being as crucial outcomes. The first modern economist to re-visit the concept of happiness, Richard Easterlin (2005), emphasised the significance of happiness economics, critiquing traditional economic ("more is better") and psychological theories (set point theory) for their inability to adequately explain SWB, as they fall short in accounting for the enduring impacts of non-pecuniary life events. In particular, traditional neo-classical economics relies primarily on the preference satisfaction model of well-being, linking happiness to the ability to fulfil one's desires, whereas the emerging field of happiness economics prioritises both the evaluative (cognitive) and hedonic aspect, giving precedence to individuals' assessment of their own well-being (MacKerron, 2012).

This subjective evaluation of one's happiness is self-reported, hence prompting concerns about the validity of its measure and explanatory power in scientific research (Norrish & Vella-Brodrick, 2008). Numerous issues arise that may skew results: cultural disparities might lead to different interpretations of what constitutes happiness across societies; social desirability bias can cause respondents to answer in ways they believe are socially acceptable rather than truthful; memory bias may affect how past events are recalled, influencing reported happiness levels; and mood-state dependence implies that a person's current emotional state can disproportionately influence their overall happiness assessment (Diener et al., 2018; MacKerron, 2012). These factors challenge the reliability of happiness measures, however, subjective measures of happiness appear to be reasonable, robust, and reliable proxies for the traditional economic concept of utility, and are hence valid measures used by economists (Di Tella & MacCulloch, 2006; Dolan & White, 2007; Frey & Stutzer, 2002; Krueger, 2009; Stiglitz et al., 2009) and in this thesis.

2.1.2. Determinants of Happiness

An individual's happiness is determined by a number of factors which happiness research seeks to identify, isolate, and measure (Frey, 2018). Economic literature broadly groups these factors into three different categories, namely (i) economic factors, (ii) individual factors, and (iii) social factors.

To begin with, the extensively researched relationship between income and happiness (Clark et al., 2008) reveals a complex dynamic. While higher average income generally correlates with greater SWB both at individual (Killingsworth, 2021) and national (Frey, 2018) level, this association is found to only hold up to an income threshold of 75,000 US Dollar per year, after which non-financial factors become of relevance (Kahneman & Deaton, 2010). The significance often lies more with relative income rather than absolute income (Easterlin, 1974) and findings indicate a positive relationship that may stem from reverse causation (Diener et al., 2002; Graham et al., 2004), however, with

diminishing marginal returns over time (Frey, 2018). As marginal utility of income decreases while income rises, processes like social comparison and hedonic adaptation are put forward to explain why more wealth reduces an individual's life satisfaction (Stutzer, 2004). This leads to the Easterlin Paradox, a term used to explain the phenomenon that over time there is no corresponding effect of rising income on the long-term growth rate of happiness (Easterlin, 1974; Easterlin & O'Connor, 2020).

Furthermore, concerning individual factors, age is consistently shown to have a negative correlation with SWB while age squared has a positive association with SWB, with an indicated U-shaped relationship suggesting years of mid-life crisis, that is, higher levels of SWB in younger and older age groups and lowest SWB in the middle ages of 32 to 50 (Blanchflower & Oswald, 2004; Ferrer-i-Carbonell & Gowdy, 2007). Additionally, gender effects on happiness are mixed: whereas some studies report higher levels of happiness for women (Alesina et al., 2004), others find no significant gender differences (Louis & Zhao, 2002), indicating that other factors beyond gender itself may be more influential (Dolan et al., 2008). Besides, scholars suggest a certain influence of ethnicity on happiness, finding whites in the United States to report higher SWB than African Americans (Thoits & Hewitt, 2001), however, a comparison across diverse groups remains complex due to broad ethnic categorisations (Luttmer, 2005).

Last but not least, social factors play a crucial role in determining happiness. In particular, both an individual's subjective (Howell & Howell, 2008) and objective socioeconomic status (such as access to essential services like healthcare) can significantly influence happiness by affecting an individual's physical and mental well-being (Kezer & Cemalcilar, 2020). Literature is unclear about the influence of education on SWB. On one hand, education is analysed to open up more opportunities in life and thus contributing to greater happiness (Blanchflower & Oswald, 2004), but on the other hand also no significant relationship (Flouri, 2004) or even a negative relationship (Clark, 2003) is reported. As the variable of education is mostly positively correlated with income and health, a strong positive education coefficient may pick up unobserved effects that are not controlled for (Dolan et al., 2008). Furthermore, general health is one of the most important contributors to happiness, as studies prove strong positive relationships between SWB and both physical and psychological health (Dolan et al., 2008), that is, (poor) health strongly predicting (un)happiness (Liu et al., 2015). Moreover, marriage is examined to be highly positive with SWB (Helliwell, 2003), as married people or those in stable partnerships feel less lonely, with these relationships acting as a buffer against stressors of work life (Frey, 2018). Finally, research is very consistent in suggesting that individuals having faith and trust in a higher power are more adept at dealing with life's challenges (Frey, 2018), and that regular church attendance is associated with higher SWB (Clark & Lelkes, 2006).

2.1.3. Working Hours in the Intersection of Traditional and Happiness Economics

While a considerable portion of research on SWB examines the impact of one of the above three categories, very little research has turned towards the time spent working or in a workplace (Golden & Okulicz-Kozaryn, 2015). A rich body of research is found within occupational psychology, with a wealth of evidence that employees who work long or extended working hours encounter more burnout, stress, anxiety, sleep shortage, and increased illness (Bannai & Tamakoshi, 2014; Chung, 2022; Kleiner & Pavalko, 2010; Wong et al., 2019); research in happiness economics, however, has given little consideration to the impact of working hours on SWB (Golden & Wiens-Tuers, 2006) and - if at all - focused on the relationship between working hours and job satisfaction, a subarea of general satisfaction (Shao, 2022).

This blind eye towards the worktime - happiness nexus may be attributed to the mismatch of the standard neoclassical theory of individual labour supply and emerging research in the field of happiness economics. Empirical findings within happiness economics indicate that unemployment severely impacts SWB negatively (Frey & Stutzer, 2002; Helliwell, 2003), highlighting a positive aggregate effect of work, as being employed increases life satisfaction (Frey et al., 2007) through psychological and sociological factors such as self-confidence (Frey, 2018). The confirmed non-pecuniary cost of unemployment associated with the hardship of job loss (Young, 2012) suggests that a utility reduction of an individual caused by unemployment cannot be wholly attributed to the loss of income (Rätzel, 2012), that is, happiness does not consistently rise with income, especially in higher income groups (happiness paradox), but is rather contingent upon other factors such as health and family life experience (Golden & Wiens-Tuers, 2006). On the other hand, standard neoclassical economic theory of individual labour supply follows the notion that more working hours increase an individual's income, hence allowing for the possibility to pay for health and thereby outweighing any adverse effects of labour disutility (Golden & Wiens-Tuers, 2006). This disutility effect as described by conventional economics posits labour disutility at the margin and diminishing marginal returns, namely that disutility is caused by an additional hour of work (Rätzel, 2012) which, at first glance, seems to contradict the positive aggregate effect of work as found in happiness economics.

Thus, recent research has attempted to reconcile both theories by distinguishing between total and marginal labour utility (Rätzel, 2012), resulting in mixed findings only and thus calling for more in-depth research that has yet to be undertaken (Shao, 2022). So far, there is evidence to suggest that there is some relationship between working hours and happiness, this relationship, however, is not consistent. Some find the well-being of individuals to not decrease with longer working hours even though job satisfaction decreases (Gray et al., 2004). Scholars also discover no significant relationship (Booth & van Ours, 2008; Willson & Dickerson, 2010), others observe the relationship to be negative

(Luttmer, 2005; Pouwels et al., 2008), or non-linear (Frey et al., 2007; Meier & Stutzer, 2004; Muffels & Kemperman, 2011; Rätzel, 2012), stressing an inverse U-shaped relation between happiness and hours worked, in other words, implying that well-being increases with working hours up to a certain threshold after which it begins to decline with excessive working hours (Meier & Stutzer, 2004). As per utility theory (Viner, 1925), workers maximise their utility by seeking a balance between leisure time and income, achieving peak satisfaction at an optimal number of working hours, with dissatisfaction occurring when deviating from this balance due to insufficient income or leisure (Dong et al., 2023).

This background about the impact of working hours on happiness leads to the formation of the first hypothesis:

> *H_1: There is an inverse U-shaped relationship between the number of working hours and happiness.*

2.2. Work Dynamics Over Time

The concept of happiness has taken hold in the workplace in the 21st century as organisations start prioritising human capital to sustain their presence in the workforce and enhance efficiency (Arslan & Bektaş, 2021), inducing significant changes in working time regulations. Therefore, the following subchapters examine changes in working time patterns over time, with a focus on the definition and phenomenon of the concept of the FDWW.

2.2.1. Historical Context of Working Hours

Adam Smith's early theory of "Economic Man", advocating for indefinite extension of employees' working hours to maximise profit (Liu et al., 2018), is long foregone, with the new post-millennial generation demanding more freedom, flexibility, and diverse ways of working and collaborating (Bulut & Maraba, 2021). Therefore, understanding historical perspectives of Western Europe is essential for comprehending contemporary trends in working hours.

First, the beginning of the period of 1900-1990 in Western Europe is characterised by fluctuating working hours with unstable wages, sensitive to economic disturbance caused by the two World Wars (Liu et al., 2018). Following World War II, increased female participation in part-time roles in the labour market prompts a decline in overall working hours (Stier & Lewin-Epstein, 2003), which, next to intensified economic competition, spurs interest in more flexible and diverse working arrangements, predominantly flextime (Mahoney, 1978), part-time work (Liu et al., 2018), and a compressed work week, that is, keeping working hours constant, but compressing the 40h work week into four work days (Allen & Hawes, 1979; Mahoney et al., 1975).

Subsequently, intensified global competition and cooperation during the years 1990-1999 due to changes in political and economic powers lead to more pressure of overtime work (Liu et al., 2018) and shift work, causing tensions between organisations and individuals and thus an increased interest in work-life balance (Anttila et al., 2021). Nonetheless, research on reduced working time arrangements stalls (T. T. Campbell, 2023) due to resistance to adapt to unfamiliar schemes (Smith, 1986), except for studies on compressed workweeks, reviewed to be positively correlated with job satisfaction, productivity, and employee absenteeism (Moores, 1990).

Thereafter, during the years 2000-2012, research on working time regulations spikes, as the global financial crisis and rising fuel and energy prices highlight benefits of reduced commuting and operating costs (T. T. Campbell, 2023), as well as environmental pressures (Kallis et al., 2013). Additionally, academic research connects positive employee experience and increased productivity (Facer & Wadsworth, 2008; Golden, 2012), motivating the interest in transitioning towards a shorter workweek.

Last but not least, as the work-life conflict becomes of greater importance after 2010, there is extensive research on long working hours and consequential psychological distress, with emphasis on economic gains of long working hours being significantly outweighed by the social costs they entail (Liu et al., 2018). A second contemporary wave of interest in shorter working weeks that has a particular focus on the concept of the FDWW resurges around 2019, however, scholarly publications on the topic remain limited, as the interest is primarily driven by media, trade unions, political parties, think tanks, and advocacy groups, rather than by academia (T. T. Campbell, 2023).

This historical context highlights the gap in rigorous empirical research despite over a century of widespread public and political interest, underscoring the relevance of this thesis in contributing to a well-informed academic debate on the topic. Especially since the COVID-19 pandemic, future trends in working hours have been shaped significantly, not only by accelerating shifts towards telework, but above all by stimulating dialogue on more flexible and diversified employment patterns as a means of tackling unemployment, demographic transition, and climate change (Anttila et al., 2021).

2.2.2. The Concept of the Four-Day Working Week

The traditional five-day eight-hour working week has long been a global standard for many companies; however, the idea of a FDWW has gained popularity amongst the younger generations as a potential solution to various workplace challenges (T. T. Campbell, 2023). The concept of *work time reduction* (WTR) stands for a reduction in the total hours of paid work (Gunderson, 2018) and is an umbrella term, encompassing various working time regulations such as part-time work, compressed work weeks, and the specific approach as proposed by the FDWW. Unlike other WTR arrangements, the FDWW entails a reduction of working hours which will be the new equivalent to full-time working hours, that is, a full working week of around 36-40 hours should move to a new standard of 30-32 hours without cutting payments of workers (Chung, 2022).

Recent years have seen increasing interest in FDWW trials across the globe, with companies like Microsoft Japan (2019) conducting a FDWW experiment (Gatlin-Keener & Lunsford, 2019), as well as entire countries running FDWW

trials. This innovative approach to work, however, has not yet become a common practice in mainstream corporate environments, including liberal welfare states, where prevailing norms still emphasise the need to work longer hours as a demonstration of dedication, ambition, productivity, performance, and commitment (Deci & Ryan, 2009; Laurence et al., 2016). Consequently, many employees either extend their work hours or compensate for absent colleagues (Barrick & Mount, 1991; Hayes et al., 2022), despite evidence suggesting that long working hours reverse organisational performance and are negatively related to economic development (Liu et al., 2019).

Therefore, a surge in scientific research on the impact of WTR has been observable in recent years, offering valuable insights for policymakers, employers, and employees on how WTR drives economic, organisational, and personal change. As such, the positive link of WTR to productivity (Kunn-Nelen et al., 2013; Pencavel, 2015), as well as to climate change mitigation (Kallis et al., 2013; Nässén & Larsson, 2015; Pullinger, 2014) has been studied extensively, as there are reasons to believe that reducing working hours can improve quality of life and promote sustainable living by shifting the focus from living to work with carbon-intensive consumption to relationship, hobbies, and local engagement (Coote et al., 2010; Schor, 2015). Next to this, the negative impact of long working hours on family balance (Crouter et al., 2001; Johnson et al., 2013; Strazdins et al., 2017) and well-being (Bannai & Tamakoshi, 2014; Caruso et al., 2006; Sonnentag, 2012; Wong et al., 2019) has been researched in detail. In particular, research consistently indicates that long working hours have notable detrimental effects on employees' well-being by having a direct negative impact on their physical and mental health (Chung, 2022).

In spite of these findings, it becomes apparent that much of this research tends to generalise findings to the FDWW scenario without adequately considering potential differences in effects compared to other forms of WTR (T. T. Campbell, 2023), inducing the need of more studies that focus on the FDWW concept itself.

Based on above analysed dynamics of working hours in the context of the FDWW, a second hypothesis is proposed:

> *H_2: The association between working hours and happiness changes before, during, and after the FDWW trial in Iceland.*

2.3. The Four-Day Working Week in the Context of the Icelandic Experiment

Quoted to be an "overwhelming success" by all newspapers, the world's largest ever FDWW trial at the time was conducted in Iceland and has gained traction for being a paragon in promoting the idea of a FDWW nationwide in an organisational context (Stone, 2021).

Between 2015 and 2019, trials took place in Iceland, involving a reduction of the 40-hour work week to a 35-hour week without cutting payments of employees. In particular, workplaces were selected based on fulfilling the criteria of having (i) 20 or more full-time employees, (ii) at least 30% of the employees in BRSB member companies, that is, in companies that are part of Iceland's largest federation of public sector unions, (iii) jobs performed at the workplace that are quite similar, and (iv) a majority of employees at a 70% - 100% employment rate (Félagsmálaráðuneytið, 2019). From an initial 17 applications four workplaces were selected, with another four as a control group. The scope of the participating workplaces was then expanded until more than 100 different workplaces were involved, including offices, kindergartens, social service providers, and hospitals, thereby encompassing more than 2,500 staff members equating to about 1.3% of Iceland's total workface (Haraldsson & Kellam, 2021).

That a FDWW without a salary drop can indeed have a powerful positive effect was confirmed by the trial through empirical evaluations of employee feedback and assessments of qualitative surveys, with researchers claiming that productivity stayed the same or improved in most of the workplaces and employees reporting that the shortage of working hours increased their work-life balance (Haraldsson & Kellam, 2021). However, despite the apparent success of the trial, the research design does not allow for a definitive treatment effect, as differences in outcomes cannot be attributed directly to the treatment of reduced working hours. Whereas the data show that working hours have been reduced, there is an over-reliance on opinion data and further, academic research has recognised that benefits of a FDWW are unreasonably positive, concluding that relationships are often oversimplified and that establishing a causal link requires further investigation (T. T. Campbell, 2023). This limitation underscores that while the experiment serves as a paragon for introducing changes in working hours, it principally provides an opportunity to study correlation rather than causation.

Nonetheless, the impact of Iceland's FDWW trial is far-reaching, as at the time of the report's publication in 2021, 86% of Iceland's entire workforce has already moved to a shorter working week or is negotiating shorter working hours with the help of Icelandic's trade unions and their confederations (Haraldsson & Kellam, 2021), potentially setting a desirable precedent for other countries and organisations considering the implementation of a FDWW in the future.

2.4. Research Question and Research Objective

The recognition that future of work is shaped by values and expectations of the new generation makes it necessary to explore how changes in working time regulations are perceived and desired by the workforce. Given that working hours have only been sporadically analysed in relation to happiness - the literature focuses almost exclusively on the income - happiness nexus (Yamashita et al., 2016), and that the relationship of causality that can run both ways remains of debate, the only remaining question of interest, independent of the true question of causality, brings the direction, form, and strength of the relationship to the fore, in order to answer whether there is an optimal number of working

hours that induce the highest happiness amongst employees (Kamerāde et al., 2019), and if so, at what point.

Therefore, from the hypotheses constructed based on above literature review, the research question to examine is whether the FDWW has the potential to provide a solution to greater happiness. The research objective is twofold, aiming (i) at contributing to the greater context of discussion about the relationship of working hours and happiness, and (ii) at conducting an evidence-based policy evaluation by providing insights into the potential impact of the FDWW on employee well-being and analysing the association between working hours and happiness before, during, and after the FDWW trial in Iceland. In addition, an outlook on how a shift to a FDWW can contribute to offering an opportunity to solve issues centring around contemporary problems faced by society and individuals is explored. All in all, by critically analysing the worktime - happiness nexus in the context of Iceland and consequently identifying gaps in the state of research around the shape of the working hours - happiness relationship and concepts of future of work, this thesis aims at highlighting the importance of the Icelandic experiment as a paragon in helping to answer the overarching economic question of labour (dis)utility and its relation to hours worked. Finally, this thesis seeks to draw attention to the need to consider other factors beyond working hours in promoting happiness in the workplace, and to inform discussions about the efficacy of FDWW trials.

3. Data and Methodology

The present thesis employs an OLS regression analysis in order to rigorously examine and identify the association between reduced working hours and happiness in Iceland's FDWW experiment. Given the theoretical background established, the following subchapters detail the data source for this analysis and the utility theory-based analytical framework employed to examine this relationship.

3.1. The European Social Survey Dataset and (Transformation of) Variables

The analysis of the worktime - happiness nexus conducted in this thesis is based on data from the ESS, a biennial academically cross-national survey that has set a particular focus on collecting responses on social indicators across Europe since 2001 (ESS, 2024a). The ESS employs a rigorous, robust sampling strategy to ensure accurate and representative data for all individuals aged 15 and over within each participating country. Therefore, the sampling designs includes both single-stage sampling in urban areas and multi-stage sampling in rural areas to address geographic and demographic complexities. Additionally, preferred sampling frames include population registers, allowing for equal-probability sampling, supplemented by lists of addresses or area sampling when registers are unavailable. Furthermore, data collection in the ESS is conducted through face-to-face computer assisted personal interviewing interviews, ensuring high-quality data acquisition (ESS, 2024c). Consequently, these methodologies collectively ensure consistent data collection, affirming the ESS as a reliable source for this research on the impact of working hours on happiness.

The thesis uses repeated pooled cross-sectional data from Iceland, sourced from the ESS website (ESS, 2024b) in the available years 2004, 2012, 2016, 2018, and 2020, capturing periods before, during, and after Iceland's FDWW trial to analyse changes in public perceptions and behaviours across these periods. Therefore, the analysis leverages a happiness scale from 0 to 10 as the dependent variable, based on the happiness question that reads: *"Taking all things together, how happy would you say you are?"*, with employees' total hours normally worked per week in their main job as the independent variable. Additional control variables that are relevant socio-demographic and socio-economic characteristics as established by literature include income, gender, age, marital status, religion, health, education, and belonging to an ethnic minority, which are documented alongside survey questions and indicator descriptions in Table 1.

Moreover, certain variables are transformed and adjusted: First, household income is equivalised according to the OECD Modified Scale which considers household size and composition - assigning a value of 1 to the household head, of 0.5 to each additional adult member, and of 0.3 to each child (OECD, 2009). To accurately apply this scale, midpoints from each income band based on the income categories shown to respondents are used (Kuhn, 2019), approximating household income in Euros (see Appendix A, p. 74). This procedure allows to create an income variable that considers the specific needs of each household member and takes into account economies of scale in consumption, enabling a fair cross-sample comparison of living standards (OECD, 2009). Further, to address skewed income distributions and the diminishing marginal utility of income as levels rise (Easterlin, 1974; Stevenson & Wolfers, 2013), the equivalised household income is log-transformed to achieve a normal distribution of the data, essential for statistical accuracy (Frey & Stutzer, 2002). The final analysis ultimately employs only the log-transformed income due to its high intercorrelation found (see Table 3). Second, for the variable weekly working hours, answers above 80 hours per week are considered implausible and set as missing due to Icelandic law limiting employees to working 162.5 hours per month, that is, 40.6 hours per week (VR stéttarfélag, n.d.), and even considering overtime and self-employed workers not bound by law, responses above 80 hours per week appear unrealistic. A further analysis of the distribution and effects of working hours shows few answers exceeding this threshold, and including or excluding these observations does not significantly alter the results, confirming the decision taken. In addition, the dataset includes two distinct variables for working hours, namely total contracted hours excluding overtime and total hours including overtime. A comparison of models and post-estimation marginal effects for each variable helps in determining which variable better represents the data, with the overtime-inclusive variable ultimately being

Table 1: Variables Used for Regression Analysis, Their Scales, and Definition

DESCRIPTION OF VARIABLES

Variables	Scale	Survey Question / Definition
Dependent Variable		
Happiness (happy)	0-10 0 = Extremely Unhappy; 10 = Extremely Happy	Taking all things together, how happy would you say you are?
Independent Variables		
Weekly Working Hours incl. Overtime (work_hours_ot)	[0 ; 80]	Regardless of your basic or contracted hours, how many hours do/did you normally work a week (in your main job), including any paid or unpaid overtime?
Squared Weekly Working Hours incl. Overtime (work_hours_ot_squared)	[0 ; 6,400]	Squared total contracted hours per week in main job, overtime included
Weekly Working Hours incl. Overtime in Categories (hours_category)	[0 ; 5] 0 = Hours 0 ; 1 = Hours 1-30 ; 2 = Hours 31-40 ; 3 = Hours 41-50 ; 4 = Hours 51 - 60 ; 5 = Hours 60+	Weekly working hours per week in main job, overtime included, split in categories
Age (age)	[21 ; 67]	Age of respondent, calculated
Squared Age (age_squared)	[441 ; 4,489]	Squared age of respondent, calculated
General Health (health)	[1 ; 5] 1 = Very good ; 2 = Good ; 3 = Fair ; 4 = Bad ; 5 = Very bad	How is your health in general? Would you say it is . . .
Education (educ)	[1 ; 8] 1 = Less than lower secondary ; 2 = Lower secondary ; 3 = Lower tier upper secondary ; 4 = Upper tier upper secondary ; 5 = Advanced vocational ; 6 = Lower tertiary (BA level) ; 7 = Higher tertiary (> MA level) ; 8 = None of the above or other	Highest level of education, ES - ISCED?
Equivalised Household Income in € per Month (equiv_hhinc)	[25 ; 6,125]	Using this card, if you add up the income from all sources, which letter describes your household's total net income? If you don't know the exact figure, please give an estimate. Use the part of the card that you know best: weekly, monthly or annual income (see Appendix A).
Logarithm of Equivalised Household Income in € per Month (log_equiv_hhinc)	[3.22 ; 8.72]	Logarithm of Equivalised Household Income
Belonging to Ethnic Minority (eth_minority)	[0 ; 1] 0 = No ; 1 = Yes	Do you belong to a minority ethnic group in [country]?
Religion (religious)	[0 ; 1] 0 = No ; 1= Yes	Do you consider yourself as belonging to any particular religion or denomination?
Marital Status (marstat)	[1 ; 6] 1 = Married ; 2 = In a partnership ; 3 = Separated ; 4 = Divorced ; 5 = Widowed ; 6 = Never married or similar	This question is about your legal marital status not about who you may or may not be living with. Which one of the descriptions on this card describes your legal marital status now?
Gender (gender)	[0 ; 1] 0 = Female ; 1 = Male	Respondent's Gender
Occupation (occup8)	[1 ; 8] 1 = Self-employed professionals and large employers ; 2 = Small business owners ; 3 = Technical (semi-)professionals ; 4 = Production workers ; 5 = (Associate) managers ; 6 = Clerks ; 7 = Socio-cultural (semi-)professionals ; 8 = Service workers	What is/was the name or title of your main job? In your main job, what kind of work do/did you do most of the time?

selected for further analysis, as it more accurately captures the actual working hours of the respondents by taking into account the overtime they have worked. This decision is validated in Appendix B (p. 75). Third, the analysis focuses on adults of working age, restricting the age range to 21 to 67, the mandatory retirement age in Iceland, thereby ensuring that only individuals likely fully integrated into the labour force are included and those nearing retirement or still in education are excluded. Furthermore, the occupation variable is refined using the Oesh-class schema (Oesch,

Table 2: Summary Statistics of the Data Sample

SUMMARY STATISTICS

Summary Statistics

Variables	Overall			Women			Men		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Happiness (happy)	3,935	8.22	1.44	2,011	8.27	1.39	1,924	8.16	1.5
Weekly Working Hours incl. Overtime (work_hours_ot)	3,574	40.73	14.17	1,842	36.49	13.31	1,732	45.25	13.65
Squared Weekly Working Hours incl. Overtime (work_hours_ot_squared)	3,574	1,859.99	1,120.03	1 842	1,508.90	941.97	1,732	2,233.38	1,172.60
Weekly Working Hours incl. Overtime in Categories (hours_category)	3,960	2.73	1.26	2,022	2.40	1.22	1,938	3.08	1.20
Age (age)	2,970	44.75	13.15	1,527	44.93	13.05	1,443	44.57	13.26
Squared Age (age_squared)	2,970	2,175.64	1,171.74	1,527	2,188.56	1,163.57	1,443	2,161.98	1,180.56
General Health (health)	3,948	1.93	0.88	2,017	1.96	0.90	1,931	1.89	0.86
Education (edu)	3,876	4.23	1.92	1,983	4.34	2.00	1,893	4.12	1.82
Equivalised Household Income in € per Month (equiv_hhinc)	3,552	1,145.10	1,011.18	1,796	1,093.93	978.23	1,756	1,197.43	1,041.5
Logarithm of Equivalised Household Income in € per Month (log_equiv_hhinc)	3,552	6.56	1.14	1,796	6.50	1.16	1,756	6.62	1.12
Belonging to Ethnic Minority (eth_minority)	3,009	0.03	0.17	1,525	0.03	0.17	1,484	0.03	0.17
Religion (religious)	3,935	0.46	0.50	2,007	0.50	0.50	1,928	0.41	0.49
Marital Status (marstat)	2,322	4.75	1.82	1,190	4.73	1.77	1,132	4.77	1.86
Occupation (occup8)	3,844	5.23	2.20	1,969	5.90	2.04	1,875	4.53	2.14

N = Sample Size
SD = Standard Deviation

2006) to condense 594 categories into an 8-class schema that indicates social classes, aiding in exploring how positions within the employment structure influence happiness. Last but not least, the inclusion of squared terms for age and working hours allow for non-linear effects on happiness, such as (inverse) U-shaped relationships as noted in the literature (Blanchflower & Oswald, 2004; Meier & Stutzer, 2004; Rätzel, 2012). Finally, where deemed appropriate (such as for ethnicity, gender, and religion), variables are re-coded to accurately model a binary variable with outcomes that take on only values of 0 and 1. The final sample for estimation therefore includes 15 variables with observations on a total of 3,975 individuals surveyed captured by the data.

Descriptive statistics from Table 2 offer initial insights into the Iceland sample data, segmented by gender. The data show an equal distribution of men and women with an overall mean age of around 45 years, reporting good health, an average happiness score of 8.22, and about 41 weekly working hours, including overtime. Notably, women work considerably less than their male counterparts (36.49 hours versus 45.25 hours) and earn less monthly (€1,093 versus €1,197), yet they report higher happiness scores (8.27 versus 8.16). This discrepancy in working hours may stem from the fact that women often take on lower-paying part-time jobs or exit the labour market completely (Chung & van der Horst, 2018; Vlasblom & Schippers, 2006), a trend linked to excessive spousal working hours in dual-earner households where men's careers are prioritised, thus limiting women's ability to maximise their potential in the labour market (Cha & Weeden, 2014).

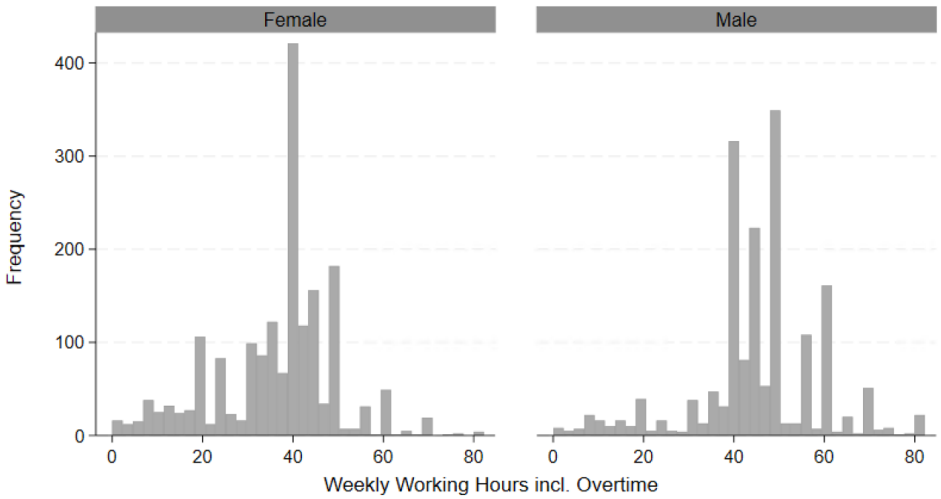

Figure 1: Distribution of Weekly Working Hours by Gender

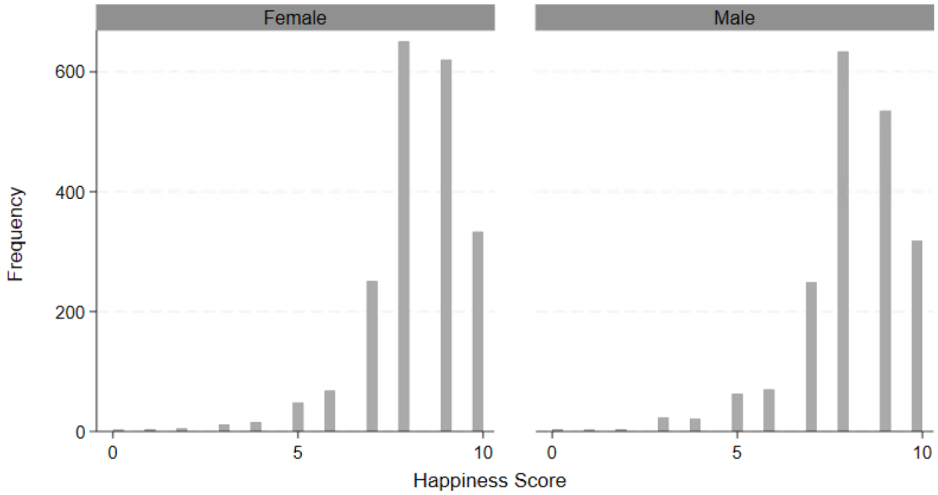

Figure 2: Distribution of Happiness Scores by Gender

Table 3: Key Variables With Over 1% of Values Missing

SUMMARY STATISTICS

Key Variables With Over 1% of Values Missing

Variables	**Values Missing (/ 3,975)**	**Percentage of Values Missing**
Marital Status (marstat)	1,642	41.31%
[Squared] Age [squared_age] (age)	988	24.86%
Belonging to Ethnic Minority (eth_minority)	954	24.00%
[Logarithm of] Equivalised Household Income in € per Month [log_equiv_hhinc] (equiv_hhinc)	414	10.42%
[Squared] Weekly Working Hours incl. Overtime [squared_work_hours_ot] (work_hours_ot)	393	9.89%
Occupation (occup8)	120	3.02%
Education (edu)	88	2.21%

Furthermore, Figure 1 illustrates the frequency of working hours by gender, highlighting the remarks made above: The majority of women work in jobs with lower weekly working hours, with most women working a full-time working week of 40 hours, while their male counterparts tend to work longer hours, with frequencies peaking between 40 and 60 hours.

Additionally, Figure 2 shows the distribution of happiness scores in Iceland by gender, demonstrating relative frequencies in the lower extremes (0 = Extremely unhappy) to be very scarce, while happiness scores lean towards the upper end (10 = Extremely happy) for both genders. This reflects Iceland's status as one of the happiest countries worldwide, emphasising its unique position in maintaining high happiness levels even amongst socio-economically disadvantaged groups (Gudmundsdóttir et al., 2016).

Finally, Table 3 displays variables with significant missing values in the dataset, potentially impacting their explanatory power. Due to a high percentage of missing values and its statistical insignificance (see Appendix B, p. 75), the marital status variable is excluded from the final regression analysis. Similarly, the variable indicating belonging to an ethnic minority, which lacks data for the latest survey wave (2020), is also excluded to maintain consistency across all years.

3.2. From Utility Theory to the Analytical Framework for Survey Data Analysis

Utility theory in neoclassical economics utilises the utility concept to interpret individual preferences and decision-making processes, positing that individuals aim to maximise their utility (Fishburn, 1968), defined as satisfaction or well-being. According to this theory, an individual's utility function is denoted as:

$$U = U(Y, L) \tag{1}$$

, depending on income Y, a product of working time H, and the wage rate w, often also called consumption C (Rätzel, 2012), and an individual's leisure time L which is the non-working time within total available time T (Rätzel, 2012), so that:

$$L = T - H \tag{2}$$

Both Y and L enter the utility function positively, subject to diminishing marginal returns with negative second derivatives, hence assuming:

$$U_Y > 0;\ U_L > 0;\ U_{YY} < 0;\ U_{LL} < 0 \tag{3}$$

Literature around SWB, for the most part, models reported SWB r as a function of actual SWB h, with responses typically tied to life satisfaction or happiness (Dolan et al., 2008):

$$SWB = r(h) \tag{4}$$

The utility (1) and SWB (4) function can be combined in a model where SWB is a function of working hours, income, and a vector $\mathbf{X}$ of socio-demographic and socio-economic characteristics affecting happiness, therefore taking on the form of:

$$SWB = f(H, Y, \mathbf{X}) \tag{5}$$

Lastly, in order to conduct an empirical analysis, (5) is modelled as an additive function that can be estimated via OLS, namely:

$$h = \alpha + \beta_1 * H + \beta_2 * H^2 + \beta_3 * Y + \beta_4 * \mathbf{X} + \varepsilon \tag{6}$$

that has happiness h as a dependent variable, reported in ordered categories, further includes a combination of linear and quadratic terms in hours worked H to allow for potential non-linear effects on happiness, income Y, and a vector X of demographic and household characteristics, namely gender, age (squared), health, education, religion, and occupation. Finally, the error term ε accounts for other unobserved individual differences.

After initial descriptive and correlational analysis, an OLS regression explores the association of working hours with happiness, chosen as literature allows for happiness responses to be treated as cardinal measures where the differences in response levels are consistent across the scale (Dolan et al., 2008). Additionally, findings show that OLS outcomes are comparable to those from multinomial or ordered logit models (Blanchflower & Oswald, 2011; Ferrer-i-Carbonell & Frijters, 2004), simplifying the interpretation of regression coefficients to detect the effect of a one unit change in working hours on the scale of reported happiness levels. In order to dive deeper into the working hours - happiness nexus, two separate measures of working hours are employed, first, a continuous measure, and second, working hours are split into six brackets. Thereupon, the analysis first assesses the raw relationship between working hours and happiness, then uses sequential estimation to assess coefficient robustness against control variables, particularly gender and occupational differences. Additionally, post-estimation marginal effects are evaluated to predict the benefits of reduced working, and for the purpose of testing adequacy of variables for modelling happiness and their joint significance, a Wald Test is carried out at a significance level of 5%, facilitating an exploration of the extent to which the data substantiate the proposed hypotheses.

A robustness check is performed by using the same variables and procedures on the ESS dataset from France, chosen because of its comparable significant reform to Iceland's FDWW experiment. In the year 2000, under Jacques Chirac's presidency (1995-2007), prime minister Lionel Jospin reduced the workweek from 40 to 35 hours without reducing

workers' pay, aiming to recover from a national recession and boost job creation (Ashta, 2000). Ultimately, this reform enhanced employee's well-being and work-life balance (Hayden, 2006), making France a suitable comparison for validating the empirical results.

Finally, the unique nature of the ESS dataset necessitates using the correct estimation procedure that considers weighting, clustering, and stratification when analysing survey data. The *svyset* function in Stata is employed to declare the survey design, incorporating primary sampling units (psu) for cluster sampling, stratification (stratum) to handle representativeness of different population groups, and weights (constructed from the design weight with post-stratification and population size adjustments) to balance selection probabilities and address non-response (Kaminska & Lynn, 2017). This methodological consideration is crucial for upholding the validity and reliability of the conclusions drawn from the ESS data, as it helps mitigate issues like coverage, sample attrition, and non-response errors, ensuring that the analysis produces representative and unbiased estimates (ESS, 2024d). Chapter 4 explores the results of this analysis.

4. Results

In order to get a first idea of how the variables and especially weekly working hours are related to happiness, a weighted Pearson's pairwise correlations test is run. There is a very small positive correlation between happiness and weekly working hours (squared), $r(3,565) = 0.021$ (0.016), $p > 0.05$, with working hours explaining 0.04 (0.03)% of the variation in happiness scores. Weighted pairwise correlations are also reported for all other variables (see Appendix C, p. 79). The table reveals (i) most variables as significantly correlated at the 5% level, and (ii), all variables including working hours and squared working hours to be positively correlated with happiness, except for gender, health, and occupation that exhibit a negative correlation with happiness.

Below descriptive statistics and estimated regression models will give more insights into the suggested positively related relationship of working hours and happiness, any potential non-linearities, and their association within the FDWW experiment.

4.1. Non-Linear Relationship Test

To begin with, simple descriptive statistics across genders in Table 4 portray neither a negative nor an inverse U-shaped relationship between working hours and happiness. Instead, weekly working hours seem to be positively related to happiness up until 60 hours of weekly working time, after which each additional hour of work is linked to decreased happiness. Most employed Icelanders work 41-50 hours weekly, with women typically working less than 40 hours, while men are featured in the category of excessive working hours (60+). In particular, women's average happiness is highest in jobs working less than 40 hours, whereas men only reach their highest average happiness in jobs working more than 40 hours. Further, women's average happiness stays relatively constant when working between 1 and 60 hours a week, and decreases when working 60+ hours. For men, an important exception to their average happiness is observed in jobs with very low weekly working hours (1-30 hours), illustrating their aversion towards part-time jobs or jobs with low working hours. Lastly, the results on happiness scores allow consideration of the non-working population which is recorded at zero weekly working hours. Indeed, women report a much higher happiness score at zero working hours than men, findings that can be mainly attributed to traditional gender roles, in which women staying at home are considered as housewives, while for men not being at work represents unemployment (Rudolf, 2013).

Table 5 presents the regression results from OLS testing where model 1 treats weekly working hours as a linear, categorical variable and model 2 introduces a squared term to explore non-linear effects. It appears that longer weekly working hours are generally associated with a higher level of happiness, precisely, a 0.012 point increase on the ten-point happiness scale per additional hour worked, although the quadratic term's negligible diminishing rate and insignificant coefficients suggest minor impact. Furthermore, model 7 highlights income as a significant factor, with the impact of working hours dropping to a third in size when controlled for. At first glance these findings therefore appear to contrast previous findings of a negative or inverse U-shaped relationship, making it of interest to delve further into the worktime - happiness relationship. Model 3 does this by breaking out weekly hours into six brackets, relative to being unemployed (0 hours), revealing all effects to be statistically significant at $p < 0.05$ and all working-hour brackets to exhibit a negative relationship with happiness. Effects are the most negative at the margins (1-30 hours and 60+ hours) and become the least negative in the 41-50 hour bracket, thereby indicating an inverse U-shaped relationship where working longer or shorter than a standard workweek is associated with increased diminishing worker happiness. Figure 3 visually illustrates this relationship in a boxplot. Adding controls (models 4 to 6), however, seems to undo this effect, as all worktime coefficients lose their statistical significance at the conventional levels, change signs to being positive, and are notably smaller in size. In particular, increased happiness scores are observed with increasing weekly working hours, that is, the highest happiness is achieved when working an additional hour in the 50-60 and 60 + hours bracket, holding all other factors constant (respectively, an increase of 0.191 and 0.140 points on the ten-point happiness scale). Nonetheless, despite the generally positive association of working hours, the effects are very small and therefore results can only be evaluated very close to zero, indicating that the effects are not to a degree that is large enough for a significant change in working hours to have a detectable effect on happiness scores once people are employed.

Table 4: Average Happiness by Weekly Working Hours and Gender

DESCRIPTIVE STATISTICS

Average Happiness by Weekly Working Hours and Gender

	Overall		**Women**		**Men**	
	N [%]	Average Happiness	N [%]	Average Happiness	N [%]	Average Happiness
Hours 0	9 [0.23%]	9	7 [0.18%]	9.14	2 [0.05%]	8.50
Hours 1-30	717 [18.11%]	8.18	518 [13.08%]	8.29	199 [5.03%]	7.88
Hours 31-40	1,076 [27.17%]	8.19	685 [17.30%]	8.29	391 [9.87%]	8.02
Hours 41-50	1,226 [30.96%]	8.28	504 [12.73%]	8.25	722 [18.23%]	8.30
Hours 51-60	396 [10.00%]	8.29	95 [2.40%]	8.28	301 [7.60%]	8.30
Hours 60+	536 [13.53%]	8.13	213 [5.38%]	8.20	323 [8.15%]	8.08
Total	3,960 [100%]	8.22	2,022 [51.06%]	8.27	1,938 [48.94%]	8.16

N = Sample Size
Happiness Scale: 0-10 with 0 = "Extremely Unhappy" and 10 = "Extremely Happy"
% from overall total in brackets

Table 5: Regression Output - Effect of Weekly Working Hours on Happiness

REGRESSION OUTPUT

Survey Data Regression Output

	Strata with single sampling unit treated as certainty units								
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Happiness (happy)								
Weekly Working Hours incl. Overtime (work_hours_ot)	0.003 (0.002)	0.012 (0.008)					0.004 (0.008)	0.000 (0.008)	0.001 (0.009)
Squared Weekly Working Hours incl. Overtime (work_hours_ot_squared)		-0.000 (0.000)					-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Weekly Working Hours incl. Overtime in Categories (hours_category) *Hours 0*									
Hours 1-30			-0.963*** (0.319)	-0.824** (0.374)	-0.789* (0.408)	0.017 (0.227)			
Hours 31-40			-0.811** (0.321)	-0.692* (0.375)	-0.700* (0.409)	0.078 (0.216)			
Hours 41-50			-0.736** (0.317)	-0.724* (0.373)	-0.719* (0.408)	0.080 (0.221)			
Hours 51-60			-0.749** (0.326)	-0.672* (0.380)	-0.670 (0.414)	0.191 (0.235)			
Hours 60+			-0.924*** (0.325)	-0.787** (0.380)	-0.751* (0.414)	0.140 (0.237)			
Logarithm of Equivalised Household Income in € per Month (log_equiv_hhinc)				0.227*** (0.029)	0.205*** (0.030)	0.189*** (0.031)	0.227*** (0.030)	0.199*** (0.031)	0.171*** (0.032)
Occupation (occup8) *Self-Employed Professionals and Large Employers*									

Table 5 — continued

Small Business Owners					-0.267*	-0.396***		-0.257*	-0.363**
					(0.137)	(0.137)		(0.141)	(0.142)
Technical (Semi-)Professionals					-0.129	-0.189		-0.116	-0.147
					(0.134)	(0.130)		(0.135)	(0.131)
Production Workers					-0.438***	-0.411***		-0.413***	-0.339**
					(0.142)	(0.150)		(0.144)	(0.151)
(Associate) Managers					-0.099	-0.237**		-0.073	-0.221*
					(0.122)	(0.119)		(0.121)	(0.120)
Clerks					-0.377**	-0.355**		-0.388**	-0.329**
					(0.167)	(0.157)		(0.172)	(0.161)
Socio-Cultural (Semi-)Professionals					-0.134	-0.243**		-0.113	-0.217*
					(0.121)	(0.119)		(0.121)	(0.122)
Service Workers					-0.288**	-0.269**		-0.294**	-0.205
					(0.127)	(0.129)		(0.127)	(0.131)
Gender (gender) *Female Male*						-0.209***			-0.232***
						(0.066)			(0.069)
Age (age)						0.005			0.007
						(0.157)			(0.016)
Squared Age (age_squared)						0.000			0.000
						(0.000)			(0.000)
General Health (health) *Very Good*									
Good						-0.386***			-0.380***
						(0.050)			(0.508)
Fair						-1.085***			-1.108***
						(0.100)			(0.108)
Bad						-1.635***			-1.675***
						(0.250)			(0.262)
Very Bad						-2.77***			-3.149***
						(0.709)			(0.725)
Education (edu) *Less Than Lower Secondary*									
Lower Secondary						-0.009			-0.005
						(0.473)			(0.485)
Lower Tier Upper Secondary						0.130			0.040
						(0.475)			(0.487)
Upper Tier Upper Secondary						-0.064			-0.069
						(0.476)			(0.489)
Advanced Vocational						-0.114			-0.152
						(0.474)			(0.484)
Lower Tertiary (BA Level)						-0.069			-0.075
						(0.472)			(0.483)
Higher Tertiary (> MA Level)						-0.269			-0.245
						(0.473)			(0.485)
None of the Above or Other						0.890			0.675
						(0.585)			(0.671)
Religion (religious) *No Yes*						0.204***			0.171***
						(0.058)			(0.060)
_cons	7.999***	7.871***	8.951***	7.410***	7.782***	7.321***		7.058***	7.331***
	(0.096)	(0.149)	(0.315)	(0.415)	(0.460)	(0.643)		(0.268)	(0.631)
Observations	3,085	3,085	3,383	3,065	3,023	2,305	2,838	2,814	2,179
R-Squared	0.001	0.002	0.004	0.033	0.040	0.178	0.031	0.038	0.180
Prob > F	0.135	0.161	0.007	0.000	0.000	0.000	0.000	0.000	0.000

Robust Standard Errors in Parantheses
P > |t| = Result of the Two-Tailed t-Test
Significance Levels: * p < 0.1 ; ** p < 0.05 ; *** p < 0.01

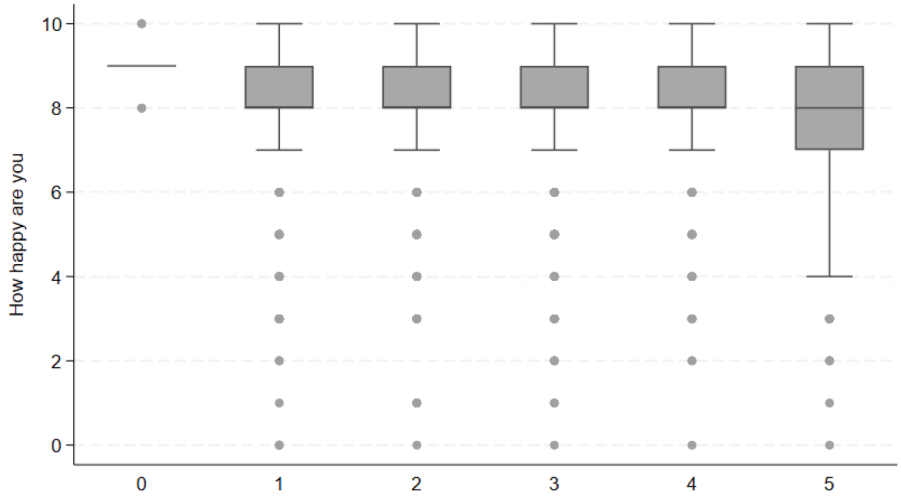

Figure 3: Relationship Between Weekly Working Hours Categories and Happiness

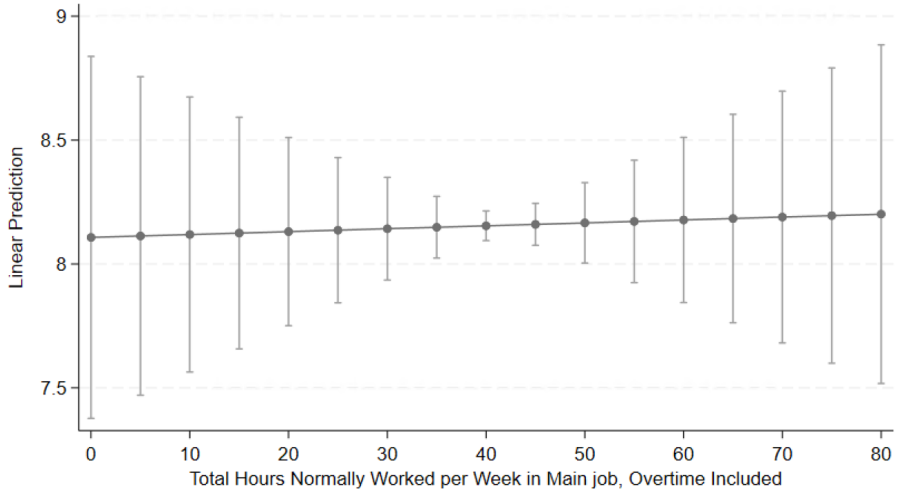

Figure 4: Predictive Margins of Continuous Working Hours With 95% Confidence Intervals

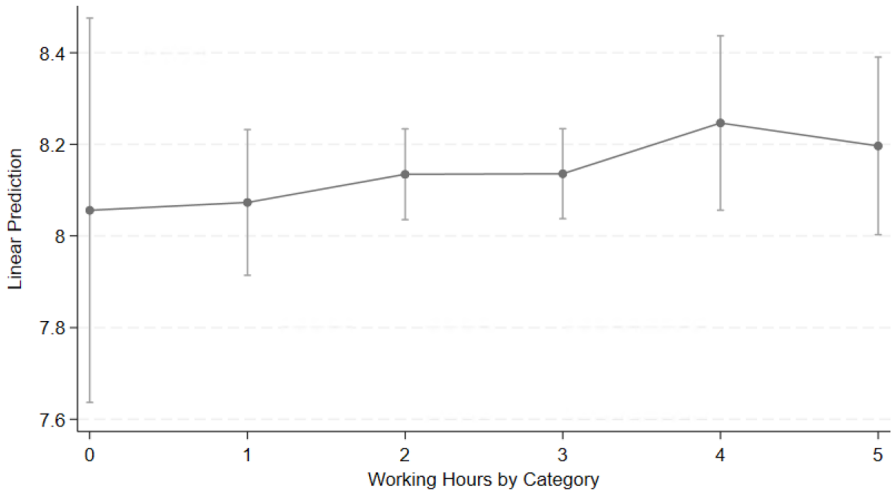

Figure 5: Predictive Margins of Working Hours by Category With 95% Confidence Intervals

Last but not least, being a man and in poorer health are linked to reduced happiness scores, whereas religiousness enhances it, all statistically significant at $p < 0.01$. Finally, employment in upper-middle-class jobs, the baseline of the occupation variable, correlates with the highest happiness, contrasting with lower happiness in the working class (production workers) and lower-middle and salaried class roles. Especially, accounting for occupations reveals a diminished link between happiness, implying that income's positive effect on happiness is more pronounced across different occupations than within them.

Figure 3 illustrates the relationship between categories of weekly working hours and happiness as described by model 3 above, suggesting the extremes of the working hours spectrum (very low and very high hours) to be significantly associated with lower happiness, indicating an inverse U-shaped relationship, while the mean happiness over other categories (especially in category 2 and 3) remains stable.

Furthermore, margins estimation shows minimal variation in predicted happiness scores with increases in working hours once other factors are controlled for, especially between the 30- and 40-hour marks (Figure 4) and across the second and third working hour categories (Figure 5), ranges typically corresponding to the scope of a FDWW experiment. The flat trend suggests that weekly working hours alone do not significantly impact predicted happiness, indicating that other factors may play a more decisive role in shaping the overall happiness of the Icelandic workforce.

The literature establishes happiness factors to differ by gender (Alesina et al., 2004; Louis & Zhao, 2002), prompting separate model estimations for men and women, detailed in Appendix D, page 80. Results indicate a positive effect of weekly working hours on men's happiness and a negative effect for women, though neither is statistically significant. Specifically, men's slight positive coefficient in happiness is driven entirely by the 1-30 hours working bracket, where each additional hour lowers happiness by 0.145 points on the ten-point happiness scale, highlighting men's preference for full-time work over part-time or unemployment, possibly due to the negative stigma of underemployment, and suggesting that men's part-time work is due to involuntary underemployment rather than a choice (Rudolf, 2013). Conversely, income appears to play a greater role for women. Nevertheless, similar to the complete model, these estimations are also very close to zero, hence this regression output also reveals that the estimated effects of weekly working hours for both genders are not large enough so that once employed a significant change in working hours can be detected.

Finally, as the FDWW experiment has mainly targeted public sectors, breaking out the hours - happiness relationship by the eight major occupational classifications allows to shed more light on nuances in this relationship. Appendix E, p. 82 reveals that with the exception of small business owners and technical (semi-) professionals, working and lower-middle class workers generally show a negative relationship between working hours and happiness, whereas workers in the salaried middle and traditional upper-middle classes display a positive relationship, suggesting that higher occupational classes find more fulfilment in increased working hours. Additionally, income matters differently and more for certain occupations, being more pronounced in less skilled or educational roles (as also highlighted by Golden and Okulicz-Kozaryn, 2015), evident from the higher income coefficient for clerks compared to professionals or managers. Yet, like previous findings, these evaluations are very close to zero and working-hour results are statistically insignificant at the conventional levels, implying no detectable effect in the worktime - happiness nexus when differentiating between occupations.

4.2. Results in the Context of the Four-Day Working Week

After focusing on general results, this section turns towards the FDWW in the Icelandic context, conducting an evaluation of evidence based for policy with the state and quality of data that is available.

By taking a closer look at the average happiness reported before, during, and after the FDWW experiment, it can be detailed how the distribution of working hours and happiness scores has shifted for women and men. Table 6 shows that during the experiment, overall, there are 5% more people working lower hours (31-40 hours), however, with a lower happiness score as well. For women, especially, a shift from not working at all (0 hours), working part-time (1-30 hours), and working 60+ hours towards working full-time hours (31-50 hours) is observable, with the happiness score fluctuating depending on the working hours category, but decreasing overall. For men, the same pattern applies, that is, the share of working 31-50 hours per week increases by around 4% for both gender groups, while the happiness score decreases. After the FDWW experiment, this trend continues, with, overall, more people working full-time (31-50 hours) and fewer working excessive hours (60+ hours) than before the experiment. Nonetheless, a consistently decreasing happiness score is reported over the years, making it of importance to analyse whether the low happiness scores can really be attributed to (reduced) working hours, or rather to other factors.

An OLS regression is run on the data from before, during, and after the FDWW trial to thoroughly evaluate the experiment, however, as the data is not correlated with the treatment, a true before-after evaluation cannot be made, necessitating cautious assessment of results (more about this limitation is discussed in chapter 5.1). Regression results in Table 7 provide information about the worktime - happiness relationship, indicating the worktime coefficients to be statistically insignificant at all conventional levels, as well as positive before and after, and negative during the trial, implying that with the trial, any additional hour of work was perceived as more stressful due to disruptions in usual work routines, increased workload, or poor implementation of the policy. However, this effect is so small that it should be neglected, the results rather underline again that the coefficients of working hours have no detectable effect on happiness in the periods

Table 6: Average Happiness by Weekly Working Hours and Gender - FDWW Experiment

DESCRIPTIVE STATISTICS

Average Happiness by Weekly Working Hours and Gender Before, During, and After the FDWW Experiment

	Overall					
	Before		During		After	
	N [%]	Average Happiness	N [%]	Average Happiness	N [%]	Average Happiness
Hours 0	5 [0.38%]	9.20	4 [0.23%]	8.75	–	–
Hours 1-30	259 [19.59%]	8.34	310 [17.87%]	8.10	148 [16.40%]	8.05
Hours 31-40	295 [22.32%]	8.28	480 [27.67%]	8.19	301 [33.33%]	8.13
Hours 41-50	397 [30.03%]	8.39	571 [32.91%]	8.25	258 [28.57%]	8.16
Hours 51-60	139 [10.51%]	8.37	184 [10.60%]	8.35	73 [8.08%]	8.01
Hours 60+	227 [17.17%]	8.22	186 [10.72%]	8.16	123 [13.62%]	7.92
Total	1,322 [100%]	8.33	1,735 [100%]	8.21	903 [100%]	8.09

	Women					
	Before		During		After	
	N [%]	Average Happiness	N [%]	Average Happiness	N [%]	Average Happiness
Hours 0	4 [0.30%]	9.25	3 [0.17%]	9.00	–	–
Hours 1-30	196 [14.83%]	8.48	217 [12.51%]	8.18	105 [11.64%]	8.15
Hours 31-40	202 [15.28%]	8.33	295 [17.00%]	8.34	188 [20.82%]	8.18
Hours 41-50	154 [11.65%]	8.41	240 [13.83%]	8.29	110 [12.18%]	7.92
Hours 51-60	29 [2.19%]	8.10	44 [2.53%]	8.34	22 [2.43%]	8.41
Hours 60+	89 [6.73%]	8.40	81 [4.67%]	8.25	43 [4.76%]	7.71
Total	674 [50.98%]	8.40	880 [50.72%]	8.28	468 [51.83%]	8.08

N = Sample Size
Happiness Scale: 0-10 with 0 = "Extremely Unhappy" and 10 = "Extremely Happy"
Before = Years 2004, 2012 ; During = Years 2016, 2018 ; After = Year 2020
% from overall total in brackets

evaluated and the FDWW thus does not seem to have significantly affected overall happiness of employees in Iceland.

A proposed FDWW experiment should aim to provide at least some correlational evidence to validate its effectiveness and implementation, and while there is evidence from the descriptive statistics that those working extreme hours (60+) may experience higher happiness scores when transitioning to fewer working hours, there is no evidence that the FDWW

Table 6 — continued

	Men					
	Before		During		After	
	N [%]	Average Happiness	N [%]	Average Happiness	N [%]	Average Happiness
Hours 0	1 [0.08%]	9	1 [0.06%]	8	–	–
Hours 1-30	63 [4.76%]	7.90	93 [5.36%]	7.91	43 [4.76%]	7.79
Hours 31-40	93 [7.04%]	8.17	185 [10.67%]	7.93	113 [12.51%]	8.04
Hours 41-50	243 [18.38%]	8.38	331 [19.08%]	8.22	148 [16.39%]	8.34
Hours 51-60	110 [8.32%]	8.44	140 [8.07%]	8.35	51 [5.65%]	7.84
Hours 60+	138 [10.44%]	8.11	105 [6.05%]	8.09	80 [8.86%]	8.03
Total	648 [49.02%]	8.26	855 [49.28%]	8.13	435 [48.17%]	8.09

Table 7: Regression Output - Effect of Weekly Working Hours on Happiness Before, During, and After the FDWW Experiment

REGRESSION OUTPUT

Survey Data Regression Output Before, During, and After the FDWW Experiment

Variables	Strata with single sampling unit treated as certainty units					
	Before		During		After	
	(1)	(2)	(3)	(4)	(5)	(6)
	Happiness (happy)					
Weekly Working Hours incl. Overtime (work_hours_ot)	0.167 (0.017)		-0.011 (0.011)		0.013 (0.021)	
Squared Weekly Working Hours incl. Overtime (work_hours_ot_squared)	-0.000 (0.000)		0.000 (0.000)		-0.000 (0.000)	
Weekly Working Hours incl. Overtime in Categories (hours_category) *Hours 0*						
Hours 1-30		-0.358 (0.340)		0.192 (0.161)		
Hours 31-40		-0.122 (0.303)		0.249 (0.148)		-0.037 (0.192)
Hours 41-50		-0.239 (0.291)		0.229 (0.153)		0.135 (0.198)
Hours 51-60		-0.308 (0.342)		0.511 (0.204)		0.055 (0.293)
Hours 60+		-0.244 (0.359)		0.246 (0.188)		0.234 (0.281)
Logarithm of Equivalised Household Income in € per Month (log_equiv_hhinc)	0.102* (0.586)	0.134** (0.053)	0.238*** (0.050)	0.251*** (0.048)	0.246*** (0.068)	0.236*** (0.067)
Occupation (occup8) *Self-Employed Professionals and Large Employers*						
Small Business Owners	-0.426 (0.327)	-0.370 (0.330)	-0.366* (0.194)	-0.311* (0.181)	-0.212 (0.248)	-0.296 (0.248)
Technical (Semi-)Professionals	-0.382 (0.268)	-0.369 (0.295)	-0.191 (0.180)	-0.140 (0.175)	0.189 (0.175)	0.149 (0.203)

Table 7 — continued

Production Workers	-0.002	-0.035	-0.403**	-0.439**	-0.477**	-0.605**
	(0.363)	(0.358)	(0.200)	(0.195)	(0.206)	(0.240)
(Associate) Managers	-0.342	-0.270	-0.297*	-0.260*	0.071	0.067
	(0.283)	(0.295)	(0.159)	(0.154)	(0.179)	(0.191)
Clerks	-0.412	-0.281	-0.548**	-0.546**	0.099	0.103
	(0.337)	(0.335)	(0.232)	(0.230)	(0.256)	(0.258)
Socio-Cultural (Semi-)Professionals	-0.486*	-0.420	-0.201	-0.172	-0.004	-0.026
	(0.283)	(0.285)	(0.172)	(0.163)	(0.165)	(0.185)
Service Workers	-0.554*	-0.454	-0.160	-0.213	-0.023	-0.030
	(0.293)	(0.300)	(0.182)	(0.176)	(0.167)	(0.195)
Gender (gender) *Female*	-0.498***	-0.445**	-0.252***	-0.250***	-0.039	-0.009
Male	(0.172)	(0.174)	(0.090)	(0.086)	(0.103)	(0.107)
Age (age)	-0.036	-0.029	0.023	0.014	0.023	0.022
	(0.039)	(0.038)	(0.021)	(0.020)	(0.025)	(0.025)
Squared Age (age_squared)	0.001	0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
General Health (health) *Very Good*						
Good	-0.391***	-0.376***	-0.330***	-0.352***	-0.484***	-0.471***
	(0.126)	(0.123)	(0.068)	(0.066)	(0.093)	(0.097)
Fair	-1.152***	-1.204***	-0.969***	-0.936***	-1.384***	-1.339***
	(0.211)	(0.187)	(0.158)	(0.143)	(0.201)	(0.199)
Bad	-2.001***	-1.94***	-1.495***	-1.507***	-1.627***	-1.592***
	(0.609)	(0.625)	(0.366)	(0.317)	(0.397)	(0.457)
Very Bad	-3.587**	-3.530**	-3.279***	-2.385**	-2.518***	-2.464***
	(1.421)	(1.368)	(1.126)	(1.000)	(0.921)	(0.918)
Education (edu) *Less Than Lower Secondary*						
Lower Secondary	-0.314	-0.411	0.186	0.155	0.320	0.269
	(0.731)	(0.738)	(0.574)	(0.577)	(0.458)	(0.502)
Lower Tier Upper Secondary	-0.115	-0.251	0.167	0.051	0.346	0.391
	(0.717)	(0.721)	(0.585)	(0.587)	(0.469)	(0.517)
Upper Tier Upper Secondary	0.067	-0.102	0.126	0.100	0.041	-0.003
	(0.762)	(0.765)	(0.583)	(0.585)	(0.467)	(0.514)
Advanced Vocational	-0.272	-0.335	0.056	0.049	0.039	-0.037
	(0.716)	(0.723)	(0.577)	(0.579)	(0.478)	(0.516)
Lower Tertiary (BA Level)	-0.173	-0.250	0.100	0.018	0.130	0.172
	(0.738)	(0.740)	(0.577)	(0.581)	(0.441)	(0.488)
Higher Tertiary (> MA Level)	-0.023	-0.321	-0.076	-0.160	-0.118	-0.166
	(0.724)	(0.735)	(0.581)	(0.587)	(0.459)	(0.505)
None of the Above or Other			0.810	0.973		
			(0.733)	(0.673)		
Religion (religious) *No*	0.169	0.154	0.154*	0.206***	0.120	0.147
Yes	(0.143)	(0.140)	(0.082)	(0.075)	(0.095)	(0.096)
_cons	8.744***	9.164***	6.649***	6.395***	5.775***	6.189***
	(1.214)	(1.283)	(0.778)	(0.760)	(0.779)	(0.828)
Observations	468	502	1,155	1,218	556	585
R-Squared	0.212	0.209	0.176	0.179	0.231	0.228
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

Robust Standard Errors in Parantheses
P > |t| = Result of the Two-Tailed t-Test
Significance Levels: * p < 0.1 ; ** p < 0.05 ; *** p < 0.01
Before = Years 2004, 2012 ; During = Years 2016, 2018 ; After = Year 2020

universally improves happiness scores across different working hours. To explore this finding further, a two-sample t-test is conducted to compare differences in means between those working 35 hours or less and those working more than 35 hours. These two groups are selected based on the concept of the FDWW, which aims to reduce working hours to less

than a full-time 36-40 hour week, thus allowing the impact of reduced working hours as proposed by the FDWW to be examined. The output of the t-test compares the mean happiness scores between these two groups and reveals that the mean happiness of those working less than 35 hours per week ($M = 8.250$, $SD = 1.471$) compared to those working more than 35 hours ($M = 8.227$, $SD = 1.421$) is not significantly different, $t(3117) = 0.141$, $p = 0.888$ (see Appendix F, p. 85). These results indicate mean happiness scores to be stable and small changes observed in happiness scores during the trial to not be substantial enough to be considered significant, supporting the conclusion that the FDWW does not significantly impact overall happiness and individuals working a potential FDWW are just as happy as those working longer hours.

4.3. Robustness Check

Robustness checks verify the sensitivity of above results to specifications made, ensuring validity and applicability of findings. Firstly, Wald Tests on Icelandic data indicate no significant relationship between working hours and happiness, confirming that the working hours coefficient may not be interpreted as the true causal effect of happiness (see Appendix G, p. 86). Thereby, both hypothesis H_1 and H_2 cannot be confirmed, as neither an inverse U-shaped relationship, nor a shifting association throughout the phases of the FDWW trial is detected. Similarly, no further specifications (gender or occupation) yield a consistent link between working hours and happiness. Furthermore, regressions are estimated using the heteroskedastic-robust version of standard errors to provide unbiased standard error estimates, accounting for the variances in error terms. Finally, a robustness check by testing the model under varying socio-economic and cultural conditions using French data corroborates the methodological soundness of the analysis (see Appendix G, p. 86). Despite cultural and policy differences influencing outcomes, such as the insignificance of religion in France, the foundational models remain valid, highlighting how in another affluent country the influence of working hours on happiness remains similarly non-significant, reinforcing the broader applicability of these findings across economically developed contexts.

5. Discussion

Now that all results are presented, this section delves into a discussion, which, to provide clarity, is organised into three main sections: an evaluation of the methodological approach and data used in the analysis, a discussion of the results, contextualised within the existing literature, and an identification of suggested avenues for future research, concluding with perspectives on the broader implications of this research topic.

5.1. Discussion of the Approach

The methodological approach of this thesis, which employs OLS regressions to analyse ESS data, is pivotal to methodically address the impact of the FDWW in Iceland, leveraging a robust dataset to scrutinise the interplay between working hours and employee happiness. Despite its strengths, this approach is not without limitations that merit consideration.

A critical drawback of above analysis lies in the lack of correlation between the dataset used and the actual treatment applied during the FDWW trial, allowing for no causal interpretation of results, but only an assessment of the direction, form, and strength of the relationship. This disconnection stems primarily from the observational nature of ESS data, which, unlike controlled experimental data, does not establish a causative link between the reduced working hours implemented during the FDWW and subsequent changes in happiness levels. As the ESS dataset does not originate from the controlled experimental setup where participants are randomly assigned to treatment and control groups, it is challenging to attribute observed changes in happiness directly to the FDWW policy implementation, meaning that before-and-after comparisons do not only capture the effects of the policy, but also the influence of other uncontrolled external factors occurring simultaneously.

Furthermore, a significant challenge caused by reverse causality is the potential endogeneity of working hours, a common issue in studies of this nature. Individuals may adjust their working hours in response to their levels of satisfaction, that is, people may allocate more time towards activities they find fulfilling, which means that changes in working hours could be a response to prior dissatisfaction (Rothbard & Edwards, 2003). Consequently, this introduces the challenge of causal relationships explored being biased as workers adjust their hours to enhance personal happiness or alleviate discontent. As the data in this analysis, however, does not allow for any causal inference, this limitation is acknowledged, but does not necessitate changes in the methodological approach undertaken and, additionally, controls are introduced for various factors that might influence both happiness and working hours, such as income and occupation, helping to isolate the effect of working hours from other variables that may confound the results.

Last but not least, the scope of the dataset, primarily encompassing employees from service sectors such as the Reykjavik City Council and Icelandic Government, introduces another limitation. The exclusion of significant economic sectors like manufacturing, construction, or fisheries narrows the generalisability of the findings across Iceland's diverse labour market. This selection bias could skew the results, as the omitted sectors might exhibit different dynamics in the worktime - happiness relationship.

In sum, while the methodological framework of this thesis has limitations inherent to the study of working hours and happiness, their transparent acknowledgement and reporting provides a solid foundation and valuable insights into the association of working hours with happiness, highlighting the need for further research to fully understand and validate the FDWW's impact on workplace happiness.

5.2. Discussion of Results

Central to the discussion of the analysis of working hours and happiness within the Icelandic FDWW trial is whether working hours are a significant determinant of happiness. Results unveil that there is only a minimal effect of working hours on happiness, as once employment is secured, the number of hours worked per week has no effect on happiness, at least not to a degree that it can be detected, thereby rejecting Hypothesis 1. Additionally, the evidence-based assessment of the FDWW trial reveals no significant effect on happiness levels before, during, and after the FDWW, showing that there was a lack of empirical evidence supporting the implementation of the FDWW to begin with, and results indicate that the situation remains unchanged after, that is, the evidence necessary to substantiate the policy's effectiveness in enhancing worker happiness is still lacking. Hypothesis 2 is therefore not supported by the analysis, an outcome not intended by policy makers when introducing a FDWW trial, however, aligning with existing literature that critiques the efficacy of FDWW trials and raises concerns about their foundational assumptions (T. T. Campbell, 2023).

These main results therefore suggest two primary interpretations regarding the non-detectable relationship between working hours and happiness, namely that (i) working hours may not be a substantial determinant of happiness in the context of Iceland, or (ii) there are possibly unobserved factors connected to changes in working hours that may influence happiness scores and are not represented in the model.

The first interpretation seems reasonable in this context, as Iceland provides a unique socio-economic and cultural setting. This includes a strong social welfare system and benefits, such as substantial parental leave, childcare support, and a focus on work-life balance, as well as advanced healthcare policies, low unemployment rates, high standards of living, and a strong community sense that promotes personal fulfilment (Eydal & Gíslason, 2014), which may mitigate the psychological effects of work-related stress differently and better than in other countries and environments. The results from Iceland suggest that merely reducing working hours does not have a substantial direct impact on happiness, which has important implications for labour policies, calling into question the cost-effectiveness of a widespread implementation of FDWW policies. Indeed, while affluent nations may be able to afford the luxury of shorter workweeks without sacrificing economic output, the policy requires a significant allocation of financial resources that could potentially be directed towards other critical sectors. Additionally, with the FDWW trial being limited in scope, covering only 1.3% of Iceland's population, suffering from methodological shortcomings such as lack of data variation that does not allow for treatment effects to be detected, and focusing on reducing weekly hours from 40 to 36 or 35 rather than specifically implementing a four-day week (Kobie, 2021), the interpretation of results is complicated with no evidence available after the analysis that supports the FDWW's efficacy. Consequently, this suggests that the excitement around the FDWW may be more a product of media hype and the agenda of specific advocacy groups rather than a reflection of a legitimate, evidence-based policy shift that universally benefits the workforce. This reasoning is underscored in particular when taking into consideration that the Icelandic trial has been propelled by an Icelandic non-profit organisation, the Association for Sustainability and Democracy, and the UK think tank Autonomy, both of which were not directly involved in the actual trials, raising concerns about potential biases influencing the public and policy narrative (Kobie, 2021), which emphasises the need for a critical assessment of the purported benefits and the legitimacy of the widespread enthusiasm surrounding the FDWW. Furthermore, regarding the theoretical frameworks introduced in chapter 2, these findings have important theoretical implications for standard economic labour supply models. In particular, the disutility of labour theory, which suggests that leisure inherently provides greater utility than labour, is called into question, as the results do not support a straightforward increase in happiness with reduced working hours, thus challenging the traditional view that leisure alone boosts happiness. Therefore, these results highlight the possible need to re-evaluate traditional models that allow for worker well-being to be included in labour supply decisions (Bakker & Demerouti, 2007). While work may carry a disutility at the margins, it can also contribute positively to happiness (Rätzel, 2012), suggesting a dualistic influence that aligns with and integrates both standard neoclassical theory of individual labour supply and emerging research in the field of happiness economics.

The second interpretation suggests that there are unobserved variables not measured by the model that are connected to changes in working hours and could be influencing happiness levels. In particular, job satisfaction and workplace autonomy play a crucial role in Iceland, where job security and favourable working conditions are prevalent (Gallie, 2013), potentially making happiness less dependent on working hours. Additionally, social inclusion, a social safety net, trust, peace, and equality are confounding factors that shift along with working hours and influence happiness in Iceland beyond the quantitative measures of work time (Gudmundsdóttir, 2013). As these factors are not directly measured in this thesis, working hours may therefore not appear to be the primary factor influencing happiness based on the available data. The analysis, however, does find gender, health, religion, and income to be significant determinants of happiness and thereby echoes findings in literature. Namely, (i) women exhibit higher happiness, often attributed to societal and psychological factors such as expectations and social roles that influence self-reported happiness measures (Alesina et al., 2004), (ii) good health is strongly linked to higher happiness levels, possibly due to the direct impact of health on daily functioning and overall happiness (Dolan et al., 2008; Liu et al., 2015), (iii) religion provides strong social support networks and coping mechanisms for dealing with life's challenges, enhancing happiness (Clark & Lelkes, 2006; Frey, 2018), and (iv) income significantly reduces the effect

of working hours on happiness, indicating that the happiness associated with more extended work hours is heavily dependent on the income generated rather than the hours themselves. Here, controlling for income modifies the impact of working hours on happiness, suggesting that financial compensation associated with longer working hours might play a more significant role in influencing happiness than previously acknowledged. Such insights are essential in contexts like Iceland, where the baseline levels of happiness and income are already high (Uchida & Rappleye, 2023), implying that the incremental happiness derived from additional income might be minimal, reflecting diminishing returns on happiness as denoted by Easterlin (Easterlin, 1974; Easterlin & O'Connor, 2020). Additionally, while longer working hours are not found to be direct drivers of increased happiness, happiness may be increased by gains in status attributed to either higher relative income or enhanced prestige within the workplace (Altman, 2005; Frey & Stutzer, 2002), with the accompanying income having the potential to offset potential disutilities of labour.

Furthermore, the broader implications of these findings gain significance, especially in light of Greece's recent move to a six-day work week as of July 1st, 2024 (oikonomia, 2024), which contrasts sharply with the trend towards reducing working hours that has gained prominence until now. Greece's recent extension of the workweek aims at addressing economic efficiency rather than worker well-being directly and the intention to increase productivity by adding a sixth workday with compensation incentives underscores the complexity of balancing work hours with productivity and worker satisfaction in different cultural and economic settings. Having observed a diminished positive impact of longer working hours on happiness when controlling for income is a crucial result as Greece implements higher compensation for additional workdays, potentially offsetting the disutility of labour with financial benefits. This serves as a useful counterpoint to Iceland's approach, emphasising the need for policies to consider influencing happiness not directly through reduced hours but through improved economic stability, and inviting policymakers to consider not only the direct effects of reduced working hours on happiness, but also the broader economic and social contexts in which these policies are implemented.

To conclude, the evaluation of the evidence-based policy highlights that (i) working hours have no significant effect on overall happiness, and (ii) the FDWW does not seem to have significantly affected the happiness scores of employees in Iceland. The juxtaposition of the six-day working week in Greece against the Icelandic FDWW experiment further underlines the complexity of applying a one-size-fits-all solution to labour policies and the necessity of tailoring interventions to specific national contexts. While the FDWW offers a promising avenue for wealthy countries to improve work-life balance, the proposed benefits in terms of increased happiness remain without evidence, calling for more rigorous future research to thoroughly examine the impact of working hours on happiness from a controlled experimental setup.

5.3. Suggestions for Further Research, Potential, and Outlook

Further research opportunities in the field of (reduced) working hours and their impact on happiness emerge from synthesising the gaps identified in existing studies, with some already evident from the limitations outlined previously. Given the scarcity of this research topic and the concurrent increase in interest in the FDWW, there are numerous areas for future studies to explore and analyse more comprehensively that may provide new insights and validate the findings of this thesis.

First, future studies should aim to utilise longitudinal data to better capture the long-term effects of FDWW policies. Panel data would offer more robust insights into whether the initial benefits of reduced working hours are sustained, or if new patterns emerge over time, as the current cross-sectional data fails to account for dynamic changes over time and does not follow the same individual over an extended time frame. Furthermore, there is the need for research that can more directly measure the impact of policy interventions such as the FDWW. Experimental and quasi-experimental designs that specifically target the concept of the FDWW, such as randomised controlled trials, with controlled experimental data can provide clearer causal evidence of the effects of reduced working hours on happiness, helping to eliminate biases and reach more definitive conclusions about the causal relationship. Moreover, as the global workforce continues to evolve, researchers could consider examining the potential of reduced working hours and a shift to a FDWW not only in relation to happiness, but also in addressing contemporary issues such as mental health, gender inequalities, labour shortages, work-life integration, and environmental sustainability, which are pressing concerns faced by individuals and societies. Additionally, studying unobserved variables including job satisfaction or social support at work are crucial elements that need to be integrated into future work, as these could potentially explain why some studies - such as this one - fail to find negative effects of working hours on SWB (Booth & van Ours, 2008; Golden & Wiens-Tuers, 2006; Gray et al., 2004; Willson & Dickerson, 2010). Finally, an overview of current issues offers a broader context and insight into the potential of this research question. The global outlook on working hours has been significantly influenced by the COVID-19 pandemic, which has accelerated shifts towards more flexible and remote working arrangements and prompted many to reconsider traditional work models, highlighting the importance of well-being and work-life balance. However, counter-examples such as the six-day workweek in Greece raise the need for further examination of variations across countries to understand the wider implications and provide a holistic understanding of the FDWW with its benefits and drawbacks.

Overall, future research can build on the findings of this work, and given its scale and global reach, the results of this thesis can enhance the current literature and add to the discourse around the FDWW by providing a foundation for further analysis of the relationship between working hours and

happiness, as well as informing the development of an effective and equitable FDWW labour policy.

6. Conclusion

Taking into consideration what has been said so far, we can draw a conclusion about the research question at hand, that is, whether the FDWW has the potential to provide a solution to greater happiness. Due to increasing interest in work-life balance and the potential benefits of reduced working hours, the FDWW has gained popularity for representing a progressive shift in labour policy aimed at improving employee well-being. However, despite fundamental shifts in how society views the balance between work and well-being, rigorous empirical evidence supporting the effectiveness of the FDWW is lacking, making it crucial to investigate both the underlying relationship between working hours and happiness and the effect of the FDWW itself, in order to contribute to a better understanding of how working hours and happiness are related in the context of a FDWW experiment. Therefore, the present thesis aimed at highlighting a segment of the happiness economics literature by empirically evaluating the FDWW experiment in Iceland, thus closing a gap in literature surrounding the discussion about the relationship between working hours and happiness, as well as evaluations of concepts of future of work.

Leveraging a robust dataset from the ESS to scrutinise the association of working hours on employee happiness, with a particular focus on the context of the FDWW in Iceland, this thesis employed a weighted, clustered, and stratified OLS regression analysis to conduct an evidence-based policy evaluation, finding (i) working hours to not be a significant determinant of happiness, and (ii) no evidence to suggest that - qualitatively speaking - the FDWW is a future-proof concept to increase happiness scores. Once employed, there are no significant differences in happiness scores with changes in working hours, suggesting that either working hours are not a substantial determinant of happiness in Iceland, or that there may be other unobserved factors changing with working hours that affect happiness, but are not represented by the model. This aligns with the idea that happiness might be influenced not only by leisure time, but also by the status and financial security conferred by work, supporting concepts such as the Easterlin Paradox and challenging traditional economic theories such as the disutility of labour. The FDWW therefore seems to be rather a product of contemporary societal trends and expectations, fuelled by attention from media, rather than an effective labour policy solution for increasing overall happiness.

These results, while insightful, must be interpreted within the context of several limitations, including (i) the observational nature of the ESS data, meaning that no causal interpretation of the FDWW's impact can be made, (ii) reverse causality causing potential endogeneity of working hours remaining a concern, as individuals may adjust their working hours in response to their levels of satisfaction, and (iii) the dataset primarily encompassing employees from service sectors, excluding significant economic sectors like manufacturing and fisheries, hence limiting the generalisability of the findings across Iceland's labour market. These limitations are significant, as future studies can increase the validity and credibility of results by considering these drawbacks.

Lastly, this thesis also reveals five research gaps for future studies to explore and analyse more comprehensively. Future research should aim at (i) utilising panel data to better capture the long-term effects of FDWW policies, (ii) providing clearer causal evidence of the effects of reduced working hours on happiness by working with specific FDWW data from experimental and quasi-experimental designs, (iii) considering examining shifts to a FDWW also in relation to other contemporary issues such as mental health, gender inequalities, labour shortages, work-life integration, and environmental sustainability, (iv) studying unobserved variables such as job satisfaction or social support at work in more detail, and (v) examining the FDWW in different societal contexts, raised by counter-examples such as the one from the six-day workweek in Greece, to provide a more holistic understanding of the FDWW.

In summary, there is no evidence to suggest that the FDWW has the potential to provide a solution to greater happiness, as there is no significant association between working hours and happiness and the impact remains unclear. While research into this phenomenon is to be expected to grow at a higher rate than in the previous decade due to evolving dynamics of the workforce, the FDWW is likely to remain a promising trial concept for wealthy countries only. The FDWW symbolises a collective yearning for a future where productivity does not come at the expense of well-being, with this thesis underscoring the complexity of achieving this ideal, revealing that simplistic solutions may fall short of addressing the multifaceted nature of human happiness. Nevertheless, the pursuit of understanding and improving the interplay between working hours and happiness remains a vital endeavour, with the findings of this thesis offering valuable insights for future public and workplace policies, suggesting that a one-size-fits-all approach may not be effective and that labour policies should be tailored to specific national and cultural contexts. Working less and living more may not be achievable with a FDWW as of yet, but it calls upon policymakers, researchers, and society at large to continue exploring, questioning, innovating, and remaining committed to finding pathways that honour both the dignity of work and the sanctity of personal well-being, ultimately creating a more fulfilling and happier life for all.

References

Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and Happiness: Are Europeans and Americans Different? *Journal of Public Economics*. https://doi.org/10.1016/j.jpubeco.2003.07.006

Allen, R. E., & Hawes, D. K. (1979). Attitudes toward work, leisure and the four day workweek. *Human Resource Management*, *18*(1), 5–10. https://doi.org/10.1002/hrm.3930180103

Altman, M. (2005). *Alternative Economic Approaches to Analyzing Hours of Work Regulation and Reform* (SSRN Scholarly Paper No. 1539785). https://papers.ssrn.com/abstract=1539785

Andrews, F. M., & Withey, S. B. (1976). *Social Indicators of Well-Being: Americans' Perceptions of Life Quality*. Springer. https://link.springer.com/book/10.1007/978-1-4684-2253-5

Anttila, T., Härmä, M., & Oinas, T. (2021). Working hours – tracking the current and future trends. *Industrial Health*, *59*(5), 285–292. https://doi.org/10.2486/indhealth.2021-0086

Argyle, M., & Crossland, J. (1987). The dimensions of positive emotions. *British Journal of Social Psychology*, *26*(2), 127–137. https://doi.org/10.1111/j.2044-8309.1987.tb00773.x

Arslan, A., & Bektaş, Ç. (2021). Do we work less to be happy? The correlation beween happiness and working hours. *Smart Journal*, *7*(40), 01–07. https://doi.org/10.31576/smryj.742

Ashta, A. (2000). France Shortens Work-Week: Sharing Scarce Jobs. *Economic and Political Weekly*. https://doi.org/10.2307/4409780

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. https://doi.org/10.1108/02683940710733115

Bannai, A., & Tamakoshi, A. (2014). The association between long working hours and health: A systematic review of epidemiological evidence. *Scandinavian Journal of Work, Environment & Health*, *40*(1), 5–18. https://doi.org/10.5271/sjweh.3388

Barrick, M. R., & Mount, M. K. (1991). The Big Five Personality Dimensions and Job Performance: A Meta-Analysis. *Personnel Psychology*, *44*(1), 1–26. https://doi.org/10.1111/j.1744-6570.1991.tb00688.x

Blanchflower, D. G., & Oswald, A. (2011). International Happiness: A New View on the Measure of Performance. *Academy of Management Perspectives*, *25*, 6–22. https://doi.org/10.5465/AMP.2011.59198445

Blanchflower, D. G., & Oswald, A. J. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics*, *88*(7), 1359–1386. https://doi.org/10.1016/S0047-2727(02)00168-8

Booth, A. L., & van Ours, J. C. (2008). Job Satisfaction and Family Happiness: The Part-Time Work Puzzle. *The Economic Journal*, *118*(526), F77–F99. https://doi.org/10.1111/j.1468-0297.2007.02117.x

Bulut, S., & Maraba, D. (2021). Generation Z and its Perception of Work through Habits, Motivations, Expectations Preferences, and Work Ethics. *Psychology and Psychotherapy: Research Study*, *4*(4), 1–5. https://crimsonpublishers.com/pprs/fulltext/PPRS.000593.php

Campbell, A. (1976). Subjective measures of well-being. *American Psychologist*, *31*(2), 117–124. https://doi.org/10.1037/0003-066X.31.2.117

Campbell, T. T. (2023). The four-day work week: A chronological, systematic review of the academic literature. *Management Review Quarterly*. https://doi.org/10.1007/s11301-023-00347-3

Caruso, C. C., Bushnell, T., Eggerth, D., Heitmann, A., Kojola, B., Newman, K., Rosa, R. R., Sauter, S. L., & Vila, B. (2006). Long working hours, safety, and health: Toward a National Research Agenda. *American Journal of Industrial Medicine*, *49*(11), 930–942. https://doi.org/10.1002/ajim.20373

Cha, Y., & Weeden, K. A. (2014). Overwork and the slow convergence in the gender gap in wages. *American Sociological Review*, *79*(3), 457–484. https://doi.org/10.1177/0003122414528936

Chung, H. (2022). A Social Policy Case for a Four-Day Week. *Journal of Social Policy*, *51*(3), 551–566. https://doi.org/10.1017/S0047279422000186

Chung, H., & van der Horst, M. (2018). Women's employment patterns after childbirth and the perceived access to and use of flexitime and teleworking. *Human Relations*, *71*(1), 47–72. https://doi.org/10.1177/0018726717713828

Clark, A. (2003). Unemployment as a Social Norm: Psychological Evidence from Panel Data. *Journal of Labor Economics*, *21*, 289–322. https://doi.org/10.1086/345560

Clark, A., Frijters, P., & Shields, M. (2008). Relative Income, Happiness and Utility: An Explanation for the Easterlin Paradox and Other Puzzles. *Journal of Economic Literature*, *46*, 95–144. https://doi.org/10.1257/jel.46.1.95

Clark, A., & Lelkes, O. (2006). Deliver Us From Evil: Religion as Insurance. https://www.researchgate.net/publication/5081440_Deliver_Us_From_Evil_Religion_as_Insurance

Coote, A., Franklin, J., & Simms, A. (2010). *21 Hours. Why a Shorter Working Week Can Help Us All to Flourish in the 21st Century*. New Economics Foundation. https://neweconomics.org/uploads/files/f49406d81b9ed9c977_p1m6ibgje.pdf

Crouter, A. C., Bumpus, M. F., Head, M. R., & McHale, S. M. (2001). Implications of Overwork and Overload for the Quality of Men's Family Relationships. *Journal of Marriage and Family*, *63*(2), 404–416. https://doi.org/10.1111/j.1741-3737.2001.00404.x

Deci, E. L., & Ryan, R. M. (2009). The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior: Psychological Inquiry: Vol 11, No 4. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Di Tella, R., & MacCulloch, R. (2006). Some Uses of Happiness Data in Economics. *Journal of Economic Perspectives*, *20*(1), 25–46. https://doi.org/10.1257/089533006776526111

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E., Lucas, R., & Oishi, S. (2002). Subjective Well-Being: The Science of Happiness and Life Satisfaction. In *Oxford Handbook of Positive Psychology*. https://doi.org/10.1093/oxfordhb/9780195187243.013.0017

Diener, E., Ng, W., Harter, J., & Arora, R. (2010). Wealth and happiness across the world: Material prosperity predicts life evaluation, whereas psychosocial prosperity predicts positive feeling. *Journal of Personality and Social Psychology*, *99*(1), 52–61. https://doi.org/10.1037/a0018066

Diener, E., Oishi, S., & Tay, L. (2018). *Handbook of Well-Being*. https://digitalcommons.unomaha.edu/psychfacbooks/9/

Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, *29*(1), 94–122. https://doi.org/10.1016/j.joep.2007.09.001

Dolan, P., & White, M. P. (2007). How Can Measures of Subjective Well-Being Be Used to Inform Public Policy? *Perspectives on Psychological Science*, *2*(1), 71–85. https://doi.org/10.1111/j.1745-6916.2007.00030.x

Dong, R., Wu, H., Ni, S., & Lu, T. (2023). The nonlinear consequences of working hours for job satisfaction: The moderating role of job autonomy. *Current Psychology*, *42*(14), 11849–11870. https://doi.org/10.1007/s12144-021-02463-3

Easterlin, R. A. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. In *Nations and Households in Economic Growth* (pp. 89–125). https://doi.org/10.1016/B978-0-12-205050-3.50008-7

Easterlin, R. A. (2005). Building a Better Theory of Well-Being. In L. Bruni & P. L. Porta (Eds.), *Economics and Happiness: Framing the Analysis*. Oxford University Press. https://doi.org/10.1093/0199286280.003.0002

Easterlin, R. A., & O'Connor, K. (2020). *The Easterlin Paradox* (SSRN Scholarly Paper No. 3743147). https://papers.ssrn.com/abstract=3743147

ESS. (2024a). About ESS | European Social Survey. https://www.europeansocialsurvey.org/about-ess

ESS. (2024b). ESS Data Portal. https://ess.sikt.no/en/?tab=overview

ESS. (2024c). Methodology Overview | European Social Survey. https://www.europeansocialsurvey.org/methodology/methodology-overview

ESS. (2024d). Weighting | European Social Survey. https://www.europeansocialsurvey.org/methodology/ess-methodology/data-processing-and-archiving/weighting

Eydal, G., & Gíslason, I. (2014). Family policies: The case of Iceland. In *Handbook of Family Policies across the Globe* (pp. 109–124). https://doi.org/10.1007/978-1-4614-6771-7_8

Facer, R., & Wadsworth, L. (2008). Alternative Work Schedules and Work-Family Balance: A Research Note. *Review of Public Personnel Administration - REV PUBLIC PERS ADM*, *28*, 166–177. https://doi.org/10.1177/0734371X08315138

Félagsmálaráðuneytið. (2019). *Tilraunaverkefni um styttingu vinnuvikunnar hjá ríkinu* (tech. rep.). BSRB. https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.bsrb.is/static/files/Ymis-skjol/skyrsla-rikisins-um-styttingu-vinnuvikunnar-april-2019.pdf&ved=2ahUKEwiO2fPVlsKFAxXoVEEAHQ2UBDcQFnoECBUQAQ&usg=AOvVaw2ILHqmNckU1KYthsVW0cn9

Ferrer-i-Carbonell, A., & Frijters, P. (2004). How Important is Methodology for the Estimates of the Determinants of Happiness? *The Economic Journal*, *114*(497), 641–659. https://doi.org/10.1111/j.1468-0297.2004.00235.x

Ferrer-i-Carbonell, A., & Gowdy, J. M. (2007). Environmental degradation and happiness. *Ecological Economics*, *60*(3), 509–516. https://doi.org/10.1016/j.ecolecon.2005.12.005

Fishburn, P. C. (1968). Utility Theory. *Management Science*, *14*(5), 335–378. https://doi.org/10.1287/mnsc.14.5.335

Flouri, E. (2004). Subjective well-being in midlife: The role of involvement of and closeness to parents in childhood. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, *5*(4), 335–358. https://doi.org/10.1023/B:JOHS.0000048461.21694.92

Frey, B. S. (2018). *Economics of Happiness*. Springer. https://link.springer.com/content/pdf/10.1007/978-3-319-75807-7.pdf

Frey, B. S., Benesch, C., & Stutzer, A. (2007). Does watching TV make us happy? *Journal of Economic Psychology*, *28*(3), 283–313. https://doi.org/10.1016/j.joep.2007.02.001

Frey, B. S., & Stutzer, A. (2002). What Can Economists Learn From Happiness Research? *J. Econ. Lit.*, *40*. https://doi.org/10.1257/002205102320161320

Gallie, D. (2013). *Economic Crisis, Quality of Work, and Social Integration. The European Experience*. Oxford University Press. https://www.esri.ie/system/files?file=media/file-uploads/2015-07/OPEA95.pdf

Gatlin-Keener, C., & Lunsford, R. (2019). Four-Day Workweek: The Microsoft Japan Experience. https://www.aabri.com/VC2020Manuscripts/VC20032.pdf

Golden, L. (2012). *The Effects of Working Time on Productivity and Firm Performance, Research Synthesis Paper* (ILO Conditions of Work and Employment Series No. 33). https://www.researchgate.net/publication/256035039_The_Effects_of_Working_Time_on_Productivity_and_Firm_Performance_Research_Synthesis_Paper

Golden, L., & Okulicz-Kozaryn, A. (2015). *Work Hours and Worker Happiness in the US: Weekly Hours, Hours Preferences and Schedule Flexibility* (SSRN Scholarly Paper No. 2563374). https://doi.org/10.2139/ssrn.2563374

Golden, L., & Wiens-Tuers, B. (2006). To your happiness? Extra hours of labor supply and worker well-being. *The Journal of Socio-Economics*, *35*(2), 382–397. https://doi.org/10.1016/j.socec.2005.11.039

Graham, C. (2005). Insights on Development from the Economics of Happiness. *The World Bank Research Observer*, *20*(2), 201–231. https://doi.org/10.1093/wbro/lki010

Graham, C., Eggers, A., & Sukhtankar, S. (2004). Does Happiness Pay? An Exploration Based on Panel Data from Russia. *Journal of Economic Behavior & Organization*, *55*, 319–342. https://doi.org/10.1016/j.jebo.2003.09.002

Gray, M., Qu, L., Stanton, D., & Weston, R. (2004). Long Work Hours and the Wellbeing of Fathers and Families. *Australian Journal of Labour Economics*, *7*, 255–273. https://ideas.repec.org/p/wpa/wuwpla/0405007.html

Gudmundsdóttir, D. G. (2013). The Impact of Economic Crisis on Happiness. *Social Indicators Research*, *110*(3), 1083–1101. https://doi.org/10.1007/s11205-011-9973-8

Gudmundsdóttir, D. G., Ásgeirsdóttir, B. B., Huppert, F. A., Sigfúsdóttir, I. D., Valdimarsdóttir, U. A., & Hauksdóttir, A. (2016). How Does the Economic Crisis Influence Adolescents' Happiness? Population-Based Surveys in Iceland in 2000–2010. *Journal of Happiness Studies*, *17*(3), 1219–1234. https://doi.org/10.1007/s10902-015-9639-3

Gunderson, R. (2018). Work time reduction and economic democracy as climate change mitigation strategies: Or why the climate needs a renewed labor movement. *Journal of Environmental Studies and Sciences*, *9*. https://doi.org/10.1007/s13412-018-0507-4

Haraldsson, G., & Kellam, J. (2021). *Going Public: Iceland's journey to a shorter working week* (tech. rep.). Alda and Autonomy. https://autonomy.work/wp-content/uploads/2021/06/ICELAND_4DW.pdf

Hayden, A. (2006). France's 35-Hour Week: Attack on Business? Win-Win Reform? Or Betrayal of Disadvantaged Workers? *Politics & Society*, *34*(4), 503–542. https://doi.org/10.1177/0032329206293645

Hayes, M., Chumney, F., & Buckingham, M. (2022). *Global Workplace Study 2022* (tech. rep.). https://www.adpri.org/assets/global-workplace-study-2022/

Helliwell, J. F. (2003). How's life? Combining individual and national variables to explain subjective well-being. *Economic Modelling*, *20*(2), 331–360. https://doi.org/10.1016/S0264-9993(02)00057-3

Howell, R. T., & Howell, C. J. (2008). The relation of economic status to subjective well-being in developing countries: A meta-analysis. *Psychological Bulletin*, *134*(4), 536–560. https://doi.org/10.1037/0033-2909.134.4.536

Johnson, S., Li, J., Kendall, G., Strazdins, L., & Jacoby, P. (2013). Mothers' and Fathers' Work Hours, Child Gender, and Behavior in Middle Childhood. *Journal of Marriage and Family*, *75*(1), 56–74. https://doi.org/10.1111/j.1741-3737.2012.01030.x

Kahneman, D., & Deaton, A. (2010). High Income Improves Evaluation of Life But Not Emotional Well-Being. *Proceedings of the National Academy of Sciences of the United States of America*, *107*, 16489–16493. https://doi.org/10.1073/pnas.1011492107

Kallis, G., Kalush, M., Flynn, H. O., Rossiter, J., & Ashford, N. (2013). "Friday off": Reducing Working Hours in Europe. *Sustainability*, *5*(4), 1545–1567. https://doi.org/10.3390/su5041545

Kamerāde, D., Wang, S., Burchell, B., Balderson, S. U., & Coutts, A. (2019). A shorter working week for everyone: How much paid work is needed for mental health and well-being? *Social Science & Medicine*, *241*, 112353. https://doi.org/10.1016/j.socscimed.2019.06.006

Kaminska, O., & Lynn, P. (2017). Survey-Based Cross-Country Comparisons Where Countries Vary in Sample Design: Issues and Solutions. *Journal of Official Statistics*, *33*(1), 123–136. https://doi.org/10.1515/jos-2017-0007

Kezer, M., & Cemalcilar, Z. (2020). A Comprehensive Investigation of Associations of Objective and Subjective Socioeconomic Status with Perceived Health and Subjective Well-Being. *ADRIPS*, *33*(1), Article 1. https://doi.org/10.5334/irsp.364

Killingsworth, M. (2021). Experienced well-being rises with income, even above $75,000 per year. *Proceedings of the National Academy of Sciences*, *118*, e2016976118. https://doi.org/10.1073/pnas.2016976118

Kleiner, S., & Pavalko, E. K. (2010). Clocking In: The Organization of Work Time and Health in the United States. *Social Forces*, *88*(3), 1463–1486. https://doi.org/10.1353/sof.0.0301

Kobie, N. (2021). What really happened in Iceland's four-day week trial. *Wired*. https://www.wired.com/story/iceland-four-day-work-week/

Krueger, A. B. (Ed.). (2009). *Measuring the Subjective Well-Being of Nations: National Accounts of Time Use and Well-Being*. University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/M/bo6683637.html

Krueger, A. B., Schkade, D., Schwarz, N., & Stone, A. (2005). A Survey Method for Characterizing Daily Life Experience: The Day Reconstruction Method. *Science (New York, N.Y.)*, *306*, 1776–1780. https://doi.org/10.1126/science.1103572

Kuhn, U. (2019). *Measurement of income in surveys | FORS* (FORS Guide No. 02(Version 1.0)). Lausanne: Swiss Centre of Expertise in the Social Sciences FORS. https://doi.org/10.24449/FG-2019-00002

Kunn-Nelen, A., Grip, A., & Fouarge, D. (2013). Is Part-Time Employment Beneficial for Firm Productivity? *Industrial and Labor Relations Review*, *66*, 1172–1191. https://doi.org/10.1177/001979391306600507

Laurence, G. A., Fried, Y., & Raub, S. (2016). Evidence for the need to distinguish between self-initiated and organizationally imposed over-

load in studies of work stress. *Work & Stress*, *30*(4), 337–355. https://doi.org/10.1080/02678373.2016.1253045

Liu, B., Chen, H., & Gan, X. (2019). How Much Is Too Much? The Influence of Work Hours on Social Development: An Empirical Analysis for OECD Countries. *International Journal of Environmental Research and Public Health*, *16*(24), 4914. https://doi.org/10.3390/ijerph16244914

Liu, B., Chen, H., & Huang, X. (2018). Map Changes and Theme Evolution in Work Hours: A Co-Word Analysis. *International Journal of Environmental Research and Public Health*, *15*(5), Article 5. https://doi.org/10.3390/ijerph15051039

Liu, B., Floud, S., Pirie, K., Green, J., Peto, R., & Beral, V. (2015). Does happiness itself directly affect mortality? The prospective UK Million Women Study. *The Lancet*, *387*. https://doi.org/10.1016/S0140-6736(15)01087-9

Louis, V. V., & Zhao, S. (2002). Effects of Family Structure, Family SES, and Adulthood Experiences on Life Satisfaction. *Journal of Family Issues*, *23*(8), 986–1005. https://doi.org/10.1177/019251302237300

Luhmann, M., Hawkley, L. C., Eid, M., & Cacioppo, J. T. (2012). Time frames and the distinction between affective and cognitive well-being. *Journal of Research in Personality*, *46*(4), 431–441. https://doi.org/10.1016/j.jrp.2012.04.004

Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjective well-being and adaptation to life events: A meta-analysis. *Journal of Personality and Social Psychology*, *102*(3), 592–615. https://doi.org/10.1037/a0025948

Luttmer, E. F. P. (2005). Neighbors as Negatives: Relative Earnings and Well-Being*. *The Quarterly Journal of Economics*, *120*(3), 963–1002. https://doi.org/10.1093/qje/120.3.963

MacKerron, G. (2012). Happiness Economics from 35 000 Feet. *Journal of Economic Surveys*, *26*(4), 705–735. https://doi.org/10.1111/j.1467-6419.2010.00672.x

Mahoney, T. A. (1978). The Rearranged Work Week: Evaluations of Different Work Schedules. *California Management Review*, *20*(4), 31–39. https://doi.org/10.2307/41164779

Mahoney, T. A., Newman, J. M., & Frost, P. J. (1975). Workers' Perceptions of the Four-Day Week. *California Management Review*, *18*(1), 31–35. https://doi.org/10.2307/41164623

McMahon, D. M. (2008). The pursuit of happiness in history. In *The science of subjective well-being* (pp. 80–93). The Guilford Press. https://psycnet.apa.org/record/2008-00541-004

Meier, S., & Stutzer, A. (2004). *Is Volunteering Rewarding in Itself?* (SSRN Scholarly Paper No. 505042). https://doi.org/10.2139/ssrn.505042

Moores, J. E. (1990). A meta-analysis of the effect of compressed work weeks. *Applied HRM Research*, *1*(1), 8–14. http://applyhrm.asp.radford.edu/1990/Moores-1(1).pdf

Muffels, R., & Kemperman, B. (2011). *Does a Better Job Match Make Women Happier? Work Orientations, Work-Care Choices and Subjective Well-Being in Germany* (SOEPpapers on Multidisciplinary Panel Data Research No. 361). DIW Berlin, The German Socio-Economic Panel (SOEP). https://ideas.repec.org/p/diw/diwsop/diw_sp361.html

Nässén, J., & Larsson, J. (2015). Would shorter working time reduce greenhouse gas emissions? An analysis of time use and consumption in Swedish households. *Environment and Planning C: Government and Policy*, *33*(4), 726–745. https://doi.org/10.1068/c12239

Nikolova, M., & Graham, C. (2020). The Economics of Happiness. *GLO Discussion Paper Series*, Article 640. https://ideas.repec.org//p/zbw/glodps/640.html

Norrish, J. M., & Vella-Brodrick, D. A. (2008). Is the study of happiness a worthy scientific pursuit? *Social Indicators Research*, *87*(3), 393–407. https://doi.org/10.1007/s11205-007-9147-x

OECD. (2009). Adjusting household incomes: Equivalence scales. https://www.oecd.org/els/soc/OECD-Note-EquivalenceScales.pdf

Oesch, D. (2006). Coming to Grips with a Changing Class Structure: An Analysis of Employment Stratification in Britain, Germany, Sweden and Switzerland. *International Sociology*, *21*(2), 263–288. https://doi.org/10.1177/0268580906061379

oikonomia. (2024). New Six-Day work week to begin July 1st in Greece. https://sofokleous10.gr/2024/06/19/new-six-day-work-week-to-begin-july-1st-in-greece/

Pencavel, J. (2015). The Productivity of Working Hours. *The Economic Journal*, *125*(589), 2052–2076. https://doi.org/10.1111/ecoj.12166

Pouwels, B., Siegers, J., & Vlasblom, J. D. (2008). Income, working hours, and happiness. *Economics Letters*, *99*, 72–74. https://doi.org/10.1016/j.econlet.2007.05.032

Pullinger, M. (2014). Working time reduction policy in a sustainable economy: Criteria and options for its design. *Ecological Economics*, *103*, 11–19. https://doi.org/10.1016/j.ecolecon.2014.04.009

Rätzel, S. (2012). Labour Supply, Life Satisfaction, and the (Dis)Utility of Work*. *The Scandinavian Journal of Economics*, *114*(4), 1160–1181. https://doi.org/10.1111/j.1467-9442.2012.01717.x

Rothbard, N. P., & Edwards, J. R. (2003). Investment in Work and Family Roles: A Test of Identity and Utilitarian Motives. *Personnel Psychology*, *56*(3), 699–729. https://doi.org/10.1111/j.1744-6570.2003.tb00755.x

Rudolf, R. (2013). Work Shorter, Be Happier? Longitudinal Evidence from the Korean Five-Day Working Policy. *Journal of Happiness Studies*, *15*, 1139–1163. https://doi.org/10.1007/s10902-013-9468-1

Schor, J. (2015). Work sharing. In G. D'Alisa, F. Demaria, & G. Kallis (Eds.), *DEGROWTH: A Vocabulary for a New Era* (pp. 195–197). Routledge.

Shao, Q. (2022). Does less working time improve life satisfaction? Evidence from European Social Survey. *Health Economics Review*, *12*(1), 50. https://doi.org/10.1186/s13561-022-00396-6

Smith, S. J. (1986). The Growing Diversity of Work Schedules. *Monthly Labor Review*, *109*(11). https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.bls.gov/opub/mlr/1986/11/art2full.pdf&ved=2ahUKEwjhjOnS04CGAxVmVvEDHVSGC50QFnoECBIQAQ&usg=AOvVaw20hbw-YMvC9jofT0H_kiGB

Sonnentag, S. (2012). Psychological Detachment From Work During Leisure Time: The Benefits of Mentally Disengaging From Work. *Current Directions in Psychological Science*, *21*(2), 114–118. https://doi.org/10.1177/0963721411434979

Stevenson, B., & Wolfers, J. (2013). Subjective Well-Being and Income: Is There Any Evidence of Satiation? *The American Economic Review*, *103*(3), 598–604. https://www.aeaweb.org/articles?id=10.1257/aer.103.3.598

Stier, H., & Lewin-Epstein, N. (2003). Time to Work: A Comparative Analysis of Preferences for Working Hours. *Work and Occupations*, *30*(3), 302–326. https://doi.org/10.1177/0730888403253897

Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2009). *Report by the Commission on the Measurement of Economic Performance and Social Progress* (tech. rep.). https://ec.europa.eu/eurostat/documents/8131721/8131772/Stiglitz-Sen-Fitoussi-Commission-report.pdf

Stone, J. (2021). World's largest ever four day week trial in Iceland 'overwhelming success'. *The Independent*. https://www.independent.co.uk/news/uk/politics/four-day-week-pilot-iceland-b1877171.html

Strazdins, L., Baxter, J., & Li, J. (2017). Long Hours and Longings: Australian Children's Views of Fathers' Work and Family Time: Children's Views of Fathers' Work and Family Time. *Journal of Marriage and Family*, *79*. https://doi.org/10.1111/jomf.12400

Stutzer, A. (2004). The role of income aspirations in individual happiness. *Journal of Economic Behavior & Organization*, *54*(1), 89–109. https://doi.org/10.1016/j.jebo.2003.04.003

Thoits, P. A., & Hewitt, L. N. (2001). Volunteer Work and Well-Being. *Journal of Health and Social Behavior*, *42*(2), 115–131. https://doi.org/10.2307/3090173

Uchida, Y., & Rappleye, J. (2023). Happiness: A World Map. In *An Interdependent Approach to Happiness and Well-Being* (pp. 19–33). https://doi.org/10.1007/978-3-031-26260-9_2

Veenhoven, R. (2008). Sociological theories of subjective well-being. *The Science of Subjective Well-Being: A Tribute to Ed Diener*. https://repub.eur.nl/pub/14879/2008c-full.pdf

Viner, J. (1925). The Utility Concept in Value Theory and Its Critics. *Journal of Political Economy*, *33*(4), 369–387. https://doi.org/10.1086/253690

Vlasblom, J. D., & Schippers, J. (2006). Changing dynamics in female employment around childbirth: Evidence from Germany, the Netherlands and the UK. *Work, Employment and Society*, *20*(2), 329–347. https://doi.org/10.1177/0950017006064117

VR stéttarfélag. (n.d.). Kjaramál. Know your rights | Employee Relationship. Retrieved May 17, 2024, from https://www.vr.is/kjaramal/thekktu-thinn-rett/know-your-rights/

Willson, J., & Dickerson, A. (2010). *Part time employment and happiness: A cross-country analysis* (Working Paper No. 2010021). The University of Sheffield, Department of Economics. http://www.shef.ac.uk/economics/research/serps/articles/2010_021.html

Wong, K., Chan, A. H. S., & Ngan, S. C. (2019). The Effect of Long Working Hours and Overtime on Occupational Health: A Meta-Analysis of Evidence from 1998 to 2018. *International Journal of Environmental Research and Public Health*, *16*(12), 2102. https://doi.org/10.3390/ijerph16122102

Yamashita, T., Bardo, A. R., & Liu, D. (2016). Are East Asians happy to work more or less? Associations between working hours, relative income and happiness in China, Japan, South Korea and Taiwan. *Asian Journal of Social Psychology*, *19*(3), 264–274. https://doi.org/10.1111/ajsp.12140

Young, C. (2012). Losing a Job: The Nonpecuniary Cost of Unemployment in the United States. *Social Forces*, *91*(2), 609–633. https://www.researchgate.net/publication/260139851_Losing_a_Job_The_Nonpecuniary_Cost_of_Unemployment_in_the_United_States