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# **Life at a Leisurely Pace? Environmental Impacts of Leisure and Work Time Reduction in Norway**

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## **Declaration**

I, Amalie Rosslund Christiansen, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged and a reference list has been appended. This work has not been previously submitted to any other university for award of any type of academic degree.

Signature.....

Date.....

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## **Abstract**

Consumption is the single largest contributor to global environmental degradation. Because work drives consumption, scholars have proposed work time reduction (WTR) as a policy to reduce environmental pressure, while increasing life satisfaction and reduce unemployment. However, environmental impacts from a potential increase in consumption in leisure time muddles the exact environmental benefits of WTR. Using Norway as a case study, this thesis aims to identify expected environmental impacts of leisure time expansion. The thesis uses a mixed methods design consisting of preliminary interviews and a quantitative survey to collect data on time use and work vs. leisure preferences from a stratified sample of Norwegian workers. The data includes background information, leisure preferences for different scenarios, and satisfaction with economic situation and time use. The main finding of this thesis is that an expansion of leisure in Norway would likely lead to increased time spent on medium and low-impact leisure activities. While accurately quantifying environmental impacts of time use is complex, this suggests that the environmental impacts from expansion of leisure would not outweigh the environmental benefits of WTR.

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# 1 Introduction

Work and leisure require transformational changes to become environmentally sustainable (Buhl & Acosta, 2015; Leichenko & O'Brien, 2019). How, how much, where, and what kind of work we do and how we spend our leisure time largely determine our ecological and carbon footprints (Druckman & Jackson, 2009; Fitzgerald, et al., 2018; Rosnick & Weisbrot, 2007).

Policies that restructure work to meet both social and environmental needs are key to make modern societies environmentally sustainable (Hickel, 2020). Work time reduction (WTR) generally refers to a decrease in total time spent on paid labour during one's lifetime (Pullinger, 2014). Examples include working fewer hours each day or week, working fewer years over one's working life, and combinations thereof. WTR may become an important policy to advance towards environmental sustainability, lower unemployment rates, and better life satisfaction, providing a so-called "triple dividend" (Schor, 2005; Knight et al., 2013; Buhl & Acosta, 2015; Fitzgerald et al., 2018).

First, working less can improve environmental sustainability. Work drives production and wages, which in turn drives consumption (Stuart et al., 2020; Schor, 2005). For instance, work hours are strongly associated with carbon emissions and energy use, as found by Fitzgerald et al. (2018) for USA, and with ecological footprint, as found by Hayden and Shandra's (2009) in their analysis of 45 countries. The link to ecological footprint was further supported by Knight et al. (2013) for OECD countries. A recent report made for the British 4 Day Week campaign also found that implementing a 4-day work week in the UK by 2025 could cut greenhouse gas emissions with as much as 20% (Mompelat, 2021). These factors further cause climate change, resource depletion, and biodiversity loss (Steffen et al., 2015). Thus, reducing working time can stabilise or decrease production and consumption and their environmental impacts (Pullinger, 2014; Fitzgerald et al., 2018).

Second, WTR can also address the challenge of rising unemployment. Increasing automation will make much human labour unnecessary and many jobs obsolete (Spencer, 2018). Many thus fear mass unemployment and social unrest as a result (Eliassen & Omdal, 2018). In addition, global unemployment has shown a sharp increase in 2020 due to the COVID-19 pandemic (International Labour Organization, 2020). With WTR, more people would have to be employed to fill current working hours. 'Work sharing' has thus been a policy in several US states during

bad economic times with high unemployment (Fitzgerald et al., 2018). Germany and other European countries also stemmed the surge in unemployment during and after the 2008 financial crisis by promoting shorter working time (Perbost, 2011).

A third positive aspect of WTR according to its advocates is the potential for increased quality of life (Fitzgerald et al., 2018). In developed societies, many lead hectic lifestyles and experience a so-called “time-squeeze” from combining careers and family life (Hill et al., 2013). The social costs may be high levels of stress, fatigue, time pressure, and overall lower life satisfaction (Golden & Figart, 2000; Wajcman, 2014). WTR can alleviate these costs and increase well-being through more leisure (Kallis et al., 2013).

Widely implemented WTR would naturally increase leisure for many. This leisure increase would then spur environmental sustainability. However, the link to the latter is contested due to possible rebound effects of re-arranged leisure time (Buhl & Acosta, 2015; Shao & Rodríguez-Labajos, 2016). For example, if WTR increases carbon-intensive activities like private flying and shopping of highly polluting products, the total environmental effect may become negative (Gunderson, 2018). Moreover, a study on the UK shows that, out of nine consumption categories, leisure and recreation already make up 26% of total GHG emissions from households (Druckman & Jackson, 2009). This was considerably more than for instance space heating (15%), food and catering (15%), household (12%), or clothing and footwear (11%) (Druckman & Jackson, 2009).

Additionally, a study by Aall et al. (2011) on leisure in Norway shows that leisure consumption increases rapidly, and more than everyday consumption. In their study, Aall et al. defined leisure consumption as “those services and goods consumed during our leisure time, such as reading books, watching television and going on holiday travels [...]” (p. 454). While overall consumption in Norway increased, leisure consumption increased the most, and had thus a growing detrimental environmental impact.

WTR’s contribution to environmental sustainability may thus highly depend on how workers spend the ensuing increased leisure (Buhl & Acosta, 2015). Thus, it seems necessary to know more about the relationship between WTR and the environmental impacts of leisure. Moreover, although the carbon footprint of leisure in industrialised countries is currently high (Aall et al., 2011; Druckman & Jackson, 2009), policies that encourage low-carbon leisure activities could

avoid larger environmental impacts from expanded leisure. Some examples are pricing leisure activities and consumption products according to their resource intensity (Buhl & Acosta, 2015), provide infrastructure such as affordable public transport to leisure activity spots, facilitate dialogue between producers and consumers for sustainable leisure, and regulate and restrict leisure activities and goods with particularly high environmental impact (Aall et al., 2011). Such policies may help transform leisure to meet sustainability demands and this thesis aims to explore the potential for sustainable leisure further.

### **1.1 Aim and research questions**

The thesis aims to explore, in the context of WTR, the environmental impacts of leisure, the expected use of additional leisure, and what motivations lie behind leisure choices.

The thesis will use Norway as a case study. The following main research question and three sub research questions will guide the research:

**Main RQ:** What environmental impacts are to be expected from an expansion of leisure time in Norway?

**Sub RQ 1:** If WTR was widely implemented in Norway, how would people spend their increased leisure?

**Sub RQ 2:** What could motivate or demotivate Norwegian people to spend their leisure on activities with low environmental impact?

**Sub RQ 3:** Why do many Norwegians still choose additional income over additional leisure despite high material standards?

## 2 Theory

This section outlines the theoretical basis of the thesis, reviewing theory and knowledge on the relationship between work, leisure, environmental impact, and sustainability objectives. Growing attention in the academic debate on ecological sustainability reflects new thinking about what constitutes necessary changes to avoid dire and irreversible damage to the environment (Gunderson, 2018). Principally, these changes should apply to the global North, which contributes the most to detrimental environmental impacts (Schor, 2005; Hanaček et al., 2020). The interlinkages between leisure, WTR, the environment, and human well-being are complex, and the purpose of this section is to outline and explain the key ones. This will constitute the knowledge and theory basis that the thesis project builds on.

### 2.1 Work time reduction and the environment

WTR involves an expansion of leisure, commonly understood as “Time when one is not working or occupied; free time” (Oxford University Press, 2020). Another dictionary defines leisure as “freedom provided by the cessation of activities, *especially*: time free from work or duties” (Merriam-Webster Online Dictionary, n.d.). While dictionary definitions are generally broad, they provide the basic, everyday meaning of leisure that will be used in this thesis.

According to Fitzgerald et al. (2018), WTR changes environmental outcomes through two main effects: Composition effects and scale effects. Composition effects operate at the household level, affecting how people spend their time and money. Scale effects operate at the societal level, affecting economic output, income, consumption, and ultimately economic growth (Fitzgerald et al., 2018). A study by Hayden and Shandra (2009) found support for a positive correlation between long working hours and environmental impact ‘I’ by examining how work time influenced affluence ‘A’ in the renowned I=PAT model. Affluence, as defined by average consumption, has the strongest impact on the global environment (Wiedmann et al., 2020). However, for Hayden and Shandra, WTR would not necessitate reduction in current income but rather turn future labour productivity growth into more leisure instead of more income.

There is also the distinction between time effects and income effects of WTR (Nässén & Larsson, 2015). Time effects operate when replacing time spent on work with time spent on other activities while income effects operate when reduced income leads to lower purchasing

power and thus lower consumption (King & van den Bergh, 2016). Nässén and Larsson for instance found that the income effect was the most considerable at reducing environmental impact. Both effects operate at the household level and could be seen as specific parts within composition effects.

Researchers have also examined whether WTR can mitigate climate change. By comparing working hours in the US and Europe, Rosnick and Weisbrot (2007) found that if the US reduced their hours to EU-15 levels their energy consumption would decline 20%. If those 20% were then translated into saved CO<sub>2</sub> emissions, the US would have emitted 3% less CO<sub>2</sub> in 2002 compared to 1990 (Rosnick & Weisbrot, 2007). The difference may have stemmed from compositional effects like people preferring options with speed and convenience (e.g. car over bike) when working many hours (Rosnick & Weisbrot, 2007). However, a recent study by Fremstad et al. (2019) found that although US households that worked longer hours had significantly larger carbon footprints, the overall effect of WTR on carbon emissions would be weak due to low work-hour elasticity of emissions. In a European case, King and van den Bergh (2017) analysed potential reductions in greenhouse gas emissions (GHGs) for five different WTR scenarios in the UK. They found that the most effective one (the three-day weekend) could reduce emissions with 14.21 MtCO<sub>2</sub>e per year, about 2% of all UK emissions in 2013. However, a more recent report found that implementing a three-day weekend (called 4-day workweek) in the UK could cut emissions by as much as 127 MT MtCO<sub>2</sub>e per year, about 20% of all UK emissions (Mompelat, 2021). Emission effects thus seem highly dependent on the type of WTR examined, but also on whether or how compositional and scale effects are accounted for.

## **2.2 Leisure and the environment**

In the case of leisure expansion following WTR policies, environmental impact from leisure consumption cannot be ignored. Especially how choices in leisure consumption may shift in response to leisure expansion. Changes in leisure consumption can happen through compositional effects, as households alter their preferences and choices with changes in available time and income (Pullinger, 2014). However, changes can both lead to environmental benefits by people choosing more time-demanding and less resource intensive activities, or more negative environmental impact, by taking more and longer holiday travels (Kallis et al., 2013).

Leisure expansion thus entails a risk of environmental impact rebound, which goes against the environmental arguments for WTR (Shao & Rodríguez-Labajos, 2016; Gunderson, 2018). Buhl & Acosta (2016) analysed such a time use rebound effect, which they defined as “[...]the relation between the new activity undertaken by a consumer and the activity replaced due to the reallocation of time savings following a reduction in working hours” (p. 263). By analysing official German statistics on working time, income, and time use Buhl & Acosta found a general time use rebound effect of 59% for WTR (where a rebound effect < 100% means a net reduction of environmental impact). While considerable, this means that the environmental gains from WTR remained positive and that the policy did not backfire environmentally (Buhl & Acosta, 2016). Nevertheless, as the high CO<sub>2</sub> emissions of leisure in the UK and the growth in resource intensive leisure in Norway show, rebound effects could quickly grow and become a sustainability problem (Druckman & Jackson, 2009; Aall et al., 2011).

Generally, the more environmentally friendly leisure activities are those that are slower and involve building and maintaining human relationships (Rosnick & Weisbrot, 2007). Examples include cooking homemade meals, walking, biking, or taking public transport, volunteering in organisations, and care activities (Buhl & Acosta, 2016). However, Aall et al. (2011) found that visiting family and friends was the second most energy consumptive leisure activity in Norway, due to the imbedded transport activity. This shows how environmental impact naturally depends on context rather than just type of activity. Nevertheless, Gunderson (2018) proposes that society should embrace idleness as a leisure activity, as opposed to other consumptive activities. This echoes the pleads for laziness made by Lafargue (1904), who saw leisure as freedom and work as miserable, corruptive, only benefitting the higher classes, and creating overproduction and -consumption.

### **2.3 Quantifying the environmental impacts from leisure**

While there is growing evidence supporting a strong positive correlation between long work hours and negative environmental impacts, accurately quantifying the environmental impact of leisure gained from WTR is complex and less well understood. Researchers often use the energy consumption required for different activities as a measure for environmental impact because energy consumption is directly related to greenhouse gas emissions (Aall, et al., 2011; Nässén & Larsson, 2015; Rosnick & Weisbrot, 2007). For instance, Aall, et al (2011) estimated energy

consumption for various leisure activities in terajoules (TJ) per million hours of activity. This was based on major nationwide surveys on Norwegians' time use, consumer expenditure, travel activities, official statistics on imports, exports, energy-use, and transport-use, and international data on indirect energy use. However, details on the exact method for calculating energy consumption for each activity are not provided in their paper.

For Swedish households, Nässén and Larsson (2015) estimated the energy use for both work and leisure activities. In their estimations, the time spent at work required the least energy, as they did not include the energy use imbedded in work to avoid double counting with the energy from consumption (Nässén & Larsson, 2015). Unlike Aall et al (2011) Nässén and Larsson also did not include the energy required to produce things necessary for leisure activity, e.g. books for reading. In addition, Nässén and Larsson calculated energy use per capita per hour, whereas Aall et al only calculated energy use per hour, based on the total hours spent on certain activities by Norwegians in 2001. Therefore, the numbers are difficult to compare although the study countries, Sweden and Norway have comparable cultural and socioeconomic traits.

To properly assess environmental impacts from expanded leisure, one should compare the environmental impact of expanded leisure activities to the lessened environmental impact from WTR. However, broad estimations of the latter have not yet been made for Norway. For the US, Rosnick and Weisbrot (2007) have estimated possible energy savings from WTR by comparing the US to European countries. They based their calculations on the countries' GDP per work hour and energy use per dollar of GDP and concluded that for every 1 percent increase in work hours per worker, energy consumption per work hour would increase 0.32 percent (Rosnick & Weisbrot). Thus, if the workers in the EU-15 countries had worked as many hours as workers in the US, the EU-15 would consume about 30 percent more energy than at the time of Rosnick and Weisbrot's (2007) study. However, these estimates did not include a deeper investigation into leisure environmental impacts following WTR.

The studies mentioned so far have based their estimates of environmental impact on broad national and international surveys and databases. Creating such estimates is highly complex while still requiring broad simplifications and assumptions about the energy uses of leisure. Currently, there seems to be no consistent numbers one can compare energy savings from WTR

with energy consumption from various leisure activities with. Therefore, estimating the exact net environmental impact of expanded leisure is outside the scope of this thesis.

### **3 Background and case study**

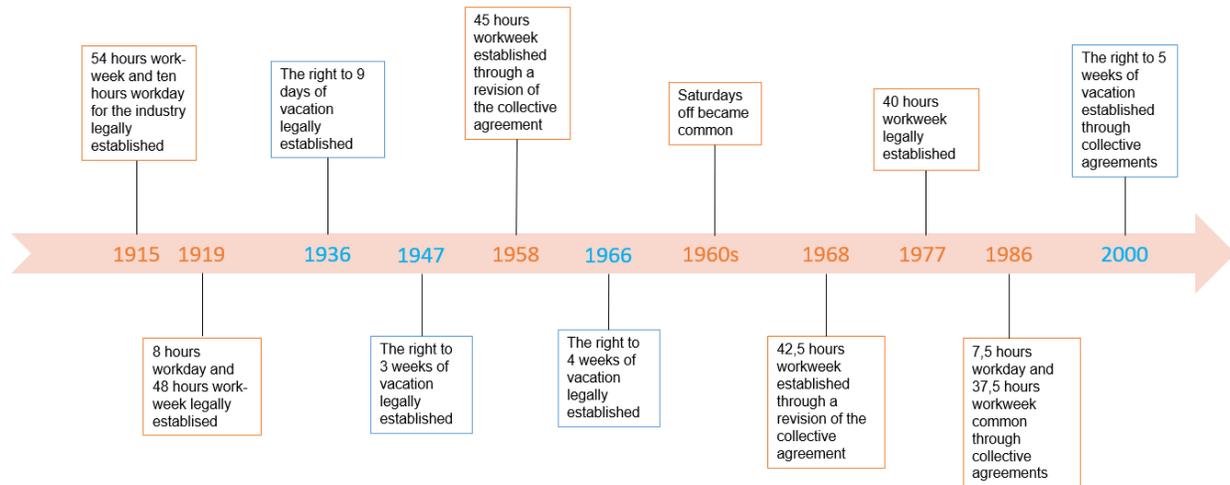
Norway consistently ranks high in most prosperity and human well-being indexes, much due to a solid welfare system built on high labour productivity and low levels of unemployment. Indeed, Norway ranks number one worldwide in GDP per hour worked (The Conference Board 2019). However, while Norway has ranked number one on the Human Development Index (HDI) for many years, its score plummets to number 16 on the new Planetary pressures-adjusted HDI (PHDI) (United Nations Development Programme (UNDP), 2020). The UNDP presented the PHDI in its newest Human Development Report as a way to incorporate countries' environmental impact (counted as CO<sub>2</sub> per capita) into the development index (UNDP, 2020). Norway also ranks near the bottom (number 157) on the Sustainable Development Index (SDI), an indicator that builds on the HDI and accounts for CO<sub>2</sub> emissions per capita and material footprint (Hickel, 2020).

These indices show how several of Norway's current practices are environmentally unsustainable. Norway has great potential to increase sustainability through WTR, due to its high prosperity and labour productivity, and because about two thirds of the population now prefer more leisure over increased income (Framtiden i våre hender, 2014). Relevant accounts of working time and leisure in Norway are outlined below.

#### **3.1 Work time and labour politics in Norway**

According to OECD (2021) data, each Norwegian worker worked averagely 1384 hours in 2019, with only Denmark ranking lower (1380 hours). This is the result of several work time and leisure reforms pushed by trade unions during the twentieth century (Figure 1) (Gisle, et al., 2018). In 1915, the first legal regulation of work time in Norway implemented the 54 hours workweek and the ten hours workday for the industry (Lervåg, 2017). Four years later, following 30 years of pressure from the international labour movement, the workday was reduced to eight hours for six days a week, making the workweek 48 hours (Lervåg, 2017). A revision of the collective agreement (*tariffrevisjonen*) in 1958 further reduced the workweek to 45 hours, while the revision in 1968 reduced it to 42.5 hours (Gisle, et al., 2018). The most recent legal change, implemented in 1977, limits the standard workweek to 40 hours, and since 1986, most collective agreements operate with 37.5 hours as a standard (Bergsli, 2018). While the reduction in

workweek hours follows the general historical trend for industrial countries, the low average annual working hours also point to concurrent increases in vacation time and welfare leaves, e.g. parental leaves.



**Figure 1.** Timeline of important work time policy developments in Norway. Orange years are changes in daily and weekly work time while blue years are changes in vacation rights. Based on Gisle et al., (2018), Bergsli (2017), and Lervåg (2017).

However, the historical downward trend in weekly working hours through the 20<sup>th</sup> century has changed. Work time reduction largely stagnated after the 40 hours workweek became standard in 1977, as the steadily rising work productivity has been converted to purchasing power rather than more leisure (Framtiden i våre hender, 2014). Furthermore, Norwegian politicians have for a long time expected a considerable increase in the proportion of elderly. This so called ‘age wave’ (*eldrebølgen*) concerns politicians because the number of elderlies needing public care may severely surpass the care facilities’ capacity (Wettergreen, Ekornerud & Abrahamsen, 2019). Thus, Prime Minister Solberg’s cabinet argued that Norwegians must work more to maintain the strong welfare system (Finansdepartementet, 2013). Both in terms of longer working days and higher retirement age. Prime Minister Solberg also warned in 2018 that the standard workweek may have to increase to 43 hours to avoid welfare cuts, unless employment increases (Schetne, 2018). Experts interviewed by the business newspaper *Dagens Næringsliv* however refuted this increase in working hours as unrealistic or impossible, and stated that increasing employment is the most important (Langdal, 2018).

However, on the political left side in Norway, several smaller parties are positive to WTR. Even The social-democratic Norwegian Labour Party (Arbeiderpartiet), the historically largest political party, has shown interest in testing out the six-hour workday (Kringstad, 2019). The Red Party (Rødt) advocates a 30-hour standard workweek as a means to share work and to ensure work for all (Rødt, n.d.). The Socialist Left Party (Sosialistisk Venstreparti/SV) also aims to gradually reduce working time, defending the six-hours workday as a standard (Sosialistisk Venstreparti, n.d.). The Green Party (Miljøpartiet De Grønne) also want to reduce the workweek to 30 hours and have this reduction replace growth in real income (Miljøpartiet De Grønne, n.d.).

The Centre Party (Senterpartiet) does not state any particular stances on work time, only that they aim for full employment (Senterpartiet, 2017). However, their Oslo county chapter debated a resolution about work time reform during their 2021 annual meeting. The resolution argued that the party should investigate the societal benefit of the six-hour workday due to benefits such as reducing involuntary part time work for women, diminishing the average wage gap between men and women, and people's will to trade productivity for more leisure (Oslo Senterparti, 2021). However, the Oslo county chapter did not pass the resolution. Thus, the Centre Party seems dismissive of WTR despite some local interest.

In 2018, The Norwegian Labour Party's labour committee expressed interest in giving subsidies to firms that tries out shorter workdays (Sæther, 2018). This was meant as a means to employ more people and let people stay employed longer (Sæther, 2018). However, WTR is not mentioned anywhere on the party's official website nor in their political program, only that older employees should receive more leisure in order to stay employed longer (Arbeiderpartiet, n.d.). In addition to support and interest from political parties, the largest umbrella organization for labour unions (LO) has stated in their most recent action programme that WTR is needed and that they will develop a plan to achieve it for the workers (LO, 2017). However, due to the COVID-19 pandemic, LO has stated that they will not prioritise WTR for the time being, because the pandemic-induced unemployment issue is far more pressing (Hellesnes, 2020).

On the other hand, the Conservative Party (Høyre), the second largest party in Norway, is vehemently against reducing work time (Høimyr, 2020). They argue that the six-hour workday will lead to less welfare and lower living standards for all, especially since Norway already has a labour shortage (Høimyr, 2020). As mentioned, Prime Minister Solberg (Conservative Party),

argues that Norwegians must work more and longer to finance the welfare system in the future (Schetne, 2018). The right-wing Progress Party, the fourth largest party, has not showed any support for WTR either. The former Minister of Finance, Progress Party leader Siv Jensen has rather argued against it, stating that the average tax rate must increase 8% to offset lost state income from implementing a six-hour workday (Jensen, 2018). As the Progress Party is known for wanting as low taxes as possible, this indicates that they would be against WTR. Moreover, a spokesperson for the Progress Party expressed negativity to WTR in 2009, arguing that WTR with full wage compensation would severely impair Norwegian industry's competitiveness (Nielsen & Haugan, 2009).

### **3.2 Work time reduction in Norway**

Despite political disagreements, several firms have attempted to implement the six-hour workday in Norway. However, most of them have been stopped due to rising costs and dissatisfaction with productivity (Folkvord & Wergeland, 2015). The most famous example was at a Tine cheese factory in Heimdal where they had the six-hour workday for 12 years (Omvik, 2019). The goal was to improve the employees' quality of life and stop the number of sick days from rising, without changing wages or the number of employees (Folkvord & Wergeland, 2015). However, allegedly due to costs, the leadership at Tine decided to increase the workday to 7.5 hours in 2019, against the employees' wishes (Omvik, 2019). A still ongoing example is the hair saloon chain Cutters who implemented a six-hour workday policy in 2019 (Kringstad, 2019). According to Kringstad's report, the employees are happy so far, as the shorter workday reduces strain injuries and enables more productivity, which again increases their earning. Nevertheless, the unemployment caused by COVID-19 have caused the Norwegian Labour Organisation to shelve its calls for WTR (Hellesnes, 2020).

### **3.3 Leisure and consumption in Norway**

As mentioned, Norwegians work fewer hours on average each year compared to most OECD countries (OECD, 2020). According to a Statistics Norway survey from 2010, Norwegians (16 years and older) had on average six hours and 19 minutes of leisure each day (With, 2017). This was about one hour more than the average 40 years prior (Kjølsrød, 2019). The fights for shorter working days that started at the end of the 19<sup>th</sup> century were also fights for more leisure, and rights to vacation were gradually expanded throughout the 20<sup>th</sup> century (Bergsli, 2018).

The right to a yearly vacation was established in many professions around 1900 through collective agreements and arbitrations (Hatland, 2017). Workers in several fields gained the right to 12 days of vacation in 1920, while the right to nine days of vacation yearly was not established by law until 1937 (Hatland, 2017). The Act relating to Holidays (*Ferieloven*) implemented 1947 gave all workers right to three vacation weeks yearly and applied to more than two thirds of the workforce at the time (Kjølsrød, 2019). The law changed to four vacation weeks in 1966, and a fifth vacation week became part of the collective agreements in 2000, after worker strikes (Lervåg, 2017).

This relative affluence of leisure enables people to pursue various leisure activities, some more resource consuming than others. According to Kjølsrød (2019), the top leisure activities the past 40 years are social gatherings, watching TV, reading, and outdoor activities. Surprisingly, traditional outdoor recreation and cabin stays were the second most energy consumptive leisure activity according to data from 2001, only exceeded by holiday journeys (Aall et al., 2011). Aall et al. also found that visiting friends and relatives was the third most energy intensive due to imbedded travel activities, while electronic home entertainment had the largest stationary energy-use among all categories. This is because Aall et al. added the energy use from production of electronic equipment and production of services provided by the equipment (e.g. TV shows) to the category.

Meanwhile, data for only 2019 show that 90.3 % travelled during their vacation, 62% had been to at least one concert, 48% watched TV daily, 41% did weight-training at least ten times, 35% played games daily, and 32% could play a musical instrument (Statistics Norway, 2019). While most of the popular activities seem to require relatively low material and energy input, a study by Aal (2011) found that leisure activities have become increasingly materialistic in Norway, i.e. Norwegians spend more on products used for leisure. Moreover, more than 70% of Norwegians went on vacation abroad in 2019, and a large majority of these travels were by airplane (Statistics Norway, n.d.). Norwegians also spend far more money and pay for far more overnight stays as domestic tourists than foreign tourists (Statistics Norway, 2019). The trend towards more materialistic and resource intensive leisure follows the trend of converting high productivity to increased purchase power rather than leisure after the 1970s (Framtiden i våre hender, 2014).

## **4 Methodology**

To answer the research questions I chose to use a mixed methods research design combining quantitative and qualitative methods. A quantitative approach is fitting for gathering large data samples where one aims to generalise the findings to the whole research population (Bryman, 2016, Ch. 7). Meanwhile, a qualitative approach is fitting when exploring motivations and actions (Bryman, 2016, Ch. 17). I found that a combination of qualitative and quantitative methods could answer the research questions more accurately than either of the approaches alone. Thus, I chose the type of mixed methods design called exploratory sequential design. In an exploratory sequential design the initial qualitative part acts as preparation for the main quantitative part (Bryman, 2016, Ch. 27).

### **4.1 Data sampling**

For the initial qualitative part of the research I conducted three semi-structured interviews with workers in different sectors. The three sectors were public administration, public health, and private service. I recruited each interviewee from my current resident municipality using purposive sampling. The criteria for choosing interviewees were having work as their main occupation (thus excluding full-time students) and that they worked in different sectors across the general private/public and blue-collar/white-collar distinctions. The interview data would provide background information for the quantitative part.

The quantitative part consisted of a nation-wide survey in the form of an online self-administered questionnaire. Due to the large size of the research population, I decided to sample single workplaces rather than individuals. I aimed to sample five workplaces in each county. With 11 counties that would result in 55 workplaces in total. While expecting a low response rate which is typical with self-administered questionnaires, I anticipated that this would be sufficient to get a high enough number of diverse respondents.

However, while achieving a sufficient number of respondents and geographical representation was important, I also aimed for some diversity in work sectors. Therefore, I aligned the five workplaces in each county to the sectors that have the most workers in Norway. I based the alignment on a national overview of the largest work sectors from the third quarter of 2020, produced and published by Statistics Norway (SSB) (2020). I downloaded the table from Statistics Norway's website and ordered the sectors after numbers of workers. Thus I found that

the four largest work sectors were: Health and social services (22,6%), trade and reparation of motorised vehicles (13,0%), construction (8,5%), and education (7,9%). By also calculating percent and cumulative percent, I found that these four make up 52,1% of all workers in Norway (Table 1). Initially, the workplaces should be divided according to these percentages, with two workplaces within healthcare and one workplace within each of the others. However, due to problems with sampling construction workplaces randomly for each county, I dropped construction and ended up with the broad sampling frame summarised in Table 2.

**Table 1.** Number of jobs per industry in Norway as per 3. quarter 2020

	Number of jobs	Percent of total	Cumulative percent
All industries	2 852 314		
Health and social services	644 972	22.6%	22.6%
Trade and reparation of motorised vehicles	372 076	13.0%	35.7 %
Construction	243 228	8.5 %	44.2%
Education	224 986	7.9 %	52.1%

Source: Statistics Norway (SSB).

Retrieved from <https://www.ssb.no/statbank/table/11654/tableViewLayout1/>

**Table 2.** Number of sampled workplaces per county by industry

Industry	Number of workplaces	Percent of total
Health and social services	2	40%
Trade and reparation of motorised vehicles	2	40%
Education	1	20%
Total	5	100%

The next step for the quantitative data sampling was to define the sampling frame, i.e. the pool of relevant workplaces to sample from. Because the sectors were quite expansive, I had to limit the scope to sub-sectors and sometimes further down to specific firms. This limitation was necessary to manage to list all relevant workplaces within a sector in sampling frames. I decided on two

criteria for limiting the sectors: (1) The business or institution should be found all over the country for ease of comparison across counties and (2) there must be a way to identify and contact the relevant businesses or institutions online.

Thus, I limited the sampling frame to one subcategory or firm within each sector in Table 2. These were (1) municipal nursery homes, (2) grocery stores, and (3) public high schools. For municipal nursery homes, all municipalities must have at least one, and I could therefore use the list of municipalities in each county as sampling frame. Moreover, the contact information must be available to the public. Likewise, all counties have their public high schools listed on their webpages.

For grocery stores, I limited the sampling frame to the largest chains that can be found nationwide. According to Wifstad et al. (2018, p. 12) eleven grocery store chains together represent 98,6% of market shares in Norway. These chains are REMA 1000 (23,4%), KIWI (20,8%), Extra (12,6%), Meny (10,6%), Spar/Eurospar (7,2%), Coop Prix (5,2%), Coop OBS (5,3%), Coop Mega (4,1%), Bunnpris (3,8%), Joker (3,7%), and Coop Marked (4,1%). Information about the stores of each of these chains is also easily accessible online.

After limiting the sampling frame I used the type of probability sampling called simple random sampling to draw my sample population. In simple random sampling, each individual subset of the sampling frame has an equal probability of being sampled (Fowler, 2014). For municipal nursery homes, I made a list of all the municipalities in a given county, sampled two nursery homes from the list and repeated this for all 11 counties. The same procedure worked for sampling one public high school for each county. For grocery stores, I compiled a list of all the single stores of the grocery store chains mentioned above. The names and locations of the stores were listed in various ways on each chain's homepage. Some homepages had already sorted their stores by county, while for others I had to rely on postal codes to sort the single stores by county. To conduct the simple random sampling I numbered all the workplaces in each list and used a pseudo-random number generator from the Python module Random. Although no random number generator can give completely random output, using a generator in Python is more transparent than for example Google's random number generator. As I could not code in Python myself, an external helper wrote the code for the random number generator and ran the code to

generate the numbers (Appendix I). The final sample then consisted of workplaces whose number had been generated in Python.

Due to a too low response rate from the randomly sampled workplaces, I also used convenience sampling to recruit respondents. Convenience sampling is to sample based on accessibility to the researcher (Bryman, 2016, Ch. 8). This was done by having a friend share the invitation and link to the questionnaire on a closed Facebook group for Norwegian hairdressers. The group has over 14.000 members from all over Norway, which made it likely to still get some geographical variation among the respondents. This approach was chosen due to previous positive experiences with using Facebook for convenience sampling. Particularly when needing to gain a decent number of respondents in a short time. Naturally, convenience sampling cannot ensure a sample representative of the whole population but was done due to time constraints.

#### **4.2 Semi-structured interviews**

I chose to conduct three semi-structured interviews to gain background information on aspects of leisure and work needed for the questionnaire. Such background information could improve the questionnaire considerably, as important themes could become overlooked without input from people with real and long-time work experience. Therefore, I chose semi-structured interviews as method because they are fit gain insight on peoples' views, values, and motivations (Bryman, 2016, Ch. 20). Semi-structured interviews have an interview guide but with possibility to ask follow-up questions on themes that may emerge. My interview guide consisted of eleven questions about work and leisure (Appendix III). Most of the questions were open-ended and let the interviewees freely describe their habits and views. All interviewees were given written information about the interview and a consent form to sign before the interview (Appendix II).

I conducted the three interviews during January and February 2021. Two of the interviews happened online over the video chatting software Zoom while one happened at the workplace of the interviewee. During the latter, both interviewer and interviewee maintained more than one metre distance and wore face masks as a preventive measure against COVID-19. For the online interviews, one happened during the interviewees work hours at her home office, while the other one happened some hours before the interviewee was going to work. Having the interviews during or shortly before work time created a closeness to the subject that may have helped the interviewees give detailed answers.

The first part of the interview contained questions about work while later questions were about leisure and views on the balance between the two. Because the interviews were meant to be primarily exploratory, I also asked the interviewees about their additional thoughts on work time and leisure at the end. Follow up questions were asked for clarification or to request more details about the answers.

The interviews varied much in length and focus of attention, much due to the diversity in types of work. The variations were expected given the different nature of the interviewees' occupations: local government worker, hairdresser, and nurse. The work time policies also varied among the occupations: flexible work time (*fleksitid*), day and afternoon shifts, and day and night shifts, respectively. In addition, the interviewees' ages and household size differed, giving varied accounts of leisure time.

The interviews ranged from 13 to about 30 minutes. For the online interviews, I used the record function on Zoom to save the audio file. Before recording, I asked the interviewees to turn off their cameras so that I did not record or store images of them. For the in-person interview, I used a digital audio recording device. All recording and storage of personal information was assessed and deemed in accordance with data protection regulations by the Norwegian centre for research data (NSD).

### **4.3 Online questionnaire**

I chose to conduct an online survey with a questionnaire to gather larger quantities of data from the whole country. The online format made it possible to disseminate the questionnaire to all counties with small financial cost and with no risk of COVID-19 contagion. The questionnaire is a fitting tool to gather large quantities of data, as the questions are often closed-ended and thus quick and relatively easy to answer (Bryman, 2016, Ch. 10). Gathering larger quantities of data gives a stronger foundation for generalising the results to the whole study population. Because my main research question asks what general changes can come from an expansion of leisure in Norway, gathering enough data from the whole country was important.

I invited people to respond to the questionnaire by sending out standardised e-mails to all the sampled workplaces. I used the e-mail addresses given online, which were either general e-mails for the institution or the e-mail of contact persons. The e-mail contained information about the

thesis and questionnaire, a link to the questionnaire on Nettskjema, and a document with more written information and consent form. Some workplaces did not have an e-mail address, only a Facebook page or a phone number. Thus, I contacted them through Facebook or phone first, to ask whether there was anyone I could send the e-mail to. After sending e-mails I followed up with phone calls a couple of days later, asking whether they had received the e-mail and if it had been shared with the workers. For the convenience sampling, I contacted my friend whom I knew was part of the Facebook group for hairdressers. She agreed to post the link to the questionnaire in the group, together with the written information and consent form (Appendix IV).

The questionnaire (Appendix V) consisted of 28 questions, 19 of which were multiple choice or tick-off lists. The remaining questions were open ended questions where the respondent could answer freely by writing in text boxes. Most of them were follow up questions to give an option to specify “Other” if the previous question did not have a fitting alternative. One was a request to elaborate and explain their answers on a previous question, to gain insight on motivations and reasonings. The answers to that question were necessarily qualitative and essential to answer the research questions fully. While it was up to the respondents how much they wanted to write, if at all, the lengths of the answers were mostly just one sentence long.

#### **4.4 Data analysis**

First, I transcribed the preliminary interviews and sorted the transcripts by question for easier comparison. I also colour coded each interview to easily distinguish them. This helped in conducting a simple thematic analysis where I identified prevalent themes, both common and varying, across the interviews. I then compared these themes with the first draft of the questionnaire. When I noticed that some of the themes lacked, I added questions and question alternatives that would address them. For example questions about leisure before the COVID-19 pandemic, additional alternatives for leisure activities, and alternatives for reasons behind preferences.

For the questionnaire data, I exported the data to Excel after making a simple codebook in Nettskjema. First, I looked at the background variables to see whether any of them dominated in number and could impact the interpretation of the data. Then I made graphs showing the distribution of responses to the main questions of leisure preferences, leisure growth versus

income growth, motivations etc. For the qualitative question, I conducted a thematic analysis of the answers, with quasi-quantification of recurring words and arguments to gain an understanding of their prevalence.

To assess the environmental impact of a leisure expansion in Norway, I ranked the respondents' leisure preferences using Aall et al.'s (2011) calculations of energy consumption. All leisure activity alternatives given in the questionnaire (Appendix V) are listed with their related energy consumption in Table 3, and sorted into 'High', 'Medium', and 'Low' level of environmental impact. While Aall et al. gives the energy values as terajoules (TJ) per million hours, this corresponds to megajoules (MJ) per hour, which is what I will use here for simplicity. The thresholds for the environmental impact are over 40 MJ for High, between 40 MJ and 30 MJ for Medium, and below 20 MJ for Low. These thresholds are based on the descriptions and discussion of energy intensity in Aall et al.

**Table 3.** Leisure activities' energy consumption and level of environmental impact

Leisure activity from questionnaire	Energy consumption per hour (MJ)	Corresponding categories from Aall et al. (2011)	Level of environmental impact
Online shopping	-	Not included	High
Physical shopping	-	Not included	High
Renovation and property maintenance	89.8 MJ	Average of Redecoration (155.8 MJ) and Gardening (23.8 MJ)	High
Travel, abroad	59.8 MJ+	Holiday journeys	High
Travel, domestic	59.8 MJ	Holiday journeys	High
Cultural activities outside of the home (concerts, museums, festivals etc.)	41.3 MJ	Average of Cinema (20.9 MJ), Concerts (22.4 MJ), Theatre, operas (29.2 MJ), Theme parks (29.3 MJ), Sports, observer (50.3 MJ)	High

		and Museums (95.5 MJ)	
Hobbies	33.1 MJ	Hobbies	Medium
Exercise and other physical activities (sports, outdoor life etc.)	31.9 MJ	Average of Sports, active (4.7 MJ), Gyms (43.3 MJ), and Traditional outdoor recreation (47.7 MJ).	Medium
Paper-based media (newspapers, books, magazines etc.)	29.8 MJ	Average of Reading (16.7 MJ) and Libraries (42.8 MJ)	Medium
Keep up to date professionally	26.6 MJ	Average of Reading (16.7 MJ), Computer and internet (20.0 MJ), and Libraries (42.8 MJ)	Medium
Contact with friends and acquaintances	21.1 MJ	Average of Visiting friends and relatives (22.2 MJ) and Computer and internet (20.0 MJ)	Medium
Catch up on work	18.4 MJ	Average of Reading (16.7 MJ) and Computers and internet (20.0 MJ)	Low
Digital media (Film, TV, music, social media, news, online videos etc.)	9.9 MJ	Average of TV and Radio (2.5 MJ), Music and playing instruments (6.4 MJ), Audio-visual equipment (10.5 MJ) and Computer and internet (20.0 MJ)	Low
Volunteer work	7.1 MJ	Other organisations	Low
Political work	7.1 MJ	Other organisations	Low

Housework	-	Not included	Low
Family	-	Not included	Low
Sleep and relaxation	-	Not included	Low

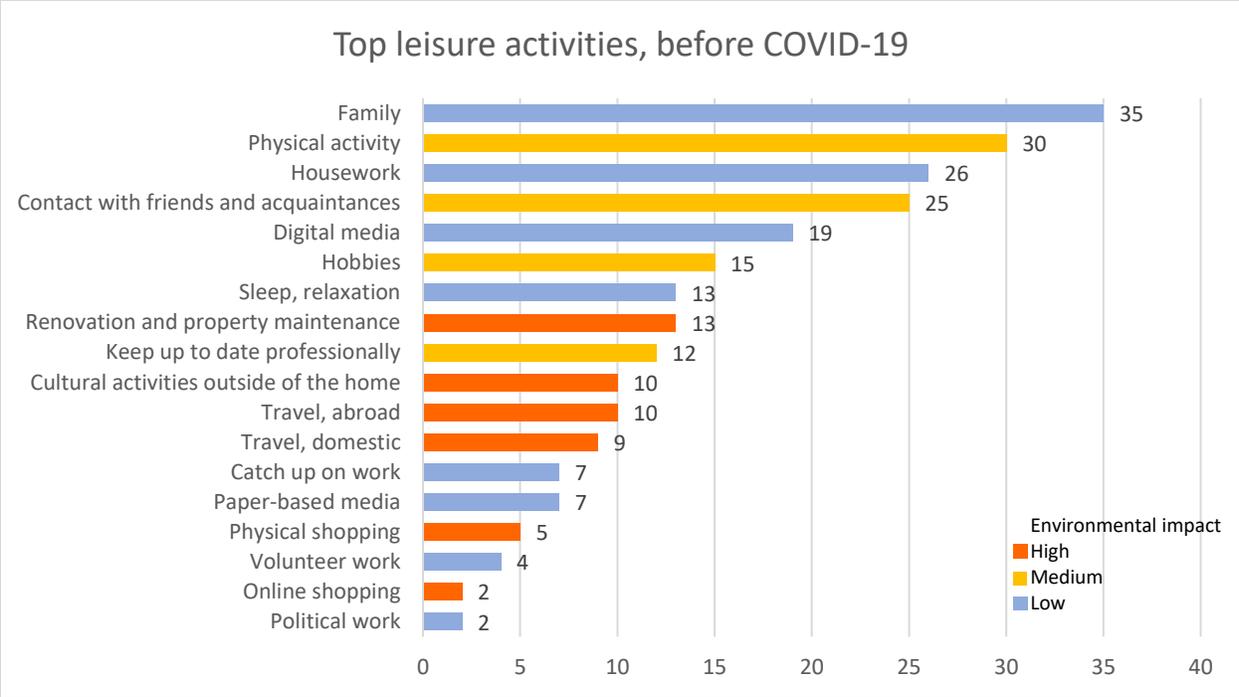
Some leisure activities in the questionnaire did not have any corresponding activities in Aall et al. (2011), thus energy consumption per hour is missing for those. However, for online and physical shopping, one can safely assume that the environmental impact is high, as they contribute directly to consumption. Likewise, assuming that Housework, Family, and especially Sleep and relaxation fall under low environmental impact seems reasonable. For the other activities, there were mostly no one to one correspondence to the activities in Aall et al. Thus, their energy consumption is calculate based on the average of all relevant categories in Aall et al. For example, the energy value for Paper based media consist of the average energy consumption between Reading and Libraries. While the questionnaire alternatives could have been based more directly on the ones in Aall et al.'s study, having too many alternatives that would need differentiating in the questionnaire would likely make the questionnaire questions too complex and confusing. The leisure activities in the questionnaire were meant to cover broad categories for detecting wider tendencies in leisure preferences and their potential environmental impact.

## **5 Results**

This chapter will present the results from the questionnaire that can help answer the research questions. A total of 57 people responded to the questionnaire. Despite the low response rate, there were respondents from every Norwegian county, although not evenly distributed. Most respondents were from the counties Troms and Finnmark (7 respondents), Nordland (9 respondents), and Vestland (10 respondents). Respondents' ages also varied, with the youngest being 21 years old and the oldest being over 68 years old. The largest work sector group was Service (43.8% of respondents). The level of education of the respondents was also evenly distributed between High school (21.1%), Vocational school (29.8%), Undergraduate degree (19.3%), and Graduate degree (28.1%). However, there was an overwhelming majority of female respondents (86%), which could impact the results due to the lack of male perspectives. Additionally, women in Norway work more part-time than men, both voluntarily and involuntarily (LDO, n.d.), which could also affect the results. The rest of the chapter is divided into three sections. Each section presents the relevant results to one of the three sub-research questions.

### **5.1 Expected use of additional leisure**

Figure 2 shows which activities the respondents reported that they spent the most time on before the COVID-19 pandemic. The respondents were only allowed to choose up to five activities, to better perceive which activities were most popular in terms of time use. The labels for the activities have been shortened for easier readability. For instance, "Exercise, other physical activity (sports, outdoor life etc)" have been shortened to "Physical activity". The colour-coding by environmental impact for Figure 2, 3, 4, and 5 is based on the ranking of activities given in Table 3.

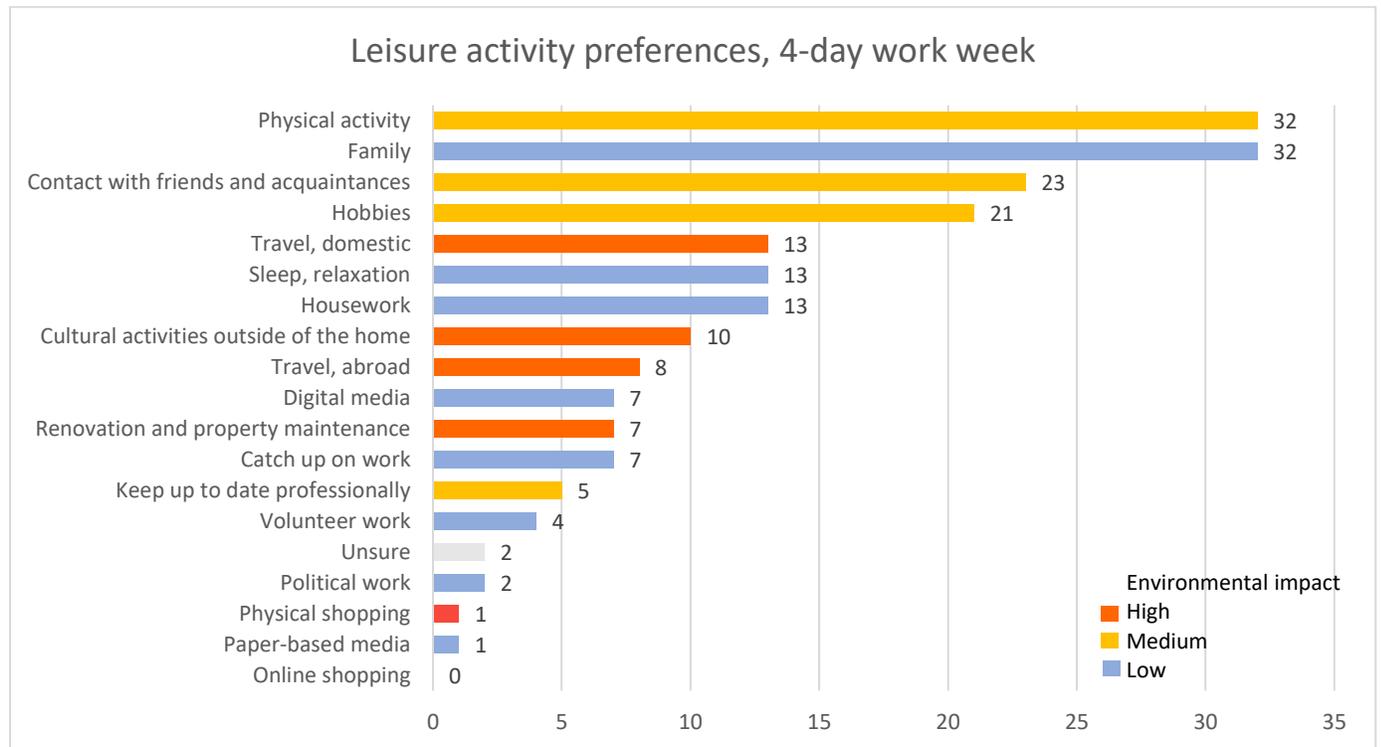


**Figure 2.** Distribution of top leisure activities pre-pandemic. Each of the 57 respondents could choose up to five activities. Each bar is colour-coded to show environmental impact.

The top seven activities seem to entail an even mix of low and medium environmental impact. The middle is dominated by high-impact activities such as travel, renovation, and cultural activities, while low-impact activities dominate at the bottom. Knowing which activities people spent most time on pre-COVID is useful for comparing to their stated preferences for different scenarios with expanded leisure (Figure 3 and Figure 4). The question was specified to be about pre-COVID because the situation the last year with frequent and long-lasting societal lockdowns has been highly unusual, with serious restrictions of certain activities, especially travel. As there are many signs that Norway will move past this situation eventually, only asking about leisure habits during the pandemic would not give an accurate baseline for comparison.

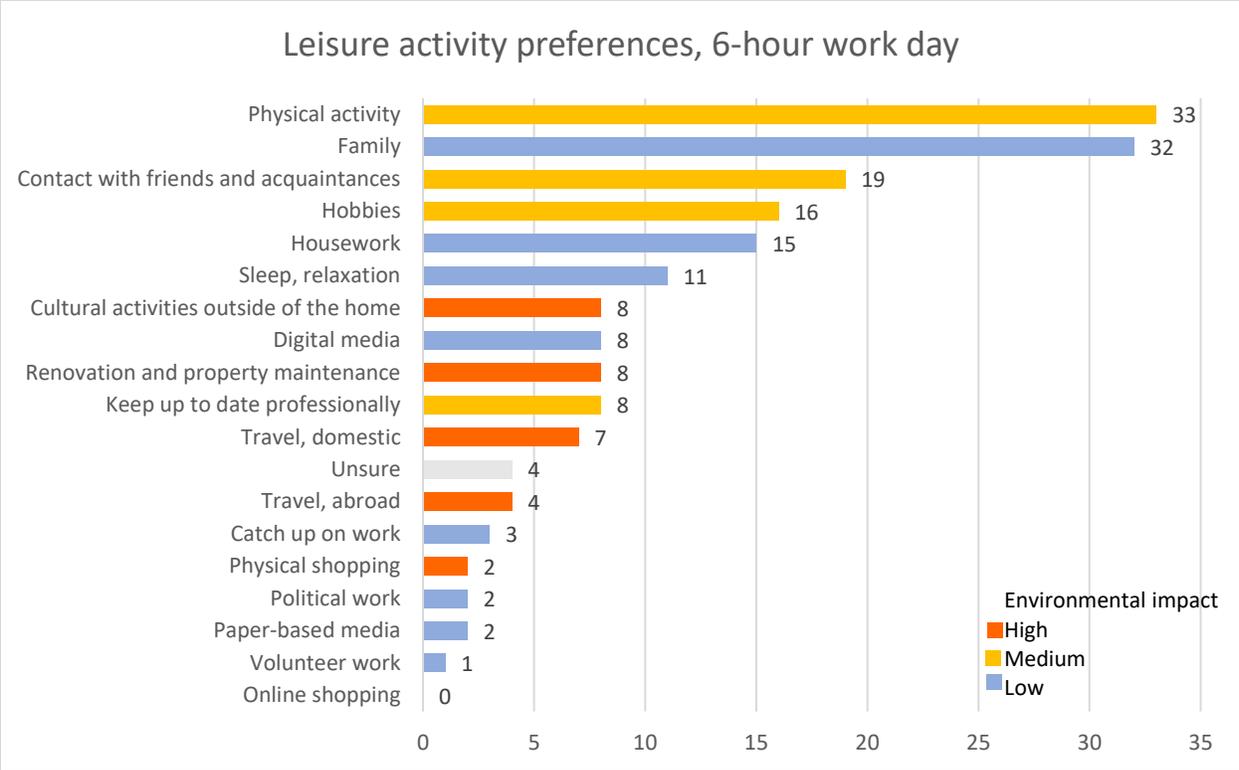
Figure 3 shows that if people were given an extra day off each week, they would like to spend even more time on physical activity, family, and friends and acquaintances. These activities are also on top like in Figure 2. Many also seem to prefer spending more time on hobbies. Activities with high impact are still in the middle, while domestic travel have increased somewhat. Domestic travel being more preferred seems logical since people could then have a whole extra

day for travel, for instance making their weekends longer. Meanwhile, low-impact activities like volunteer work and political work are still at the bottom.



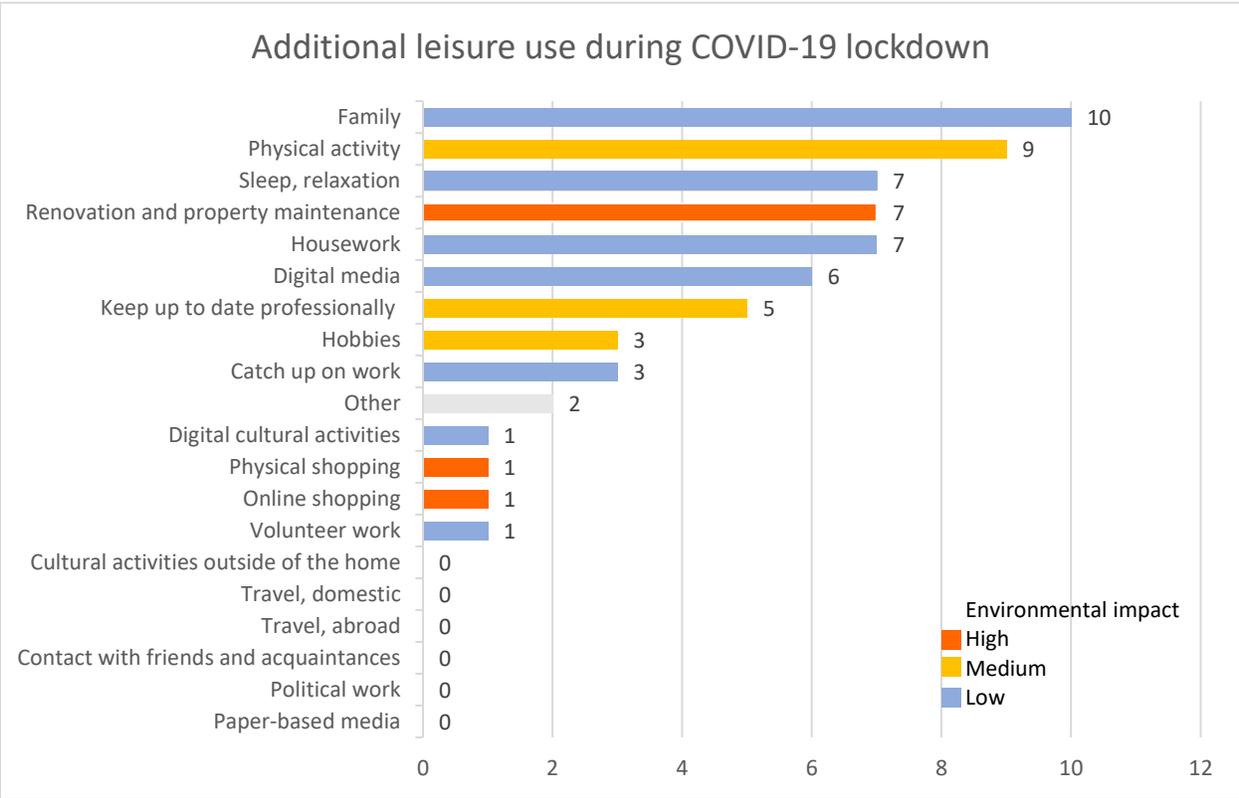
**Figure 3.** Distribution of top leisure activities people would spend more time on if given a 4-day workweek without reduction in salary. Each of the 57 respondents could choose up to five activities. Each bar is colour-coded to show environmental impact.

Figure 4 shows that if people were rather given a 6-hour workday they would still use more of their time on physical activity, family, friends, and hobbies. Compared to Figure 3, housework is higher while domestic travel is lower, which seems logical considering less continuous time for travel when leisure is spread evenly across the weekdays. Apart from this, Figure 4 resembles both Figure 3 and Figure 2 in that the preference for high-impact activities is moderate, and the same low-impact activities comprise the least preferred.



**Figure 4.** Distribution of top leisure activities people would spend more time on if given a 6-hour workday without reduction in salary. Each of the 57 respondents could choose up to five activities. Each bar is colour-coded to show environmental impact.

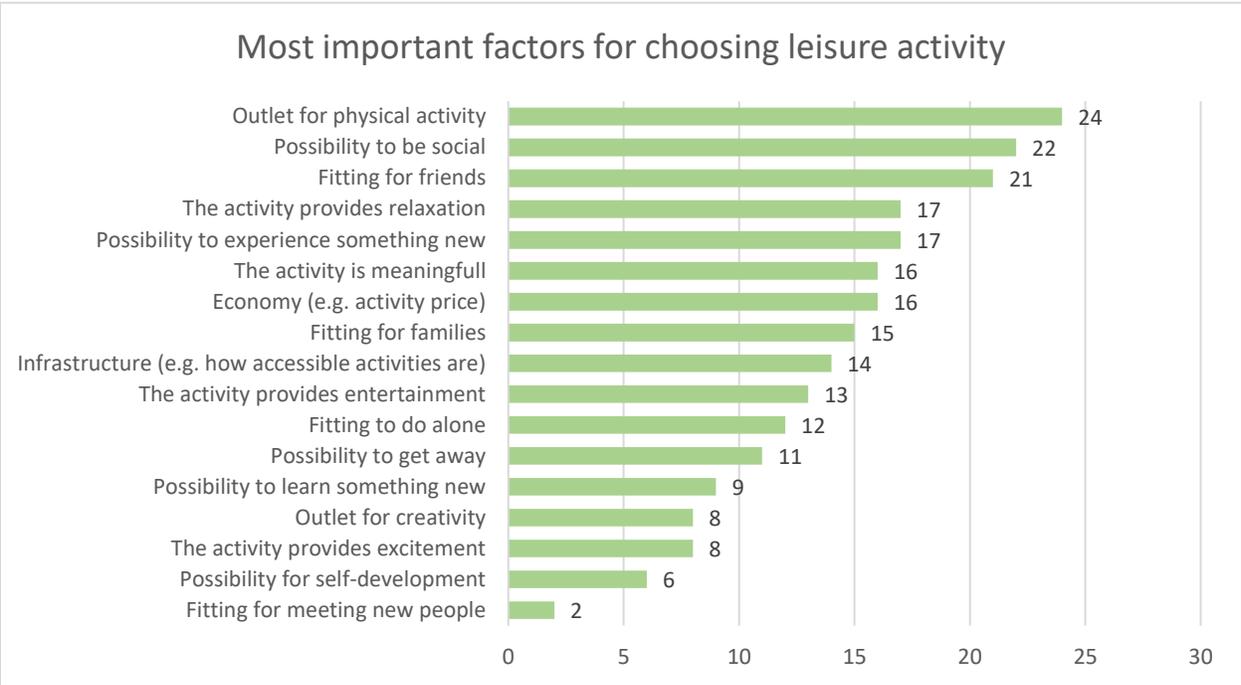
Finally, Figure 5 depicts which activities people used most of their additional leisure on during periods of COVID-19 lockdown. Only 16 people responded that they had gained more leisure because of the pandemic, so the numbers are considerably lower than for the previous figures. While less representative, it shows some actual choices during a period of additional leisure, although during a highly unusual situation. This as opposed to the data on people’s perceived preferences in hypothetical scenarios. Again, family and physical activity are the most popular. The only popular high-impact activity was renovation and property maintenance, likely because activities like travel, cultural activities, and physical shopping were heavily restricted during lockdown.



**Figure 5.** Distribution of activities people spent more time on when having more leisure during COVID-19. The 16 respondents with more leisure during COVID-19 could choose up to five activities

**5.2 Motivations behind leisure preferences**

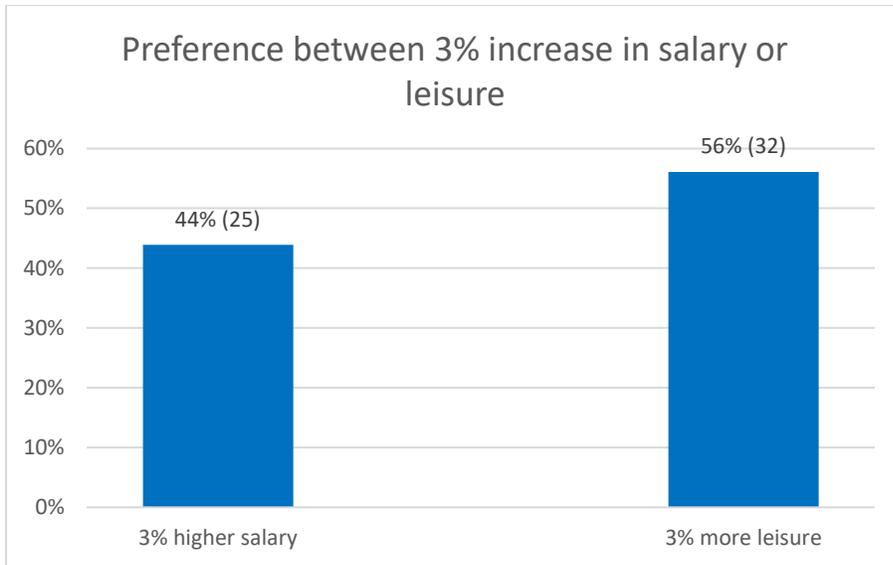
To investigate what factors could motivate or demotivate Norwegians to spend their leisure on activities with small environmental impact, respondents were asked what the most important factors were when choosing leisure activity. Again, people could only choose maximum five alternatives. While the distribution is quite even, the most picked alternative is consistent with the preference for physical activity shown in the previous section. The other most picked alternatives indicate that people also value socialising, relaxation, new experiences, and meaningfulness. While new experiences are often associated with traveling, there seems to be no evident contradiction between the other factors and low environmental impact.



**Figure 6.** Distribution of the most important factors when choosing leisure activity. Each of the 57 respondents could choose up to five alternatives.

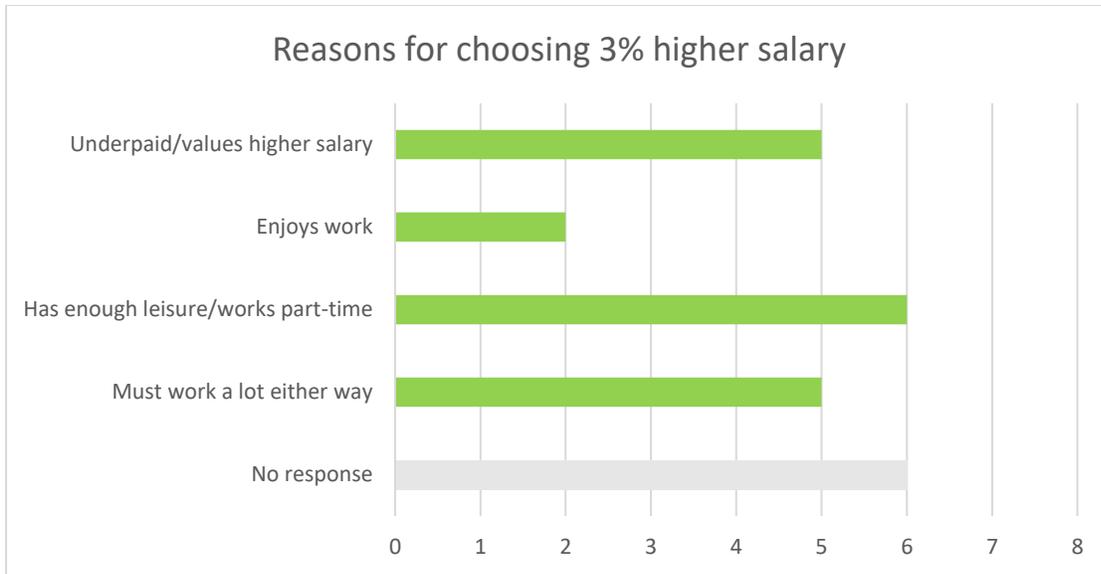
**5.3 Motivations behind preferring additional income to leisure**

In Norway, workers have taken out increased productivity in higher incomes and thus higher material standards rather than more leisure (Framtiden i våre hender, 2014). To investigate some of the motivations for choosing either higher income or more leisure, the respondents were asked whether they would like to have 3% higher salary or 3% more leisure, given that their productivity increased by 3%. This question was contextualised by giving an example of a person who earns 45,000 NOK per month and works the standard 37.5 hours per week. For them, 3% higher salary would equal 1350 NOK, while 3% more leisure would equal 4.5 extra hours of leisure each month. The extra leisure could for instance be used to leave one hour earlier from work each Friday. Figure 7 shows a slight majority in favour of more leisure.

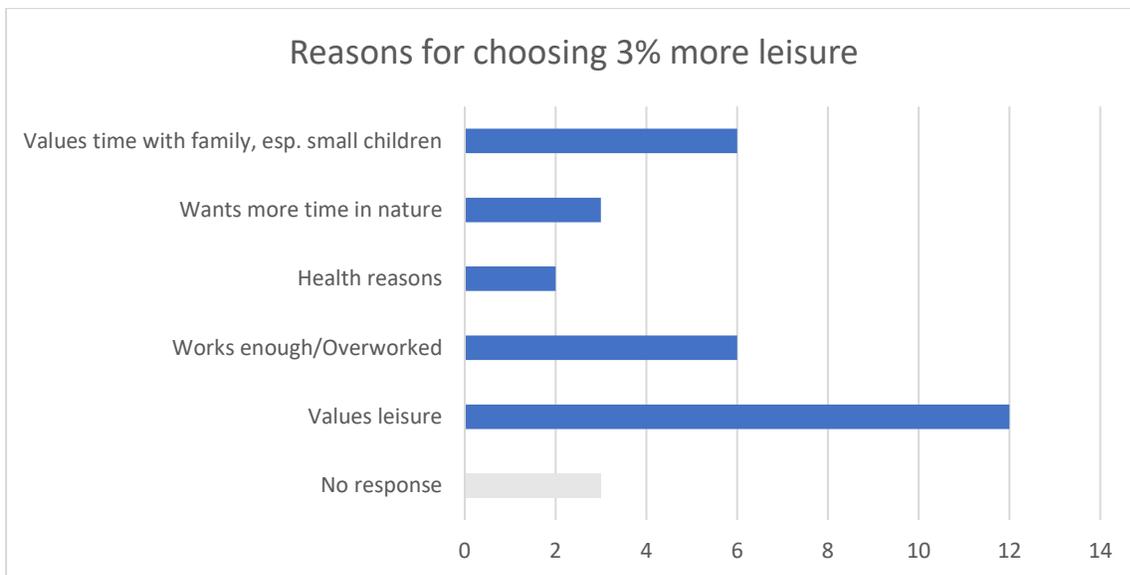


**Figure 7.** Distribution of the choice between higher salary or more leisure.

Respondents were then asked to write something about why they chose either higher salary or more leisure. I sorted the answers based on prevalent themes, and then quasi-quantified them. Figure 8 presents reasons for choosing higher salary while Figure 9 presents reasons for choosing more leisure. The dominant reasons for choosing higher salary seems to be dissatisfaction with the current salary level and that the respondents did not need more leisure as they already worked part-time. Some also stated that the nature of their job makes it impossible to have more leisure, and it rather requires them to always work beyond regular working hours. Thus they would choose the extra salary to compensate for some of the extra work. The dominant reason for choosing more leisure was that leisure was valuable in itself, and more valuable than additional money. Some stated more specifically that already being overworked made the need for more leisure far more pressing than the need for higher salary, while others wanted more time with their family and especially younger children. Interestingly, having low salary was also used by one respondent as an argument for choosing leisure. They reasoned that 3% of their salary would not constitute much additional income, and thus they valued leisure more.



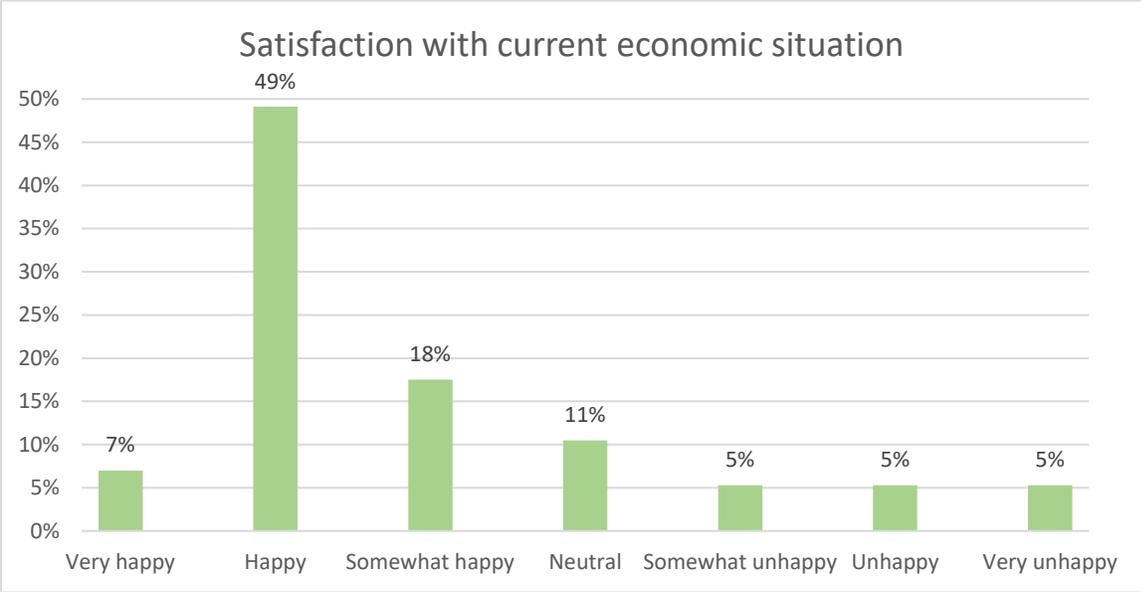
**Figure 8.** Distribution of reasons to choose higher salary over more leisure. Values quasi-quantified from text answers.



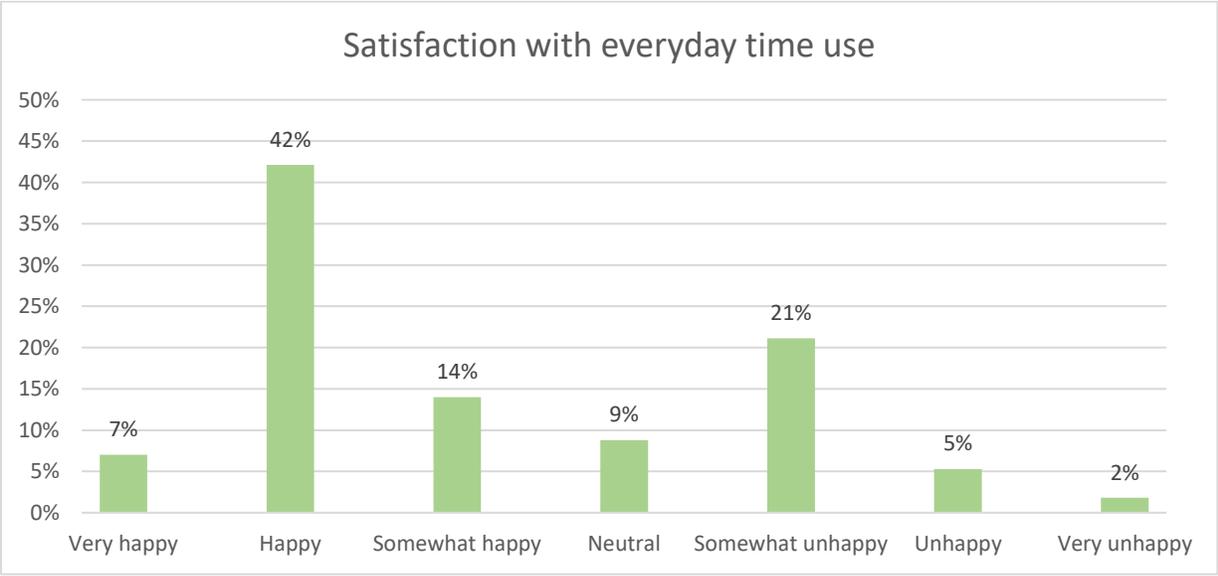
**Figure 9.** Distribution of reasons to choose more leisure over higher salary. Values quasi-quantified from text answers.

The direct answers about the reasoning can also be seen in conjunction with background information like how satisfied the respondents are with their current economic situation (Figure 9). Or how satisfied they are with their everyday time use, e.g. whether they feel a time squeeze from having a busy lifestyle (Figure 10). More than half the respondents were varying degrees of happy with both. However, considerably more respondents were somewhat unhappy with their

time use (21%) rather than somewhat unhappy with their economic situation (5%).



**Figure 10.** Distribution of respondents’ level of satisfaction with current economic status.



**Figure 11.** Distribution of respondents’ level of satisfaction with everyday time use.

## **6 Discussion**

The discussion first examines how the results from the questionnaire can provide insights into the main research question: what the potential environmental impacts of expanded leisure in Norway could be. The second part views the results in light of relevant concepts from WTR theory. Lastly follows a discussion of the limitations of the study.

### **6.1 Sustainable leisure expansion in Norway**

Looking at the results, a majority prefer both more and mostly medium or low-impact leisure. A bit more than half of the respondents (56%) are positive to increasing their leisure rather than their salary, with some stating specifically that they would like to have more time with their family and to spend time in nature. This aligns with how physical activity and family were largely equal in popularity and considerably above the other activities preferred for both a 4-day workweek and 6-hour workday scenario.

Physical activity, especially spending time in nature by e.g. taking walks, seems to be deeply valued by the respondents. This follows from a long tradition of valuing outdoor recreation in Norway. The COVID-19 pandemic may also have increased the appreciation of outdoor recreation due to it being an important and non-restricted activity for people during lockdown periods. This seems to be reflected in how most of those with more leisure during societal lockdown spent it on physical activity (Figure 5). While activities like taking walks may seem very low-impact energy consumption wise, Aall (2011) points out that the consumption related to outdoor recreation has increased considerably in recent years. Thus, the physical activity category is sorted as medium-impact instead of low-impact due being an average of outdoor recreation (high-impact), gyms (high-impact), and sports (low-impact).

Family is the other leisure activity consistently most preferred for all scenarios: pre-COVID (Figure 2), during societal lockdown (Figure 5), and in scenarios of expanded leisure (Figures 3 and 4). While ‘Family’ as a leisure activity could entail all other kinds of activities, like digital media or physical shopping, it means essentially to spend time together with family members. Thus, by itself, spending time on family should have a low energy consumption. Especially parents of small children expressed that gaining some extra time to take care of the children would mean a lot. This also relates to how housework seems to be relatively much preferred, being the third largest pre-COVID and still being high in the middle for scenarios with more

leisure. Although housework does not count as ‘pure leisure’ as it is more of a necessary part of running a household (Wajcman, 2015), spending more time on it and ‘get it done’ may decrease stress and the feeling of busyness. This could also be reflected in that 21% of the respondents felt somewhat unhappy with their everyday time use.

The high-impact activities renovation and property maintenance, cultural activities outside of the home, and domestic and international travel were all generally medium preferred pre-COVID. Meanwhile only a handful preferred shopping as a leisure activity, most of them preferring physical over online shopping. Moreover, only a couple of people responded that they would like to spend more time on physical or online shopping if given more leisure. For the 4-day workweek scenario, more people responded that they would spend the extra day traveling domestically as compared to both pre-COVID and the 6-hour workday scenario. Having one extra day off naturally provides a better opportunity to travel somewhat far away than having two extra hours of leisure each day. This implies that having longer, continuous periods of leisure leads to more energy intensive traveling than having more leisure spread out over the week. Thus, a 6-hour workday could be preferred over a 4-day workweek in terms of minimising high-impact leisure travel. Still, some also responded that they would want to travel more both domestically and internationally with a 6-hour workday, so environmental impact would possibly still increase.

Nevertheless, the most preferred activities for additional leisure seem to have medium and low environmental impact. Of course, the leisure categories used here are broad and energy consumption may vary considerably among more specific activities within each category. However, the environmental impact of expanded leisure in Norway will naturally also depend on whether authorities will implement additional measures to encourage more sustainable leisure time use. For instance, as Aall (2011) suggests, to price leisure activities based on environmental impact, demand standards for material use related to leisure, and ban or regulate certain highly environmentally problematic activities. Moreover, if leisure was expanded for large parts of the population, there could be a social multiplier effect, meaning that the utility of not working is high because many people are not working at the same time (Kallis, et al., 2013). The social multiplier effect could lead to both higher and lower environmental impact, through for example

increasing travel to meet other people or through an increase in the popularity of low-impact activities like local volunteer work.

The results of this study show that there will likely not be any major environmental rebound effect of expanded leisure in Norway. This is consistent with the study done by Buhl and Acosta (2015) which found that people who had voluntarily decreased their working time spent their leisure mostly on activities like childcare, household chores, socialising, and hobbies. The result that a majority (56%) prefer additional leisure over additional salary is also consistent with a previous survey conducted for and reported by the Norwegian environmental NGO Future in our hands (Framtiden i våre hender, 2014). However, the survey for Future in our hands showed that two thirds were in favour of additional leisure over additional salary. The difference is likely due to difference in sample size and work sectors represented.

## **6.2 Results in relation to WTR theory**

Environmental benefits of WTR is typically explained through composition effects and scale effects (Fitzgerald et al., 2018), or through the more specific time and income effects (King & van den Bergh, 2017). Only composition and time effects are applicable for the results of this study, as they involve changes on the individual or household level. Scale effects do not apply because they operate at the societal level. The income effect involves changes that come from income reduction, and thus does not apply because the expanded leisure scenarios were specified to be without any change in income.

Respondents mostly preferred to do more of the same activities (family, physical activity, contact with friends) rather than different activities if given more leisure. Composition effects could then manifest by people choosing different ways of doing those same activities. For example through taking public transport or biking to a popular forest trail rather than going by car, or by making dinner at home with the family rather than order take-away food. This would then reduce the environmental impact of everyday activities. It seems plausible that having more time for the same daily activities could lead to people choosing such slower, less energy intensive options. Especially when 21% responded that they felt somewhat unhappy with their time use in everyday life. This also plays into the part of the triple dividend of WTR that relates to quality of life, as feeling rushed, stressed, and guilty for neglecting family greatly affects mental health (Wajcman, 2015).

Time effects apply more specifically to the effects of spending time on other activities instead of at work. While King and van den Bergh (2017) argue that time at work is the least energy intensive, they do not take into account the energy imbedded in the work itself i.e. the production it contributes to. For the results in this study, the time effects show in what activities people would spend their extra leisure on. Because people would mostly spend their leisure on medium and low-impact activities, the time effects on environmental impact would be correspondingly medium and low. Of course, net time effects depend on how much energy is saved alone through WTR, but that is outside the scope of this thesis.

### **6.3 Study limitations**

A limitation of the study is the limited sample size which makes the findings less generalisable to the rest of the Norwegian population. The limited sample size is a result of time constraints and low interest among those invited to respond. This may again be due to general ‘digital fatigue’ many may feel after long lockdown periods with only digital activities. The pandemic also made meeting people face-to-face impractical, due to the health risk of meeting more people than necessary.

Additionally, the sample was heavily female dominated, possibly showing a gendered bias towards the topic. Ideally, the sample size should have been larger and more diverse so that I could test for statistical significance between various variables collected through the questionnaire. However, because of the low response rate, I was not able to use all the data collected, which could have given more insight into the motivations behind people’s preferences.

Another limitation is that what people say they would do in a hypothetical situation may not accurately represent what they would do in an actual situation. Ideally, the sample would consist of people with experience with WTR so that I could compare their leisure habits with and without reduced work time. However, stated preferences can still say something about the values and attitudes people hold regarding leisure, which they may act on. Additionally, the answers to the question about additional leisure during COVID-19 shows some actual examples of what people would do with extra leisure, although in a much more unusual situation.

## 7 Conclusion

The need for environmental sustainability demands that we transform how we spend our time. In modern societies, time is largely divided between work and leisure. We must restructure both to be able to meet pressing environmental and social needs. This thesis has aimed to explore how the leisure coming from WTR may be spent and what environmental impacts will follow. To do this, I have used Norway as a case study. The study consisted of reviewing relevant WTR and leisure literature and collecting data from Norwegian workers through a primarily quantitative mixed method design. Through this, some general conclusions emerged.

Firstly, Norwegian workers seem to be generally happy with how they spend their leisure, and if given more, they would like to spend it on the same activities they already dedicate much time to. These activities include family, physical activity, especially spending time in nature, housework, keeping in contact with friends, and hobbies. Spending time in nature seems to be particularly highly valued, as it was mentioned specifically by several respondents. Being an outlet for physical activity was also the factor most respondents ticked off as important when choosing leisure activities. This implies a deep cultural tie to outdoor physical activity, which could have been further deepened by having nature as maybe the only getaway under societal lockdown during the COVID-19 pandemic. However, traveling is also a valued activity, and if given a 4-day work week, many would want to spend the extra day off to travel within Norway. Therefore, a 6-hour workday may be preferred if one wishes to minimise domestic travel during expanded leisure.

Secondly, motivations behind the choice of leisure activities seem to be very varied. At the top there is the preference for physical activity, to be social, to be with friends, to relax, and to experience something new. However the answers had even distributions and no factor was singled out as being far more important than the other. Thus, what can motivate Norwegians to spend their leisure on activities with low environmental impact may be to provide such alternatives that still fulfil the basic needs of sociability, physical activity, relaxation, and generally fun experiences.

Thirdly, while material standards in Norway are generally very high compared to the rest of the world, 46% of the respondents still preferred a 3% increase in salary rather than a 3% increase in leisure. The most common reasons were that the respondents felt underpaid, that they already

worked part-time and had plenty of leisure but not enough money, and that the nature of their job would not allow them to have more leisure either way. This reflects several issues people may have with WTR. The first one being that some cannot afford to reduce their worktime as they earn little compared to the rest of society. The second one being that full-time work, although reduced to e.g. 30 hours a week, must be enough to provide a decent living for the worker and potential dependents. The last one being that some workers, like teachers or nurses, cannot increase their productivity so that it compensates for worktime, due to the social nature of their work. If WTR is to be implemented for these kinds of jobs, the workload must be shared by more workers to avoid constant overtime.

Predicting the environmental impacts from an expansion of leisure time in Norway is highly complex and this thesis has only touched on some possibilities based on Norwegian workers' preferences. As people may choose to spend even more time on activities with medium and low environmental impact, implementing widespread WTR will likely not cause greater environmental impact from additional leisure consumption. However, this is naturally highly dependent on which kind of WTR is implemented, how widespread it becomes, and additional leisure consumption policies. Further research should focus on properly quantifying the net environmental impact of WTR considering growth in leisure, and on creating models for various WTR and leisure scenarios. Such tools could guide us further in the direction of sustainable work and leisure time.

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## 9 Appendices

### 9.1. Appendix I: Python code for random number generator

```
# -*- coding: utf-8 -*-  
  
"""  
  
Created on Mon Jan 18 18:29:25 2021  
  
@author: msoev  
  
"""  
  
import random  
  
lengder = [39, 39, 39, 11, 50, 22, 23, 643, 3, 8, 143, 5] #liste med lengde  
  
velg = [5, 2, 1, 3, 2, 1, 1, 1, 1, 1, 1, 1] # størrelsen på utvalget  
  
utvalg = []  
  
k = 0  
  
for i in lengder:  
  
    utvalg.append(random.sample(range(1,i), velg[k]))  
  
    k = k + 1
```

## 9.2. Appendix II: Written information and consent form for interviewees

Hello,

this is an invitation to take part in an interview for my master's thesis about work time reduction, leisure, and the environment. The working title of the thesis is «Life at a leisurely pace? Work time reduction and leisure in Norway».

My name is Amalie Rosslund Christiansen and I am a master student at the Norwegian University of Life Sciences (NMBU). The purpose of the interview is to collect background data that will shape my master's thesis in international environmental studies. The thesis will be about potential work time reduction and leisure in Norway, and what that could entail for the environment. Thus, I need to collect information about people's attitudes towards work time and leisure, in addition to relevant background information like age, gender, type of workplace, level of unionisation, etc. The interview will take about 30 to 45 minutes. Notes and possible audio recordings will be stored electronically and in accordance with privacy regulations.

Taking part in the interview is of course completely voluntary. The information from the interviews will not be used directly in the thesis, but will be used as background data that will shape the thesis. It will not be possible to trace any information in the finished thesis to an individual. Furthermore, the information will only be used for this master's thesis and the information will be deleted after the thesis is finished in June 2021.

As a participant, you have the rights to at any time:

- Get access to the information collected about you and to receive a copy of this information.
- Get the information about you corrected
- Get the information about you deleted
- Make a complaint to the Norwegian Data Protection Authority (DPA) about the processing of your personal data.

If you wish to make use of any of your rights or have other questions, feel free to contact me by e-mail at [amch@nmbu.no](mailto:amch@nmbu.no) or by phone at +47 97483922.

The supervisor for the thesis is Erik Gomez-Baggethun, who can be reached at [erik.gomez@nmbu.no](mailto:erik.gomez@nmbu.no) or at +47 67231388.

You can also contact the data protection official at NMBU, Hanne Pernille Gulbrandsen, via e-mail at [personvernombud@nmbu.no](mailto:personvernombud@nmbu.no) or mobile +47 402 81 558.

NSD – Norwegian Centre for Research Data AS has at the request of NMBU assessed the processing of personal data in this project to be in accordance with privacy regulations.

If you have questions about NSD's assessment of the project, you can get in contact via:

NSD – Norwegian Centre for Research Data AS by e-mail ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) or by phone: 55 58 21 17

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## Consent form

I have received and understood the information regarding the project *Life at a leisurely pace? Work time reduction and leisure in Norway*, and have had the opportunity to ask questions. I consent to:

Participate in an interview with audio recording

or

Participate in an interview without audio recording

Date and location:

Signature:

### 9.3. Appendix III: Interview guide

1. What is your general job title and what kind of work do you do?
  - a. Could you describe a normal work day?
2. How long is your normal workday and workweek?
3. What do you think about your worktime?
4. Are you part of a labour union?
  - a. Why/why not?
5. What do you tend to do when you are not working?
6. In your everyday life, do you generally feel busy?
  - a. Why/why not?
7. If you could choose between more work and more leisure, what would you choose?
  - a. Why?
8. Imagine that you were suddenly allowed as much leisure as you want without having to earn less money: What do you think you would have done?
  - a. Why?
  - b. Which factors are important to you when choosing activities?
9. What do you think about implementing reduced working time, e.g. six-hour work day in your field of work?
  - a. Do you see any positive sides?
  - b. Do you see any negative sides?
10. Do you see any connection between worktime and the environment and climate?

11. Any other thoughts you would like to share concerning worktime and leisure?

#### **9.4. Appendix IV: Written information and consent form for questionnaire respondents**

Hello,

this is an invitation to respond to a questionnaire for my master's thesis about work time reduction, leisure, and the environment. The working title of the thesis is «Life at a leisurely pace? Work time reduction and leisure in Norway».

My name is Amalie Rosslund Christiansen and I am a master student at the Norwegian University of Life Sciences (NMBU). The purpose of the survey is to collect data for my master's thesis in international environmental studies. The thesis is about potential work time reduction and leisure in Norway, and what that could entail for the environment. Thus, I need to collect information about people's attitudes and experiences with work time and leisure, in addition to relevant background information like age, gender, type of workplace, level of unionisation, etc. The data collection will happen through a questionnaire, which takes about 10-15 minutes to complete. The questionnaire is made through the Nettskjema service. The results will be stored electronically and in accordance with the privacy regulations.

Responding to the questionnaire is of course completely voluntary. Due to the topic of the thesis it is necessary to ask for and store personal data that could identify the respondents.

As a respondent, you have the rights to at any time:

- Get access to the information collected about you and to receive a copy of this information.
- Get the information about you corrected
- Get the information about you deleted
- Make a complaint to the Norwegian Data Protection Authority (DPA) about the processing of your personal data.

If you wish to withdraw from the survey, all the data from you be deleted and not used in the thesis. You do not need to give any reason for withdrawing. The information you provide through the questionnaire will only be used for this master thesis and will be deleted after the thesis is finished in June 2021. The personal data will be processed entirely based on consent.

If you wish to get access to the information about you, withdraw, make use of any of your other rights or have other questions, feel free to contact me by e-mail at [amch@nmbu.no](mailto:amch@nmbu.no) or by phone at +47 97483922.

The supervisor for the thesis is Erik Gomez-Baggethun, who can be reached at [erik.gomez@nmbu.no](mailto:erik.gomez@nmbu.no) or at +47 67231388.

You can also contact the data protection official at NMBU. Hanne Pernille Gulbrandsen, via e-mail at [persomvernombud@nmbu.no](mailto:persomvernombud@nmbu.no) or mobile +47 402 81 558.

NSD – Norwegian Centre for Research Data AS has at the request of NMBU assessed the processing of personal data in this project to be in accordance with privacy regulations.

If you have questions about NSD's assessment of the project, you can get in contact via: NSD – Norwegian Centre for Research Data AS by e-mail ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) or by phone: 55 58 21 17

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## Consent form

I have received and understood the information regarding the project *Life at a leisurely pace? Work time reduction and leisure in Norway*, and have had the opportunity to ask questions. I consent to:

- Respond to the questionnaire

Signature:

## 9.5. Appendix V: Questionnaire

### Questionnaire for a master thesis in international environmental studies

Hello and thank you for wanting to respond to this questionnaire about work time and leisure.

The questionnaire is meant for Norwegian workers from the whole country.

Responding should take about 10-15 minutes, depending on how much you would like to respond.

The responses will be used for my master thesis in international environmental studies at NMBU and will be deleted after the thesis is finished in June 2021.

The thesis could contribute to knowledge about the environmental impacts of changing work time in Norway in a way that gives people more leisure. This could have consequences for whether various actors (politicians, labour unions, businesses etc.) will be for or against work time reduction.

Should you have any questions, feel free to contact me by e-mail [amch@nmbu.no](mailto:amch@nmbu.no) or by phone 97483922.

The supervisor for the thesis is Erik Gomez-Baggethun who can be reached at [erik.gomez@nmbu.no](mailto:erik.gomez@nmbu.no)

NSD – Norwegian Centre for Research Data AS has at the request of NMBU assessed the processing of personal data in this project to be in accordance with privacy regulations.

If you have questiones about NSD's assessment of the project, you can get in contact via: NSD – Norwegian Centre for Research Data AS by e-mail ([personvertjenester@nsd.no](mailto:personvertjenester@nsd.no)) or by phone: 55 58 21 17

By responding, you can also participate in the drawing of two gift cards worth 1500 NOK. You can participate by filling in your e-mail at the end of the questionnaire.

\* mandatory question

1. Which county do you work in?\*

- a. Troms og Finnmark
- b. Nordland
- c. Trøndelag
- d. Møre og Romsdal
- e. Vestland
- f. Rogaland
- g. Agder
- h. Vestfold og Telemark
- i. Viken
- j. Innlandet
- k. Oslo

2. Age?\*

- a. [Scroll-down list with ages 18 to 68+]

3. Gender?\*

- a. Female
- b. Male
- c. Other
- d. Prefer not to say

4. What is your highest completed level of education?\*

- a. Compulsory primary and secondary school
- b. High school
- c. Vocational school, completed craft certificate and other 1-2 year education after high school
- d. University or college 1-3 years

- e. University or college 4-5 years
- f. Doctor's degree

5. Which sector do you work in? \*

- a. Health/care
- b. Production/industry
- c. Service
- d. Sales
- e. Cleaning and property service
- f. Construction
- g. School
- h. Academia/research
- i. Public administration
- j. Other administration
- k. Marketing
- l. Economy
- m. Shipping/offshore
- n. Agriculture
- o. Finance
- p. Media/information
- q. Telecommunication and IT
- r. Other sector (please answer on next question)

6. If you answered 'Other sector' on the last question, please write the name of the sector.

[Fill in]

7. How many percent of a full time position do you work?\*

Please write the answer as a number between 0 and 100.

- a. [Fill in]

8. How long is a typical workday for you?\*

Please write the answer in number of hours.

a. [Fill in]

9. How long is a typical workweek for you (including overtime)?\*

Here, overtime means both registered (paid) and unregistered (unpaid) extra work outside of set work time.

a. Shorter than 37,5 hours

b. 37,5 hours

c. 40 hours

d. Longer than 40 hours

10. Have you experienced changes in your current work time during the COVID-19 pandemic?\*

a. Yes, I have had to work less

b. Yes, I have had to work more

c. Yes, I was laid off

d. No, no change

11. What do you think about your current economic situation?\*

a. Very happy

b. Happy

c. Somewhat happy

d. Neutral

e. Somewhat unhappy

f. Unhappy

g. Very unhappy

12. What do you think about your everyday time use?\*

E.g. how much time you have, level of busyness, time squeeze etc.

a. Very happy

- b. Happy
- c. Somewhat happy
- d. Neutral
- e. Somewhat unhappy
- f. Unhappy
- g. Very unhappy

Norway is at the top in the world when it comes to work productivity. Increased productivity often means that more work can be done with less resources. For example that one person can do the same work that earlier requires two people. For a worker, increased productivity can lead to higher salary or more leisure.

For example, a 3% increase in work productivity could lead to a corresponding 3% higher salary or 3% more leisure. For a person with a monthly salary of 45 000 NOK that would amount to 1350 NOK. If this person works 37.7 hours each week, a 3% increase in leisure would amount to 4.5 hours more leisure, for instance by leaving work an hour earlier each Friday.

13. If your work productivity increased by 3%, what would you choose among these alternatives?\*

- a. 3% higher salary
- b. 3% more leisure

14. Could you please write something about why you answered as you did in the last question?

- a. [Fill in]

15. Have you had to stay more at home during societal lockdown due to the COVID-19 pandemic?\*

- a. Yes, a lot more
- b. Yes, somewhat more
- c. No

16. Have you experienced an increase in leisure during the COVID-19 pandemic?\*

Here, leisure means time that is not set aside for work or activities related to work, like commuting to work.

- a. Yes, I have more leisure than before
- b. No, no change
- c. No, I have less leisure than before
- d. I was laid off

17. If you answered Yes to the previous question: What did you spend the time on?

Tick off the alternatives most relevant to you. You can tick up to five alternatives.

- a. Catch up on work
- b. Keep up to date professionally
- c. Family
- d. Housework
- e. Renovation and property maintenance
- f. Hobbies
- g. Digital media (film, tv, social media, music, news, online videos etc.)
- h. Paper-based media (Newspapers, books, magazines etc.)
- i. Volunteer work
- j. Political work
- k. Sleep and relaxation
- l. Contact with friends and acquaintances
- m. Exercise, other physical activity (sports, outdoor life etc.)
- n. Online shopping
- o. Physical shopping
- p. Travel, domestic
- q. Travel, abroad
- r. Online cultural activities (live concerts, web seminars etc)
- s. Cultural activities outside of the home (concerts, museums, festivals etc)
- t. Did not have more leisure

u. Other

18. If you answered Other to the last question, please write which activity or activities you spent time on here.

a. [Fill in]

19. In a more ordinary situation (without COVID-19), what do you spend your leisure on the most?\*

Tick off the activities you have spent the most time on. You can tick off up to five alternatives.

- a. Catch up on work
- b. Keep up to date professionally
- c. Family
- d. Housework
- e. Renovation and property maintenance
- f. Hobbies
- g. Digital media (film, tv, social media, music, news, online videos etc.)
- h. Paper-based media (Newspapers, books, magazines etc.)
- i. Volunteer work
- j. Political work
- k. Sleep and relaxation
- l. Contact with friends and acquaintances
- m. Exercise, other physical activity (sports, outdoor life etc.)
- n. Travel, domestic
- o. Travel, abroad
- p. Online shopping
- q. Physical shopping
- r. Cultural activities outside of the home (concerts, museums, festivals etc)
- s. Other

20. If you answered Other to the last question, please write the activity or activities you have spent time on here.

a. [Fill in]

21. Think of the time before COVID-19. Is there anything you would like to change about how you spend your leisure?\*

For example, if you were unhappy with the way you spent your leisure. Tick off the alternatives that fit you. You can tick off several alternatives.

- a. No, I am happy with my leisure as it is
- b. Yes, I would like to have had more time to do activities I prefer/have planned
- c. Yes, I would like to have done other activities than those I normally do.
- d. Yes, I would like to have spent more time with people (e.g. family, friends)
- e. Yes, I would like to have been freer to choose activities myself

22. If you ticked off Yes on the last question, what do you think prevents you from improving the way you spend your leisure?

The question still applies to the time before COVID-19.

- a. Lack of time
- b. Economy
- c. Distance (e.g. activities being too far away)
- d. Other commitments
- e. Lack of opportunities nearby
- f. Lack of initiative/energy
- g. Rules and restrictions that make doing certain activities impractical/difficult

23. Imagine that you had a 4-day workweek without earning any less. How would you spend the extra day off?\*

The question applies generally and you can choose to ignore the current situation with the COVID-19 pandemic. Tick off what you would like to spend time on the most. You can

tick off up to five alternatives.

- a. Catch up on work
- b. Keep up to date professionally
- c. Family
- d. Housework
- e. Renovation and property maintenance
- f. Hobbies
- g. Digital media (film, tv, social media, music, news, online videos etc.)
- h. Paper-based media (Newspapers, books, magazines etc.)
- i. Volunteer work
- j. Political work
- k. Sleep and relaxation
- l. Contact with friends and acquaintances
- m. Exercise, other physical activity (sports, outdoor life etc.)
- n. Travel, domestic
- o. Travel, abroad
- p. Online shopping
- q. Physical shopping
- r. Cultural activities outside of the home (concerts, museums, festivals etc)
- s. Other

24. Imagine that you had a 6-hour workday without earning any less. How would you spend the extra leisure?\*

The question applies generally, and you can choose to ignore the current situation with the COVID-19 pandemic. Tick off what you would like to spend time on the most. You can tick off up to five alternatives.

- a. Catch up on work
- b. Keep up to date professionally
- c. Family

- d. Housework
- e. Renovation and property maintenance
- f. Hobbies
- g. Digital media (film, tv, social media, music, news, online videos etc.)
- h. Paper-based media (Newspapers, books, magazines etc.)
- i. Volunteer work
- j. Political work
- k. Sleep and relaxation
- l. Contact with friends and acquaintances
- m. Exercise, other physical activity (sports, outdoor life etc.)
- n. Travel, domestic
- o. Travel, abroad
- p. Online shopping
- q. Physical shopping
- r. Cultural activities outside of the home (concerts, museums, festivals etc)
- s. Other

25. If none of the alternatives in the last questions were applicable, please write what you would spend your time on here.

- a. [Fill in]

26. Which factors are the most important to you when choosing leisure activities?\*

Tick off the factors most important to you. You can tick off up to five alternatives.

- a. Economy (e.g. activity price)
- b. Infrastructure (e.g. how accessible activities are)
- c. Fitting for families
- d. Fitting for friends
- e. Fitting for meeting new people
- f. Fitting to do alone
- g. Possibility to get away

- h. Possibility to experience something new
- i. Possibility to be social
- j. The activity provides excitement
- k. The activity provides entertainment
- l. The activity provides relaxation
- m. The activity is meaningful
- n. Possibility to learn something new
- o. Possibility for self-development
- p. Outlet for physical activity
- q. Outlet for creativity
- r. Other

27. If you answered Other to the last question, please write which factor or factors are important to you.

- a. [Fill in]

28. If you wish to participate in the drawing of two 1500 NOK giftcards, please write your e-mail address below.

This is completely voluntary and the e-mails will only be used to contact the winners of the drawing. The winners will be contacted when the survey is finished, expected June 2021.

- a. [Fill in]



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