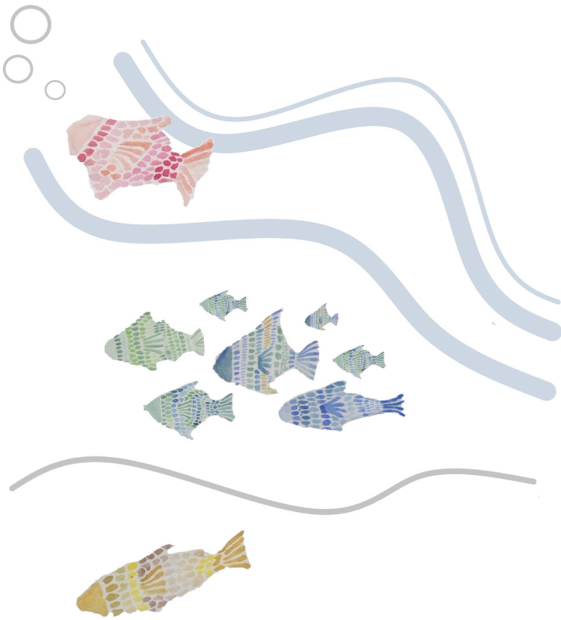
KTH ROYAL INSTITUTE
OF TECHNOLOGY

Doctoral Thesis in Planning and Decision Analysis

Scaling sufficiency

Towards less material consumption

OLA PERSSON



Scale up. Scale out. Scale deep.

Stockholm, Sweden 2022

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OLA PERSSON

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Abstract

Various researchers have pointed out that avoiding further catastrophic consequences related to the deteriorating ecological state of the planet, brought about by unsustainable production and consumption patterns, requires not only technological innovation and efficiency in production processes, but also absolute reductions in energy and material use (i.e., sufficiency). The rapid expansion of research on ideas such as sufficiency and post-growth indicate an increasing realization that fundamental societal change is needed if we are to avoid devastating environmental effects and social inequities.

Using a theoretical perspective consisting of the literature on sustainable consumption, sufficiency politics and policies, and scaling sustainability initiatives, this thesis aims to contribute to our knowledge about social-ecological transformations from the perspective of sufficiency, specifically addressing (un)sustainable consumption. Sweden serves as the case with, on the one hand, its strong civil society, policy and business promotion of sustainable development and, on the other, high per-capita levels of unsustainable consumption of resources.

This thesis comprises four separate articles and a cover essay. Article one explores how environmental non-governmental organizations (ENGOs) are framing different sufficiency activities—ranging from those that can be applied within the current market arrangements to others that deal with social relations and non-commercial values beyond market exchange—as a way to attract a wider audience. Article two analyses the individual motives for working less and the socio-ecological outcomes of Gothenburg City's 'right to part-time' policy. The third article contrasts the visions and discourses of 'community repair' with the mainstream circular economy discourse by analyzing the ENGO campaign 'Fix the Stuff' and the open Do-It-Yourself repair spaces 'Fixotek' in the City of Gothenburg. Article four explores how different business forms impact upon the social and ecological sustainability dynamics of the changing Swedish second-hand clothing market.

Sufficiency is an approach that remains peripheral in the public debates on how to enable social and ecological sustainability. Nevertheless, the research in this thesis provides concrete examples of how sufficiency practices can be scaled, not only through bottom-up and grassroots movements, but also via

more conventional actors, such as municipalities, established ENGOs and firms (Papers I–IV). It therefore contributes to knowledge about how sufficiency can extend beyond an individual strategy towards low-impact lifestyles, and thus can involve various societal actors and amplification processes, ranging across scaling out, scaling deep and scaling up. In addition, I illustrate how the scaling of sufficiency practices is also coupled with various challenges and tensions, which risk undermining some of the key aspects of the sufficiency approach.

Furthermore, through the lens of the sufficiency approach, this thesis also advances the debate on sustainability transitions and circular economies (Papers III and IV). In particular, it draws attention to how the mainstream circular economy discourse has overlooked questions relating to the roles and powers of citizen-consumers and corporations, as well as the control of materials, skills and resources. Moreover, there are social-ecological issues related to which market actors have access to used clothing, how these materials flow and how profits are eventually distributed that have yet to receive much attention in the current circular economy debate. Together, these issues have important implications for who benefits from the transition to a circular economy and in what ways.

Sammanfattning

Flertalet forskare framhåller att om vi ska undvika ytterligare katastrofala konsekvenser relaterade till miljöns tillstånd, orsakade av ohållbara konsumtions- och produktionsmönster, så krävs inte bara innovationer och effektivare produktionsprocesser, utan även en minskning av energi-och materialkonsumtion. Det finns ett framväxande forskningsfält kring begrepp som “tillräcklighet” och ”bortom ekonomisk tillväxt” där man pekar på att djupgående samhälleliga förändringar behöver ske för att undvika de värsta miljörelaterade konsekvenserna och sociala ojämlikheter.

Med utgångspunkt i litteratur kring hållbar konsumtion, politik och styrmedel för tillräcklighet, samt hur hållbarhetsinitiativ kan få större genomslag, eller ”skalas”, har denna avhandling som syfte att bidra till ökad kunskap om social och ekologisk omställning, med specifikt fokus på (o)hållbar konsumtion. Sverige utgör den geografiska kontexten med dess, å ena sidan, starka engagemang i hållbar utveckling från civilsamhälle, företag och offentlig sektor och, å andra sidan, ohållbara konsumtion av resurser per capita.

Avhandlingen består av fyra vetenskapliga artiklar och en kappa. Den första artikeln utforskar hur miljöorganisationer ”ramar in” olika tillräcklighetspraktiker – från de som utgör en del av den monetära marknaden till de som fokuserar på sociala relationer och icke-kommersiella värden bortom marknadstransaktioner – för att på så vis nå olika målgrupper. I den andra artikeln analyseras de individuella motiven och socio-ekologiska effekterna av Göteborgs Stads ”rätt till deltid”-policy. Den tredje artikeln utforskar diskurserna kring olika former av cirkulära ekonomier genom att jämföra Naturskyddsförenings kampanj ”Fixa Grejen” och Göteborgs Stads öppna mötesplatser för göra-det- själv reparation, så kallade ”Fixotek”, med den dominerande cirkulär ekonomi diskursen. Den fjärde artikeln utforskar hur olika företagsformer påverkar sociala och ekologiska hållbarhetsdynamiker på den svenska andrahandsmarknaden för kläder.

Tillräcklighet är ett perspektiv som fortfarande sällan lyfts fram i den offentliga debatten om hur social and ekologisk hållbarhet kan uppnås. Likväl, forskningen i denna avhandling visar på konkreta exempel på hur tillräcklighetspraktiker kan ”skalas” inte enbart genom gräsrotsrörelser, utan även genom mer konventionella aktörer såsom kommuner, etablerade miljöorganisationer och företag (artiklar I-IV). Avhandlingen bidrar på så vis till kunskap om hur tillräcklighet kan gå bortom en individuell strategi för minskad materiell konsumtion till att omfatta olika typer av samhällsaktörer och former för genomslag, beskrivet som ”skala ut”, ”skala djupt” och ”skala upp”. Samtidigt pekar avhandlingen på de motsättningar och spänningar som uppkommer när tillräcklighetspraktiker skalas.

Genom ett tillräcklighetsperspektiv bidrar denna avhandling till debatten kring omställning och cirkulär ekonomi (artiklar III och IV). Specifikt så visar avhandlingen på hur den dominerande diskursen kring cirkulär ekonomi har förbisett frågor som rör maktrelationer mellan medborgare/konsumenter och företag. Den visar också på sociala och ekologiska aspekter relaterat till vilka aktörer som verkar på begagnatmarknaden, hur materialflödet ser ut, och hur vinsten så småningom fördelas. Sammanfattningsvis pekar avhandlingens resultat på kritiska frågor gällande vem som gynnas av omställningen till en cirkulär ekonomi och på vilket sätt.

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As the title page of this thesis bears only my name, one might get the impression that this body of research was the result of my sole individual efforts. This, of course, is not true. There are many people (and also places) who in various ways have contributed to finalizing my research endeavor and to whom I owe a great deal of gratitude.

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To my family: Thank you so much Mom and Dad for always being there for me, for your love, your curiosity about my work, and our evening discussions about the state of the world and what we can do about it. To my brother: Earlier this year, when things felt overwhelming, I especially appreciated our trip to you in Falun in February, to enjoy one of the best winter days in my life with sunshine, snow, skiing, and sauna (and, not least, the company of

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Ola Persson

Täppa (Smedserud), July 2022

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Figures and tables

Appended papers:

Paper I

Persson, O. and Klintman, M., 2022. Framing sufficiency: Strategies of environmental organisations towards reduced material consumption, *Journal of Consumer Culture*, 22(2) pp. 513–533. https://doi.org/10.1177/1469540521990857

Paper II

Persson, O., Larsson, J. and Nässén, J., 2022. Working less by choice: what are the benefits and hardships? *Sustainability: Science, Practice and Policy*, 18(1), pp. 81–96. https://doi.org/10.1080/15487733.2021.2023292

Paper III

Bradley, K. and Persson, O., 2022. Community repair in the circular economy – fixing more than stuff. *Local Environment*, pp. 1–17. https://doi.org/10.1080/13549839.2022.2041580

Paper IV

Persson, O and Hinton, J., under first round of review. A sustainable second-hand clothing market? Exploring the role of business forms and profit. *Journal of Cleaner Production.*

Prologue

Scaling sufficiency. One might ask: isn't that a contradiction? Central to the sufficiency approach is the notion of *enough*; enough consumption to allow for a good life but not at the expense of planetary health or preventing marginalized communities from meeting their basic needs. Yet, sufficiency remains on the outskirts of the public and political discussions around social and ecological sustainability, and in order to ensure a livable planet for current and future generations, I argue that sufficiency practices need to be *scaled*. In this sense, the framing of the cover essay, also seen in the title of this thesis, represents something of an oxymoron: among affluent nations and communities, consumption needs to be reduced. However, in order to achieve this, sufficiency needs to be scaled, in terms not only of a more significant uptake of sufficiency-related practices but also of changes in policies, rules, and regulations and, importantly, a profound shift in mind-sets, values, and norms. There may be tensions in this idea, but as I will elaborate in the following chapters, my approach to scaling is not necessarily the common 'upscaling' that one may first think of. Can we scale sufficiency and, if so, how? This is in part what I am seeking to explore in this thesis and I hope you will enjoy reading it.

1 Introduction

Growing ecological overshoot, worsening climate change, continued biodiversity loss—resulting in widespread deprivation, increasing inequality, and social exclusion—are some of the severe global challenges that humanity is facing in the early 21st century (Steffen et al., 2015; IPBES, 2019; WWF, 2020a; IPCC, 2022a). The ongoing ecological crisis, overuse of natural resources, pollution, and the disruption of Earth's natural processes, are directly correlated with what is produced and consumed, and in what quantities (Bengtsson et al., 2018). As realization grows about the adverse environmental impacts of consumption and the associated production, sustainable consumption has been increasingly discussed, both within and outside the academic community.

Many of the past and present efforts to mitigate the effects of unsustainable production and consumption have focused on the principles of efficiency (O'Rourke and Lollo, 2015; Bocken and Short, 2016; Bengtsson et al., 2018). This refers to reducing environmental impacts by improving energy and resource use in production processes, mainly through technological advancements (Schneidewind and Zahrnt, 2014). However, this approach has proved insufficient to tackle the grave ecological and social problems induced by the overconsumption of material and energy (Bengtsson et al., 2018; Khmara and Kronenberg, 2018; Spangenberg and Lorek, 2019). To begin with, there is no historical evidence that production and consumption can be decoupled from greenhouse gas (GHG) emissions through technological advancements at the pace needed to avoid dangerous climate change and the destruction of ecological foundations that are vital for the functioning of societies (Parrique et al., 2019; Haberl et al., 2020; Hickel and Kallis, 2020). Moreover, achieving the necessary decoupling scenarios remains unrealistic for the foreseeable future (Jackson, 2017; Vadén et al., 2021). In the absence of risky and speculative technologies that can remove CO_2 from the atmosphere, reductions in energy consumption, coupled with a rapid transition to 100% renewable energy sources, are required to keep global warming well below 1.5°C and avoid irreversible tipping points (Diesendorf, 2022).

As improving the living standards of the world's poor necessitates the use of large quantities of energy and raw materials (Alfredsson et al., 2018), this implies that reducing the total consumption volume should predominately be achieved through policy interventions and behavioral changes among high-income countries and households (Spangenberg, 2018; Fanning and O'Neill, 2019; Diesendorf, 2022). This justice aspect can be further illustrated by the vast inequalities concerning who is responsible for global carbon emissions. During the period 1990–2015, the wealthiest 10% of the world's population were responsible for 52% of the cumulative carbon emissions, while the poorest 50% were responsible for only 7% (Gore, 2020).

Recently, the circular economy approach, meaning the continuous recycling and reuse of materials (Bocken and Short, 2016), has gained increased traction for encouraging sustainable consumption. It has been suggested that this approach harbors more transformative potential than the efficiency approach (Schröder et al., 2019). Yet, it cannot successfully reduce environmental harm unless total consumption demand is curtailed (Korhonen, Honkasalo and Seppälä, 2018). As almost 91% of the resources consumed globally are extracted from virgin sources (The Platform for Accelerating the Circular Economy, 2020), an entirely circular society is far from reality. In affluent nations, there is an even more significant gap between the current linear economy and a potential circular economy. In Sweden, for example, 96% of the resources consumed come from virgin sources (The Platform for Accelerating the Circular Economy, 2022). Such overconsumption threatens ecosystems that are essential for human survival and quality of life (ibid.) and arguments have been made that a circular economy approach needs to incorporate ideas of post-growth (Bauwens, 2021) and sufficiency (Bocken, Niessen and Short, 2022) in order to achieve its full potential. In other words, alternative approaches are vital to nurture the radical change needed to achieve social and ecological sustainability (Lorek and Fuchs, 2013). As argued by O'Neill et al. (2018), if we are to ensure a good life for all within the planetary boundaries (Steffen et al., 2015), it is necessary to couple technological advancements and increased circularity with an overall reduction in consumption and production. This is where the sufficiency approach enters. It entails reducing resource consumption per capita amongst the affluent but not at the expense of quality of life (Spangenberg, 2018). Instead of "higher, more and faster," sufficiency is about "better, not more" (ibid., p.5). Although the latest IPCC report (IPCC, 2022b) provides some promising inclusions of sufficiency-related policies and practices, activities and notions of sufficiency remain largely marginalized in the mainstream discussion and governance of sustainable consumption.[1]

Along with more critical sustainability approaches, such as degrowth and post-growth, sufficiency is a research field that has seen a steady increase in publications during the past decade (Spangenberg and Lorek, 2019; Jungell-Michelsson and Heikkurinen, 2022). This research covers a wide range of different topics. It includes, for example, individual strategies for more sufficiency-oriented lifestyles (e.g., Alcott, 2007; Black and Cherrier, 2010; Alexander and Ussher, 2012) and their environmental impacts (e.g., Buhl and Acosta, 2016; Kropfeld, Nepomuceno and Dantas, 2018; Vita et al., 2019; Sorrell, Gatersleben and Druckman, 2020). Attention has also been directed towards exploring how policies (e.g., Schneidewind and Zahrnt, 2014; Mastini and Rijnhout, 2018; Lorek and Spangenberg, 2019; Spangenberg and Lorek, 2019) and business (e.g., Bocken and Short, 2016; Gossen, Ziesemer and Schrader, 2019; Heikkurinen, Young and Morgan, 2019; Robra, Heikkurinen and Nesterova, 2020; Gossen and Kropfeld, 2022) can enable and construct a more sufficiency-oriented society.

However, in the academic literature on sufficiency, there has been a tendency to focus on one single actor (e.g., policymakers), providing little insight into the interplay and collaboration between different actors (Sandberg, 2021, 2022). Moreover, there is a lack of understanding of how sufficiency practices can be amplified or scaled[2] to enable a social-ecological transformation. Therefore, one of the key objectives of this thesis is to contribute to increased knowledge about how various societal actors can scale sufficiency practices so that sufficiency, or related approaches, can move up the sustainable consumption agenda. In addition, there are ongoing academic discussions about the meanings and social-ecological implications of a circular society

[1] It is, however, interesting to note that in recent times there seems to have been a discursive change at the highest international level that opens up opportunities for sufficiency, illustrated by the speech given by UN Secretary-General António Guterres at the 'Stockholm +50' summit, which questioned the link between economic growth and progress.
[2] In this cover essay, I will use the terms scaling and amplification interchangeably.

and the extent to which it is aligned with sufficiency or efficiency (e.g., Hobson and Lynch, 2016; Bocken and Short, 2020; Bauwens, 2021; Rask, 2022). I also intend to engage with this debate.

Importantly, the framing of this thesis follows from the understanding that, in order to address the issues of contemporary consumption patterns among affluent countries and communities, sufficiency-related efforts are required at both the collective (Lorek and Fuchs, 2013; Gorge et al., 2015) and individual (cf. Alcott, 2007) levels. Of particular note, sufficiency can be considered both as a personal strategy towards less material-intensive lifestyles and an overarching societal goal supported by policies and politics (Jungell-Michelsson and Heikkurinen, 2022). This thesis centers on the latter understanding of sufficiency.

Although social change is complex and non-linear (Geels, 2011), an assumption of my research framing is that the amplification of sufficiency practices can be driven by various actors (and their interactions) as well as policies (see for example "Managing without growth: Slower by design, not disaster"; Victor, 2008). Yet, this is not to imply that sufficiency-related initiatives are always deployed with the explicit aim of becoming part of a broader politics for sufficiency. Instead, based on the literature on sufficiency practices and policies, I have interpreted the cases included in this thesis as being sufficiency-oriented.

The thesis is written within the context of Sweden. Sweden can serve as a useful case because the country has a longstanding history of "claiming to be, and being perceived as, one of the most progressive, modern, equal and environmentally friendly countries in the world" (Hult, 2017, p.5). At the same time, Sweden's high consumption levels have meant that per-capita carbon and ecological footprints remain far from sustainable levels (Dawkins et al., 2019; WWF, 2020a). Hence, as in the case of many other affluent countries, the transformation towards an ecologically sustainable state requires technological innovation coupled with sufficiency (Fanning et al., 2022).

In the context of Sweden, there have been several studies related to the sufficiency approach. For example, scholars have examined scenarios and environmental targets in no/low-growth circumstances (Fauré et al., 2016;

Francart, Malmqvist and Hagbert, 2018; Fauré, Finnveden and Gunnarsson-Östling, 2019; Svenfelt et al., 2019). Others have explored policy and politics for sufficiency (Callmer and Bradley, 2021; Rask, 2022), local interpretations and policies for degrowth (Buhr, Isaksson and Hagbert, 2018), and infrastructure for sharing and Do-It Yourself (DIY) (Hult and Bradley, 2017; Bradley, 2018). Finally, some researchers have investigated sufficiency-related lifestyles in terms of material consumption (e.g., Callmer, 2019; Boström, 2022). However, in relation to sustainable consumption, research on sufficiency continues to be an unusual approach in the Swedish context, as pointed out by Callmer (2019). With this in mind, this thesis can bring valuable insights into how the scaling of sufficiency practices can unfold differently depending on the geographical context.

1.1 Aim and research questions

The overarching aim of this thesis is to contribute to the knowledge about social-ecological transformations from the perspective of sufficiency, specifically addressing (un)sustainable consumption. The more specific objective is to explore how sufficiency practices can be scaled by different actors and the tensions and challenges that arise from this process, as well as how the sufficiency approach can inform the debate on circular economies.

In this cover essay, the research questions that are addressed are as follows:

1. How can sufficiency practices be scaled and what role can non-governmental environmental organizations, businesses, and municipalities play?

2. What are the challenges and tensions when sufficiency practices are in the process of being scaled?

3. How can a sufficiency approach contribute to the debate on sustainability transitions and circular economies?

The specific consumption domain I focus on is household material goods, such as clothing, electronic equipment, and furniture.

In order to address these research questions, I use the insights gained from four papers, which, together with the cover essay, comprise this thesis. Importantly, each of the four papers has its own specific aim and research questions, as well as theoretical perspectives. An overall ambition of the cover essay is that it should make its own contribution to the sufficiency literature by situating and discussing the findings of each respective paper in relation to various amplification processes. For this purpose, I use the scaling framework developed by Moore, Riddell and Vocisano (2015) to form part of the cover essay's theoretical perspective in order to guide the discussion on research questions one and two, stated above. As I will later elaborate in the theoretical and discussion chapters, my primary use of this framework is to explore how the sufficiency-oriented cases and practices discussed in Papers I–IV can be interpreted in *relation* to different scaling types, rather than to examine *deliberate* strategies employed by environmental non-governmental organizations, municipalities, and firms to amplify sufficiency practices. It should also be noted that the scaling framework was not used in any of the four papers as a theoretical lens. Thus, my intention in using the scaling framework in this cover essay is to shed new light on the results of each respective paper by situating them in a different theoretical context. To be clear, the four papers serve as empirical material for all of the research questions, but the scaling framework is specifically used to discuss research questions one and two.

Before proceeding further, a minor digression is required to address three terms present in my research questions and aim that need to be clarified: practice, transitions, and transformations.

In the academic literature on sustainable consumption, the term 'practice' is often associated with social practice theory (Shove, 2010; Warde, 2014). Following Callmer (2019), I use practice in the everyday sense of the word, specifically in relation to sufficiency-oriented 'doings' (e.g., repair or anti-consumption), and not in the way that social practice theorists use the concept. Moreover, I will use the terms practice and activity interchangeably throughout this thesis.

The term 'transitions' has come to be associated with changes in specific socio-technical systems, such as mobility and energy (Hölscher, Wittmayer and Loorbach, 2018), a topic of concern for transition theories (Köhler et al., 2019). Meanwhile, 'transformations,' another common term used to describe the changes necessary to achieve a sustainable society, denotes large-scale change across whole societies (Hölscher, Wittmayer and Loorbach, 2018). In this cover essay, I use transitions in relation to the circular economy approach and transformation in the context of sufficiency.[3] My rationale for this is that, although the intellectual roots of the circular economy approach are partly embedded in a radical critique of consumption and economic growth (see Boulding, 1966), it has often been used to repackage and rebrand decades-long 'weak sustainability' agendas (Hobson, 2020), especially so by contemporary policymakers and business representatives. Hence, I use these two terms to indicate that they tend to represent different viewpoints on the level of change that is needed to achieve a social-ecologically sustainable society, acknowledging at the same time that the circular economy approach is a fluid concept (Johansson and Henriksson, 2020). In the theory chapter, I discuss the different understandings of the circular economy approach.

Having clarified how I use the terms practice, transitions, and transformations in this cover essay, I will now contextualize the term 'sustainable consumption' by discussing its historical roots.

1.2 Contextualizing sustainable consumption

The term 'sustainable consumption' is commonly thought to have been established in the early 1990s after it was outlined as an important issue in Chapter 4 of Agenda 21, and was subsequently discussed at the 1992 Rio Earth Summit (Fuchs and Lorek, 2005; Tukker et al., 2010). Sustainable consumption was also given prominence in the Rio Declaration, where Principle 8 advocates that: "States should reduce and eliminate unsustainable patterns of production and consumption […]" (United Nations, 1992, p.2). Even though some discussions about the issue of the levels of material consumption by the affluent countries took place 20 years earlier, at the 1972 United Nations Conference on the Human Environment in Stockholm, it did not become part of the global agenda for a better environment until Rio (Cohen, 2005).

[3] Importantly, transitions have also been used to denote societal changes in line with sufficiency (e.g., Sandberg, 2022).

According to Cohen (2005), there were two primary drivers for why the Rio Earth Summit became the pinnacle moment when sustainable consumption entered international environmental politics as a definable area. Firstly, the 1987 Montreal Protocol attracted growing attention to environmental problems, which persisted in the work leading up to the summit. Secondly, countries in the Global South advocated during the summit to include factors contributing to global ecological deterioration beyond population growth, which was commonly cited as the main perpetrator. This approach stemmed from the suspicion that countries in the Global North would attribute disproportionate responsibility for the deteriorating state of the global environment to Global South nations, which had more rapid population growth. By applying an ecological footprint analysis, countries in the Global South showed that their contribution to climate change and other large-scale ecological problems was in fact, per capita, far less than that of nations in the Global North (Cohen, 2005).

The commitment outlined in the aftermath of the Rio Earth Summit to engage in more sustainable patterns of consumption and production was later reaffirmed at the 2002 World Summit on Sustainable Development in Johannesburg (Tukker et al., 2010). During the period between the two summits, the Nordic Council of Ministers and the Norwegian Ministry of the Environment formulated a common strategy to resolve the issues of unsustainable production and consumption. The outcomes of such initiatives were usually targeted towards producers and, for instance, aimed to promote efficiency and cleaner production (Cohen, 2005). During one of these summits in the mid-1990s, an attempt was made to create a working definition of 'sustainable consumption' (Fuchs and Lorek, 2005; Cohen, 2007). This definition, which later came to be known as the 'Oslo definition,' considers sustainable consumption to be:

[T]he use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations. (Ministry of Environment Norway, 1994)

However, given that sustainable consumption encompasses a heterogeneous set of approaches, ranging from increasing the provision of information through eco-labeling to questioning the economic and cultural foundations upon which societies rest, the best way to move towards it is still contested (Geels et al., 2015). In an attempt to capture the wide variety of technical, economic, cultural, and philosophical assumptions constituting efforts to achieve sustainable consumption, two divergent approaches have emerged over the last few decades (ibid.). These approaches have come to strongly shape the academic debate on how to achieve sustainable consumption. Different terms have been used to capture these two approaches. They include: efficiency and sufficiency (Sachs, 2015), weak and strong sustainable consumption (Lorek and Fuchs, 2013), reformist and revolutionary (Geels et al., 2015), and weak and strong ecological modernization (Christoff, 1996). In this cover essay, the concepts of 'efficiency,' the 'circular economy,' and 'sufficiency' are used. These terms are further elaborated and defined in Chapter 2.

1.3 Sufficiency and its conceptual neighbors

A central concept of this thesis is sufficiency. This choice can be attributed to the scholarly field within which I position myself, namely sustainable consumption. At the same time, the sufficiency approach can also be viewed as a broader criticism of gross domestic product (GDP) as a societal goal and can therefore be affiliated with post-growth alternatives (Hayden, 2020), such as the steady-state economy (Dietz and O'Neill, 2013) and degrowth (Kallis, 2018). For example, Alexander (2015b, p. xvii) considers that a sufficiency economy entails "a degrowth economy that culminates in a steady-state economy." Although this thesis is framed around sufficiency, the insights provided here are thus likely to be relevant to a broader audience interested in developing alternative societies and economies that are not dependent on perpetual economic growth to deliver human welfare. Against this background, I introduce three concepts that share significant commonalities with sufficiency: strong sustainable consumption, degrowth, and post-growth. Below, I give an overview of these concepts to provide the reader with a general idea of the broader field of growth-critical sustainability studies, to which sufficiency also belongs. This endeavor should be understood as a general overview and some of the finer details, such as where there are points of disagreement between various scholars, are not covered in this thesis. In addition, there are also other concepts, such as steady-state economics (Daly, 1991), prosperity without growth (Jackson, 2017), the doughnut framework (Raworth, 2017), and the well-being economy (Fioramonti et al., 2022), that have much in common with sufficiency. To avoid an overload of concepts, however, I will not discuss these in detail.

Strong sustainable consumption

Positioning itself against weak sustainable consumption, strong sustainable consumption acknowledges the notion of limits and advocates a reduction in overall consumption. As there are uncertainties about technological development, strong sustainable consumption maintains a pessimistic view of technology delivering the change at the scale needed and thus pursues risk-averse policies (Lorek and Fuchs, 2013). In addition, strong sustainable consumption pays attention to aspects of well-being and non-material values (Lorek, 2009; Lorek and Fuchs, 2013). Central to this approach is the link between the good life and material possessions, which brings up questions about the quality of products and services and the degree to which they fulfill human needs. Therefore, strong sustainable consumption entails "channeling resource use towards those consumers where marginal utility is highest. This indicates, in turn, the need to ensure that reductions in material consumption fall to those with the lowest marginal utility of consumption, the wealthy" (Lorek and Fuchs, 2013, p.38). In other words, there is a notion of equity, where individuals with large consumption capabilities ought to face higher reduction targets in order to leave resources and ensure sustainable consumption for those who have not yet met their fundamental needs (Lorek and Fuchs, 2013).

In summary, the strong sustainable consumption approach involves three key facets: 1) "displace current foci of 'growth' and 'the economy' with nonconsumption concepts and practices," 2) "diverse grassroots movements and communities; ontological displacement of growth and the economy in modernity," and 3) "multilevel sociopolitical transformations that bring nonconsumption-based well-being to the fore" (Hobson 2013, p. 1083).

Degrowth

An often cited definition of degrowth is the one proposed by Schneider, Kallis and Martinez-Alier (2010, p. 512), whereby degrowth refers to an "equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level." One of the more prominent and frequently cited degrowth thinkers, Serge Latouche, proposes that the degrowth program can be synthesized into eight Rs: Revalue, Reconceptualise, Restructure, Relocate, Redistribute, Reduce, Reuse, Recycle (Latouche, 2010). Together, "[t]hese eight interdependent objectives are likely to engage a virtuous circle of serene, convivial and sustainable degrowth" (Latouche, 2010, p.521).

Since the late 2000s, when degrowth was first introduced to an English-speaking audience (Vandeventer, Cattaneo and Zografos, 2019), there have been considerable efforts made to further conceptualize and theorize it. The most ambitious attempt to date has been Parrique's (2019) degrowth framework, which consists of three values (autonomy, sufficiency[4], and care) and 15 universal principles of economic organization in a degrowth context. Together, these values and principles shape the understanding of degrowth as "de-economisation, that is an escape from the economy and its way of thinking" (Parrique, 2019, p.235). Other extensive conceptualizations and theorizations of degrowth include those of Lievens (2015), Flipo (2017), and (Abraham, 2019).[5] Across the different definitions, a common foundation among degrowth scholars is the call for collective self-limitation among wealthy societies in order to reduce resource use to remain within planetary thresholds regardless of what happens to GDP (Bliss and Kallis, 2022). By establishing such limits, a space can be opened up for diverse conceptions of the good life and how to pursue it (ibid.).

Post-growth

When discussing how to best frame the transformation to a society beyond growth, Alexander (2015a, p.47) suggests that "post-growth economics may be a suitable middle-ground, in so far as it is explicitly against growth—and thus has oppositional content—while at the same time it is 'after' or 'beyond' growth suggesting progress rather than decline." However, establishing a precise definition of what post-growth entails represents a challenging task, because it is widely used as a term to describe various strands of thought. These include steady-state economy (Daly, 1991), managing without growth

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[4] It is important to note that Parrique (2019) uses the term 'sufficiency' differently from how I use it. He uses the term to refer to a principle of distributive justice.
[5] See Parrique (2019) for an overview and critical discussion of these authors' framework, as well Serge Latouche's and Giorgos Kallis' theories of degrowth.

(Victor, 2008), sufficiency economy (Alexander, 2015b), prosperity without growth (Jackson, 2017), and the doughnut framework (Raworth, 2017), as well as degrowth. The commonality between these wide-ranging ideas is that they consider never-ending growth on a finite planet unlikely. In that sense, post-growth could be seen as an "umbrella term that unites multiple visions and practices which go beyond growth-centred thinking" (Nesterova, 2020, p.14).

Developing a taxonomy of meta-approaches to sustainable prosperity, Wiedmann et al. (2020) position post-growth, along with steady-state economics, prosperity, and managing without growth, as a heterogeneous group of 'reformist' approaches. Meanwhile, the 'radical group,'[6] consisting of degrowth, eco-socialism, and eco-anarchism,[7] argues that "the social-ecological transformation will necessarily entail a shift beyond capitalism and/or current centralised states" (Wiedmann et al., 2020, p.5). The difference between these groups is that, among approaches within the 'radical group,' there is a stronger emphasis on grassroots movements and decentralized states. In contrast, the 'reformist' group considers that the necessary social-ecological transformation could be achieved through reforming centralized democratic states and market economies (ibid.).

Reflections on using the term 'sufficiency'

In common with sufficiency (Krueger, Schulz and Gibbs, 2018), the three concepts discussed above entail fundamental societal changes in consumption patterns, lifestyles, and political priorities. Yet, perhaps unsurprisingly, there are diverging opinions on how these concepts relate to the sufficiency approach. For example, in terms of the relationship between degrowth and sufficiency, some scholars have argued that a 'politics of enough' should be seen as different from degrowth (e.g., Lawhon, Henderson and McCreary, 2021). Others consider degrowth to be a call for sufficiency—to have neither more, nor less, but enough (e.g., Parrique, 2021). I believe that

[6] The 'sufficiency economy' (Alexander 2015b) can be considered part of the more radical group as Alexander considers that capitalism cannot be reformed to a sufficient extent to meet the ongoing social-ecological crisis. In the taxonomy, the book 'Sufficiency Economy: Enough, for everyone, forever' is also key a reference (Wiedmann et al., 2020).

[7] Eco-anarchism is viewed as a separate sub-group to degrowth and eco-socialism, as it aims for participatory democracy without a state (Wiedmann et al., 2020).

degrowth and sufficiency share many similarities and that it is difficult to discuss them as completely separate concepts. However, a minor difference could be that degrowth scholars pay greater attention to the 'fetish' of economic growth and the absence of green economic growth (see for example Hickel, 2021) as issues that need to be confronted in order to promote a social and ecological transformation. Meanwhile, sufficiency scholars tend to frame their object of study around unsustainable consumption patterns and they juxtapose sufficiency against the 'gospel of efficiency' (see for example Spangenberg, 2018).

In summary, the concepts discussed above should not be understood as opposed to the sufficiency approach. Instead, they could be seen as building on each other, offering different entry points to the discussion on how production and consumption are interrelated with the unfolding environmental crisis and what can be done about it. Coming from this understanding, in this thesis I have used literature that spans these different concepts to sharpen my arguments and further develop sufficiency-related terms and policies.

1.4 Structure of the cover essay

The remaining chapters of the cover essay are structured in the following way. Chapter 2, Theoretical perspectives, outlines my positionality regarding different sustainable consumption approaches and presents the central theoretical concepts used. In Chapter 3, Methodology, I present the concrete methods used for each of the appended papers. Then, I reflect upon my research positionality. This chapter concludes with a discussion of the research context and process. Chapter 4 is a short summary of each paper, where I pay particular attention to their key findings and my contributions to them. In Chapter 5, I discuss the main findings from the papers in two different parts. The first part addresses research questions one and two. Here, I will also contrast the empirical findings of the four papers with the claims and arguments made in the sufficiency literature. The second part is dedicated to the third research question. In Chapter 6, I round off this cover essay by presenting the main conclusions and contributions of the research, and reflecting upon potential future research endeavors.

2 Theoretical perspectives

This chapter comprises three different parts, which form the theoretical backbone of my cover essay. In the first part, I elaborate upon the three specific approaches that I argue underpin the discussion on how to nurture sustainable consumption: efficiency, circular economy, and sufficiency. For the efficiency and circular economy approaches, I give a brief overview of some of the key issues and shortcomings. These concern overreliance upon technological innovation and individuals to make informed decisions, as well as the neglect of planetary limits, rebound effects, bounded rationality, and social justice. I then provide a more in-depth discussion of what the sufficiency approach entails, and suggest that it can be captured through four interrelated dimensions. This part ends with some concluding remarks on the three different approaches to sustainable consumption. The second part provides concrete substance to the sufficiency approach by discussing sufficiency-related politics and policies. In the final part, I introduce the scaling framework and discuss its theoretical foundations. This third part then concludes with some reflections on the barriers and resistance that the scaling of sufficiency practices may face. Hence, Chapter 2 serves two functions. Firstly, it outlines my positionality in relation to the different sustainable consumption approaches and how I understand sufficiency. Secondly, this chapter also introduces the theoretical concepts used to analyze and discuss the findings of Papers I–IV.

2.1 Approaches to sustainable consumption

2.1.1 Efficiency

Efficiency entails “innovations that minimize the use of nature for each unit of output” (Sachs, 2015, p.40). The basic idea of efficiency is thus that the same, or even better, function of goods and services can be achieved with less environmental impact. Furthermore, the guiding principle of efficiency is that of market logic and technological optimism (Jänicke, 2008). It is therefore assumed that sustainable consumption can be achieved through technological solutions, which will be spread through the markets by active and responsible consumers buying greener and more sustainable products (Lorek and Fuchs, 2013). So-called ‘eco-labels’ play a crucial role in this context, as they inform consumers about which products are more or less sustainable (Klintman, 2016). More broadly, efficiency comes very close to that of 'ecological modernization' (Jänicke, 2008). Both of these concepts consider environmental improvements to be best achieved by diffusing eco-innovation, i.e., environmentally friendly technology, where the key driving force is "[t]he capitalist logic of technological modernisation and the competition for innovation in combination with the market potential of global environmental needs" (ibid.. p.563). The efficiency (and ecological modernization) approach, therefore, suggests that there can be a win-win situation, meaning that increased consumption and economic growth can be combined with decreasing environmental impacts from the production of consumer goods and services. At the core of the efficiency approach, therefore, is the belief that the theory of 'green growth' is achievable (Schmid, 2019a), whereby GDP growth becomes absolutely decoupled from emissions and resource use at a rate that is sufficient to prevent dangerous climate change and ecological breakdown (Hickel and Kallis, 2020). Ideas of green growth, and by extension the efficiency approach, have been adopted by various supranational organizations (e.g., OECD, 2011; UNEP, 2011; World Bank, 2012) and national governments (e.g., Sweden; Hult and Larsson, 2016).

The efficiency approach has been criticized, however, for its technological optimism, its single-minded focus on economic growth, and its failure to account for social justice (York and Rosa, 2003; Fisher and Freudenburg, 2010). Additionally, the efficiency approach has also been the subject of criticism for disregarding the so-called rebound effect, which is a phenomenon whereby efficiency gains in production are outpaced by increased volumes of consumption (Sanne, 2002). The reason why increased efficiency results in greater consumption is that, if a product is more efficiently produced, it generally leads to a lower price and greater demand, also known as the Jevon's paradox or so-called direct rebound effect (Sanne, 2002; Chitnis et al., 2014). The cost savings from improved production processes might also result in indirect rebound effects; for example, the money saved from improved energy efficiency in the household might be spent on a flight abroad, cancelling the initial gain of reduced emissions (Chitnis et al., 2014). Thus, in order to be effective and avoid rebound effects, efficiency strategies at an overall level need to be coupled with sufficiency (Lorek and Spangenberg, 2019).

The efficiency approach has also been criticized for overstating individuals' capacity to make rational consumer decisions based on information (predominately via eco-labels). For example, questions have been raised about how effective increased information or understanding about a product's environmental performance actually is in driving changes in behavior or practice (Horne, 2009). Consumers might, for example, be very attached to their daily routines and habits, and even if they are perfectly informed about the environmental downsides of a product, they may still be unwilling to change (Schubert, 2017). Information overload from newly emerging eco-labels has also been shown to increase consumer confusion about the actual content and function of different eco-label schemes (Horne, 2009). Such confusion can decrease the legitimacy of both new and already established eco-labels (Klintman, 2016). Thus, increased information and awareness does not necessarily lead to more environmentally friendly behavior (Pedersen and Neergaard, 2006). Perhaps, though, the most damning critique of eco-labelling is the responsibility placed on individuals to make the 'right' choice. This is not an easy role to fulfill, given the complexity of today's globalized supply chains, making it incredibly difficult to understand and process the impact of daily choices. Furthermore, as argued by Shove (2010), efforts to mitigate adverse social and environmental impacts through eco-labelling steers the focus away from changing the social and institutional context within which consumer behavior is situated.

2.1.2 Circular economy: efficiency, sufficiency, or in between?

To face the challenge of unsustainable production and consumption patterns and their negative impacts on the Earth's processes, the concept of the circular economy has gained increased popularity (Bocken and Short, 2016). This is perhaps best exemplified by the promotion and endorsement of the circular economy approach by the European Commission and World Economic Forum (World Economic Forum, 2014; European Commission, 2020), as well as large multinational firms.

At its core, a circular economy can be viewed as "an economic system that is based on business models which replace the 'end-of-life' concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes" (Kirchherr, Reike, and

Hekkert 2017, p.224). Thus, key to the circular economy approach is the transition from the current extractive linear model to a regenerative one (Schröder et al., 2019). Although the circular economy approach is heavily reliant upon technological improvements throughout the whole value chain, it also incorporates changes in individual behavior (Ellen MacArthur Foundation, 2013), by replacing the conventional ownership of products and instead selling goods as a service or a performance (Tukker and Tischner, 2006). These changes in individual behavior mostly refer to a greater acceptance of not owning individual products, shifting material consumption to service-based consumption.

In relation to the sufficiency and efficiency approaches, the circular economy has sometimes been incorporated into the efficiency approach (e.g., Hobson and Lynch, 2016), while others have treated them as three separate concepts (e.g., Schäpke and Rauschmayer, 2014; Samadi et al., 2017). In addition, Schröder et al. (2019) argue that the circular economy shares some basic principles and goals aligned with 'strong sustainable consumption' (Lorek and Fuchs, 2013). These include the necessity for human society to operate within the planet's ecological limits and to promote regenerative eco-innovations that can "restore, renew, revitalize natural systems" (Schröder et al., 2019, p.191). Meanwhile, several scholars (e.g., Gregson et al., 2015; Ghisellini, Cialani and Ulgiati, 2016; Hobson and Lynch, 2016; Fratini, Georg and Jørgensen, 2019; Schulz, Hjaltadóttir and Hild, 2019) have pointed out that the literature on the circular economy is generally premised on reforming the current capitalist model based on continued economic growth, rather than building alternative forms of economies.

While the circular economy approach acknowledges limits, for example in terms of raw materials extraction, it often suggests that there can be an absolute decoupling of economic growth from resource use and emissions (see discussion in e.g., Ellen MacArthur Foundation, 2013; European Commission, 2015, 2020). Besides the numerous technical difficulties involved in achieving a fully circular economy, doubts have also been raised about its failure to account for rebound effects and the limits of thermodynamics[8] (Korhonen, Honkasalo and Seppälä, 2018). A further point

[8] Specifically due to the second law, which defines entropy, recycling is always predicated upon energy and will inevitably be incomplete (i.e. a 100% recycling rate

of critique is that the circular economy literature generally lacks a social justice perspective (Sauvé, Bernard and Sloan, 2016; Moreau et al., 2017; Kirchherr, Reike and Hekkert, 2017). Finally, proponents of the circular economy approach have tended to overlook the role of the citizen-consumer (Kirchherr, Reike and Hekkert, 2017), and if raised at all, the discussion often centers on changing consumers into users of access-based business models (Hobson, 2019), thus transferring private ownership and control of goods to corporate firms.[9] This depoliticized role ascribed to individuals reinforces the social norms and expectations found in consumer-based capitalist economies, thus failing to tackle the root cause of overconsumption and wasteful consumption (Hobson and Lynch, 2016).

Against this background, the circular economy, as defined in the mainstream public discussion at both the EU level (European Commission, 2020) and that of Sweden (Johansson and Henriksson, 2020), is unlikely to be sufficient on its own to solve the issues of unsustainable consumption and production (Bocken and Short, 2016; Khmara and Kronenberg, 2018). It is important to note, however, that it is difficult to talk about a single understanding of the circular economy approach because it may shift in meaning across time (Johansson and Henriksson, 2020) and space (Fratini, Georg and Jørgensen, 2019). Nevertheless, in the context of Sweden, where this thesis is situated, over the past decade the circular economy discourse has been premised on eco-modernistic thinking and promoted as a strategy to encourage green economic growth (Johansson and Henriksson, 2020; Niskanen, Anshelm and McLaren, 2020).

is not possible), resulting in the generation of waste and residues (Korhonen, Honkasalo and Seppälä, 2018). Therefore, unless the growth of the physical scale of the total economic system is checked, a circular economy will ultimately lead to unsustainable levels of resource extraction and waste generation (ibid.).

[9] For a more comprehensive review of the critiques of the circular economy approach, see Corvellec, Stowell and Johansson (2021).

2.1.3 Sufficiency: towards a definition

The transition to a sustainable society requires a careful balance between long-term and short-term goals and an emphasis on sufficiency, equity, and quality of life rather than on quantity of output. (Meadows, Meadows and Randers, 1993, p.3)

As illustrated by the quote above from the authors[10] of the seminal book *The Limits to Growth*, advocating for sufficiency has a long history within the academic field of sustainable development. Thomas Princen (2005), along with ecological economist Herman Daly (1991) and post-development scholar Wolfgang Sachs (2015), can be considered important figures in the introduction and development of the concept of sufficiency (Sorrell, Gatersleben and Druckman, 2020). The discussion on sufficiency is rooted in three different disciplinary fields: ecological economics, political ecology, and ecological philosophy (Jungell-Michelsson and Heikkurinen, 2022). Outside the academic realm, appeals to more sufficiency-oriented lifestyles and societies can be traced back several centuries to various religious and philosophical discussions and texts (Ingleby and Randalls, 2019).

In Persson and Klintman (2022), we proposed that the sufficiency approach can entail a number of different dimensions, namely: 1) reducing the total material and energy consumption, 2) upper limits and lower thresholds, 3) strengthening social justice, and 4) aspects of well-being beyond materialism.[11] Drawing on sufficiency and other growth-critical literature, I further develop each of these four dimensions below.

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[10] However, William W. Behrens III who also co-authored *The Limits to Growth* is missing from this quote.

[11] Based on a systematic review of the literature, Jungell-Michelsson and Heikkurinen (2022) have a somewhat different conceptualization of sufficiency. They suggest that it is based on three premises: social metabolism, altruism, and the social complementarity of capital.

Reducing the total material and energy consumption

Proponents of the sufficiency approach see a need to reduce the total material and energy consumption among affluent groups in order to safeguard the functioning of vital ecosystems on which all human life depends. For example, Gorge et al. (2015, p.12) understand sufficiency as "advocat[ing] a radical decrease of material and energy-demanding consumption, which contrasts with the traditional forms of progress inculcated by ideas of growth, consumption, and production." Other examples include Fischer and Grießhammer (2013, p.10), who view sufficiency as the "modification of consumption patterns that help to respect the Earth's ecological boundaries while aspects of consumer benefit change," while Heindl and Kanschik (2016, p.43) describe it as "an absolute decrease of consumption as part of an ecologically responsible way of living." Similarly, Speck and Hasselkuss (2015) understand sufficiency as referring to daily routines and behaviors that aim to reduce the environmental and social impacts of consumption. Hence, the sufficiency approach is not only concerned with mitigating GHG emissions to avoid disastrous climate change but also with reducing the consumption of water, land, energy, and raw materials (IPCC, 2022a) in order to remain within the biophysical limits of the planet. Specific consumption changes relating to sufficiency involve absolute reductions, modal shifts, product longevity, and sharing practices (Sandberg, 2021).

It is important to highlight that, while sufficiency proponents remain skeptical about the ability of technological advancements to adequately reduce environmental impacts to stay within planetary boundaries, this does not preclude the importance of technological innovation and increased circularity. As pointed out by Gough (2017, p.156) "[t]o make consumption sustainable within existing socio-technical structures would deprive citizens of a vast range of goods and services they have agreed are necessary for effective participation in modern life." Thus, there is a need for initiatives focusing on greener technologies and resource efficiency, which are complemented by those pushing for sufficiency (O'Neill et al., 2018; Heikkurinen, Young and Morgan, 2019; Spangenberg and Lorek, 2019; Hayden, 2020).

Although there is general agreement about the need to reduce the consumption of raw materials and energy, there are diverging opinions about whether forced or voluntary reductions are compatible with the sufficiency approach. In their writings, Gorge et al. (2015) understand sufficiency as distinct from voluntary simplicity, frugality, or downshifting due to the focus of the latter on voluntarism and individuality, whereas sufficiency could be a voluntary and collective act but also obligatory; for example, peak oil might induce a limit on consumption levels. Similarly, Sandberg (2022) highlights the importance of accepting that sufficiency may involves necessity rather than choice. Schäpke and Rauschmayer (2014), on the other hand, consider sufficiency to be based on individual willingness, as opposed to forced or unconscious actions, to restrict the consumption of natural resources and also to promote inter- and intra-generational justice. A similar emphasis on volunteerism is also advocated by Heindl and Kanschik (2016). Meanwhile, through studying buy-nothing practitioners and KonMariers, Callmer (2019) argues that voluntary entries to sufficiency practices could be done both intentionally and unintentionally.

My own position in this discussion is that sufficiency entails a voluntary and democratic downscaling of consumption. This position stems from the fact that involuntary reductions in GDP, and by extension less production and consumption, caused by economic recessions or crises have been found to result in a loss of well-being (Fanning and O'Neill, 2019). Thus, any forced reductions in consumption induced by sustained societal crises, such as economic downturns or pandemics, are not conducive to one of the key claims of the sufficiency movement, namely that a reduction in consumption can be coupled with no loss in well-being. I expand further on this claim below.

Upper limits and lower thresholds

In the context of Vancouver, Moore and Rees (2013, p.47) discuss the issues of unsustainable consumption by the affluent. They argue that part of the solution lies in political leaders and civil society promoting "a paradigm of sufficiency, meaning a shared social commitment to consuming enough for a good life but not so much that total throughput exceeds critical biophysical limits." Alexander (2015b) argues that sufficiency-based economies should provide a universal material standard of living that is enough for a good life but is ecologically sustainable in the long run. Looking at sufficiency in terms of energy consumption, Fawcett and Darby (2018, p.8) define it as "a state in which people's basic needs for energy services are met equitably and ecological limits are respected."

Thus, the sufficiency approach can be understood to involve the notion of a combination of lower social thresholds, which need to be reached to ensure a dignified life, and upper biophysical limits[12] within which we need to remain. Put differently, the lower threshold is derived from a social idea of well-being, and the upper limit is based on planetary sustainability (Gough, 2020). This premise can be related to 'consumption corridors'[13] which "describe a space between minimum consumption standards that provide every individual with the ability to live a good life, and maximum consumption standards that keep individuals from consuming in quantities or ways that hurt others' chances to do the same" (Fuchs et al., 2021, p.4). Thus, in common with sufficiency, consumption corridors combine the twin pursuit of the good life and of justice within planetary boundaries.

In relation to the lower social thresholds, there are plenty of references to how sufficiency is concerned with having enough for a good life and meeting the basic needs of everyone (e.g., Princen, 2005; Schneidewind and Zahrnt, 2014; Alexander, 2015b). But how can one understand what having enough means in concrete terms? Here, I find the work of Gough (2017) on human needs especially useful. He argues that sufficiency should include a eudemonic[14] concept of well-being (Gough, 2021), one that is centered around the idea of universal human needs (Büchs and Koch, 2017). In particular, the human needs approach provides a good theoretical basis for discussing issues of well-being within environmental limits and beyond economic growth (Büchs and Koch, 2019).

To summarize Gough's (2017, 2021) human needs approach: Human needs are objective because they refer to the objective physiological and

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[12] This could be operationalized through, for example, regional or individual carbon budgets. For an example of the former that has been implemented, see Anderson, Stoddard and Schrage (2017).

[13] A similar concept is Raworth's (2017) 'doughnut' with its inner and outer boundaries set so as to facilitate a just and safe space for humanity.

[14] Eudemonia refers to Aristotle's idea of living life as flourishing and can be connected to meeting human needs or creating the conditions for people to develop particular capabilities (Sahakian et al., 2021).

psychological requirements of human beings and concern functions and not subjective feelings, such as anxiety or unhappiness. Specifically, human needs refer to social participation, health, and autonomy. In turn, these basic needs involve a second-order range of intermediate material needs, such as nutritional food, protective housing, healthcare, and education, and non-material needs, such as security in childhood, meaningful relationships, and effective social participation. A distinction can be made between general needs and needs satisfiers; the former are universal, while the latter can be variable depending on historical and cultural contexts. Think, for example, of providing adequate nutritional food, which is a requirement in order to meet the basic need for physical health. This can be satisfied by a large variety of diets and has been achieved across history and cultures. If there is a conflict between wants and needs, needs should be prioritized. In terms of sustainable well-being, universal humans needs have six theoretical features:

1. Universal
2. Plural—they cannot be added up and summarized in a single unit of account
3. Non-substitutable—one need satisfaction cannot be traded for another (e.g., more vitamins to compensate for a lack of education)
4. Satiable (e.g., the contribution of calories to human health has diminishing returns beyond a certain level, eventually plateauing)
5. Cross-generational—human needs are valid between and across generations
6. Coupled with claims of equity and justice

The needs-based approach does not call for perfect equality, rather it argues for much less inequality than exists at present (Gough, 2017). Importantly, a human needs theory suggests that vital dimensions of well-being correlate with consumption, but only up to a certain threshold (Lamb and Steinberger, 2017).

Strengthening social justice

Appeals to social justice are common currency in the sufficiency literature. For example, Fischer and Grießhammer (2013, p.16) argue that one of the rationales for engaging with sufficiency is that it is first and foremost the responsibility of the industrialized countries to set appropriate consumption levels to "enable a dignified standard of living for the poor." On similar grounds, Alexander (2015b) makes a case that over-consuming individuals and countries should engage with planned contraction in terms of growth and consumption. Hence, sufficiency calls for the responsibility of affluent communities (be it nations, households, or single individuals) to reduce their material and energy consumption in order to enable others (both now and in the future) to enjoy their fair share of the environmental space (Sachs, 2015; Spangenberg, 2018; Mastini and Rijnhout, 2018; Callmer, 2019). The sufficiency approach can therefore be said to be mainly concerned with a distributive understanding of justice (Spengler, 2016; Mastini and Rijnhout, 2018).

Distributive justice denotes how benefits and burdens should be shared between different community members (Parrique, 2019). A general conception of just distribution is that it refers to different forms of resources, whether money, land, materials etc. (ibid.), which is sometimes referred to as 'resourcism' (Muraca, 2012). This conception of distributive justice is present in the sufficiency approach, as indicated by the quotes I referred to at the beginning of this section. Drawing on Frankfurt (1987), Spengler (2016) argues, however, that sufficiency should focus on distributive justice in relation to a certain threshold, as opposed to a more materialistic conception. This could be viewed as a minimum approach to justice which "holds that what is of importance is first and foremost that people have enough" and that this "threshold would then be located at a level which corresponds to a point where basic needs are met" (Spengler, 2016, p.925). Importantly, she contends that this idea of sufficiency as a minimum needs to be coupled with a maximum in terms of consuming natural resources (e.g., staying within planetary boundaries). When understanding distributive justice in this way, there is a clear interlinkage with the second sufficiency dimension discussed above.

Well-being beyond materialism

A key argument underpinning the sufficiency approach is that, among those who are currently over-consuming, a reduction in consumption does not necessarily lead to lower quality of life (e.g., Jackson, 2005; Mastini and Rijnhout, 2018; Hayden, 2020). Sufficiency can then be said to focus on a form of prosperity that is enabled by various low-impact, non-material forms of well-being, such as enjoying social relationships, meaningful work, or spiritual practice (Alexander, 2015b). People who engage in these types of activities have been found to report high levels of well-being (Killingsworth and Gilbert, 2010; Isham, Gatersleben and Jackson, 2019). In certain contexts, research has also found that those who choose to live in ways that do not conform to the consumer capitalist lifestyle (i.e., who earn, work, and spend less than they might otherwise) report higher levels of well-being than those who focus on money and possessions (Kasser, 2017). Sufficiency is therefore concerned with a cultural reorientation toward non-materialistic values (Schneidewind and Zahrnt, 2014; Sachs, 2015; Callmer and Bradley, 2021), aiming to foster increased well-being but with a low environmental footprint. In other words, setting upper limits to consumption would fundamentally challenge conventional cultural and social values relating to what living a good life entails and what is required to do so (Newell, Daley and Twena, 2021). Moreover, by implication, sufficiency entails a break with the dominant culture of consumerism predicated on ever more and faster-paced consumption (Soper, 2020).

The understanding that high levels of well-being are not predicated on income and consumption among affluent nations and communities is also connected to the well-known Easterlin paradox. This paradox outlines how subjective well-being (e.g., happiness or life satisfaction) and GDP correlate at one point in time, but over a longer time period, in countries where basic needs are satisfied, there is no increase in happiness as earnings increase (Easterlin et al., 2010; Fanning and O'Neill, 2019). The lack of correlation between increased happiness and GDP over time is often explained by the positional nature of consumer goods (if everyone has the same goods as me, I need to buy new ones to increase my status) and hedonic adaption—once a certain standard has been reached, people require more to remain happy (Parrique, 2019). However, Büchs and Koch (2019) make several criticisms of the idea that there is a lack of correlation between subjective well-being and GDP. Firstly, there is some research which supports the contention that happiness increases with income, even among those who already receive high earnings (e.g., Stevenson and Wolfers, 2013; Killingsworth, 2021). Secondly, there is a methodological challenge, whereby, in principle, GDP can increase forever, but, at the same time, the scale used for evaluating subjective well-being is usually bounded (e.g., ranging from 1–10, where 1 is the lowest and 10 is the highest degree of happiness). This means that, among rich countries, which already tend to score high on subjective well-being measures, reaching even higher scores is very difficult (Büchs and Koch, 2019). Another issue when assessing the correlation between increased GDP and subjective well-being is that there are cultural differences concerning how important achieving happiness is perceived to be. For example, in Western countries there is a greater emphasis on happiness than in East Asian countries, where there is less focus on achieving happiness, resulting in a modesty bias (Gough, 2015). With these issues in mind, some scholars have argued for the need to focus on objective well-being or fundamental human needs instead of subjective well-being (e.g., Gough, 2017; Büchs and Koch, 2019; Parrique, 2019).

Concerning the relationship between GDP and objective well-being, Fanning and O'Neill (2019) found that people live longer irrespective of whether consumption increases or declines. Roberts et al. (2020), looking at life expectancy and consumption-based emissions, found a huge difference in achieving a life expectancy of 75 years (under 1 tCO_2 per capita for Albania and 27 tCO_2 per capita in the UEA). There are also a number of countries, such as Costa Rica, Uruguay, and Morocco, that achieve a life expectancy greater than 75 years with 2 tCO_2 per capita or less (ibid.). The fact that several low-income countries have seen rising life expectancy suggests that increasing life expectancy can be achieved at relatively low income levels through the provision of basic infrastructure, immunization programs, and education (Büchs and Koch, 2019). In terms of energy consumption and human needs satisfaction, Vogel et al. (2021) found that countries with high-quality public services, low income inequality, and high levels of democracy are associated with greater need satisfaction and lower energy requirements. Hence, they conclude that "[c]ountries with highly beneficial configurations of several key provisioning factors could potentially achieve sufficient need satisfaction within sustainable levels of energy use" (Vogel et al., 2021, p.13).

In summary, individuals and households can experience a high level of subjective well-being despite earning and consuming less. Similarly, achieving certain objective well-being indicators is not necessarily predicated on high income, carbon emissions, or energy use. However, in terms of subjective well-being, there are a number of issues related to social norms, cultural differences, and not least the qualitative aspect of subjective well-being, that warrant caution in comparing aggregated levels of well-being, income, and consumption across time and space.

In Table 1, below, I have summarized my understanding of what the sufficiency approach entails. This table is largely based on Persson and Klintman (2022), but I have added some additional text compared to the original table for the sake of clarity concerning the importance of human needs and that, beyond a certain point, material consumption does not determine well-being outcomes.

Table 1. Sufficiency and its different dimensions.

Sufficiency dimensions	**Description**
1) *Reducing the total material and energy consumption*	Advocating for a (voluntary and democratic) reduction in overall consumption levels of materials and energy among relatively affluent social groups.
2) *Upper limits and lower thresholds*	Acknowledging upper biophysical limits (e.g., raw material resource extraction) and lower social thresholds (e.g., universal access to healthcare and basic income security) to ensure a decent quality of life.
3) *Strengthening social justice*	Pointing out that it is primarily the relatively affluent who must decrease their consumption level in order to leave resources and environmental space for those who are under-consuming. This is in order that fundamental human needs can be met for all within environmental limits.
4) *Well-being beyond materialism*	Paying attention to aspects of well-being and non-material values, such as stronger community engagement, as contributing to a good life. Hence material possessions, beyond a certain level, are viewed as secondary in terms of achieving life satisfaction.

It is important to note that sufficiency can be considered both as a process/mean and state/end towards which to strive (Callmer, 2019; Jungell-Michelsson and Heikkurinen, 2022). Moreover, sufficiency can refer to an individual commitment to lifestyles with a small environmental footprint (e.g., Speck and Hasselkuss, 2015; Heindl and Kanschik, 2016) as well as an orientation at a societal level (e.g., Princen, 2005; Moore and Rees, 2013; Schneidewind and Zahrnt, 2014; Alexander, 2015b). Thus, by including both the individual and societal levels, the sufficiency approach can have a multilevel function (Callmer, 2019). Although there has been criticism of the understanding of sufficiency as individual decisions and lifestyles, instead favoring sufficiency as a field of action involving policies and politics (e.g., Lorek and Spangenberg, 2019), I see a need to understand and study it from both of these perspectives. As this thesis focuses on how various actors can scale sufficiency practices, I am however paying particular attention to sufficiency at the societal level. Therefore, in the next section, I provide some further insights into what the sufficiency approach can entail in terms of politics and policies. Before doing so, I offer some concluding reflections on the three approaches to sustainable consumption discussed above.

2.1.4 Concluding remarks on the different approaches to sustainable consumption

Based on the discussion above, some differences between efficiency, sufficiency, and circular economy approaches can be identified, which could warrant them being treated separately. Although the sustainable consumption literature clearly distinguishes sufficiency from efficiency, this is less evident in the case of sufficiency and the circular economy. Above, I have outlined how sufficiency can be distinguished conceptually from the mainstream public discourse on the circular economy. This is because, in the public discourse, the circular economy is seen as a way to generate green economic growth both at the EU level (European Commission, 2015, 2019) and the Swedish national level (Niskanen, Anshelm and McLaren, 2020). However, as previously outlined, there is no evidence of such decoupling taking place at the speed that is needed and it is unlikely that this will be achieved if economic growth continues to be pursued. Instead of green growth, sufficiency postulates that well-being can be decoupled from consumption and income [15] (Hayden, 2020). Hence, sufficiency entails questioning the fundamental premise that higher income and consumption lead to a more prosperous life, and proponents suggest instead that a reduction in resource consumption can be coupled with maintained levels of well-being. This qualitative aspect of sufficiency distinguishes it from both the efficiency and (mainstream) circular economy approaches (Kropfeld, 2022). Additionally, the vast majority of circular economy definitions fail to acknowledge the importance of social justice aspects. Furthermore, while certain activities related to reducing overall resource consumption, such as repair and reuse, can be found both within the circular economy and sufficiency literature, there is a difference concerning energy consumption. The circular economy approach has tended to be more concerned with transitioning to an economy based on renewable energy sources, whereas the magnitude of energy consumption is often overlooked. I argue that sufficiency, on the other hand, seeks to reduce material *and* energy consumption. While it is paramount to address the grave issue of climate change, a continuing expansion of energy consumption is likely to result in cost-shifting. For example, expanding biofuel production can have a negative impact on biodiversity while solar farms and windmills depend on rare earth metals (Parrique et al., 2019).

To conclude: I have discussed three different approaches to sustainable consumption, what sufficiency proponents consider to be the main deficiencies of the efficiency and circular economy approaches, and what sufficiency brings to the table. Hence, I have argued that these are three distinct approaches. However, in practice, it may not always be possible to separate them For example, various sufficiency scholars (e.g. Schneidewind and Zahrnt, 2014; Speck and Hasselkuss, 2015; Bocken and Short, 2016) consider sufficiency activities to include repair and reuse, which are also terms used in many circular economy definitions (Kirchherr, Reike and Hekkert, 2017). Another example is that of car sharing, which can lead to more efficient use of the current vehicle stock (efficiency), change

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[15] Although, on its own, decoupling economic growth from environmental impacts has not been and is not likely to be enough to reduce the environmental pressures to the extent needed, that is not to say that measurements aiming at decoupling should be opposed—without many such measures the situation would be significantly worse (Gough, 2017; Parrique et al., 2019).

'consumers' into 'users' (circular economy), and reduce the total number of vehicles (sufficiency). Hence, at the micro-level, it is not always easy to decide which specific measure should be assigned to which sustainable consumption approach (Fischer and Grießhammer, 2013). Furthermore, there is a growing strand of academic literature that seeks to develop the circular economy approach in a more critical direction to make it compatible with sufficiency and other related perspectives (e.g., McLaren, Niskanen and Anshelm, 2020; Bocken and Short, 2020; Bauwens, 2021; Rask, 2022), further blurring the lines between sufficiency and the circular economy. In Chapter 5, I return to a discussion of how my thesis seeks to critically engage with debates on the circular economy approach, using the findings from Papers III and IV.

2.2 Sufficiency: from theory to policies and politics

Policies for a more sufficiency-oriented society include a wide variety of measures, some of which have already been implemented and are thus compatible with (some) political and economic systems (e.g., increasing the reparability of certain material goods, as outlined by the European Commission, 2019), while others remain peripheral in the current public debate (e.g., individual resource and carbon allowances).

A fruitful place to begin the discussion on sufficiency policies (and politics)[16] is the work conducted by Schneidewind and Zahrnt (2014). Building on Wolfgang Sachs' earlier work, their book, *The Politics of Sufficiency*, outlines a framework consisting of 'four lessens'[17] (less speed, less distance, less clutter, and less market) that can serve as guidelines for a politics of sufficiency. These four 'lessens' intersect at various points. For example, increased self-provision contributes to less market, less clutter, and less distance (Schneidewind and Zahrnt, 2014).

To begin with, *less speed* entails a new take on time, meaning doing things more slowly and more reliably. Specifically, policies can be designed to promote less speed in everyday life (e.g., traffic management favoring cyclists

[16] I understand policy as referring to "any purposeful change in rules and customs that govern behavior" (Parrique, 2019, p.484). I make a distinction between policies and politics in that the latter concerns a vision of what kind of society we want to strive towards while the former are then used to move closer to that vision.
[17] 'Lessens' is a deliberate play on the word 'lessons.'

or trains over flights), longer product life by improving the quality of goods and avoiding planned obsolescence (e.g., extending warranty periods or the mandatory repairability for products), and work–life balance for a time-autonomous life, for example options to work part-time (Schneidewind and Zahrnt, 2014). The promotion of working-time reduction is an idea that recurs particularly frequently in the sufficiency literature (e.g., Alexander, 2015b; Coote, 2018; Hayden, 2020; Gough, 2021). This probably stems from the idea that working less can result in a 'double dividend,' meaning that environmental harms are decreased as a result of diminished income, while at the same time quality of life is maintained—or even increased by freeing up time for a less stressful, more convivial life (Gough, 2017; Hayden, 2020). To prevent mass unemployment in a non-growing economy, working-time reduction could also enable job-sharing, and thus the redistribution of employment (Zwickl, Disslbacher and Stagl, 2016; Gunderson, 2019). With less production of goods and services following diminished consumer demand, reduced working hours in the formal economy are likely to follow. This does not necessarily mean reduced *labor*, due, for example, to more production occurring at the household level (Alexander, 2015b).

Less distance is a return to spaces that are closer together and clearer. By reducing the distance between production and consumption through regionalization, the transparency of how products are produced (and the resulting ecological impacts) is increased and social embeddedness is reinforced, emissions from long-distance transportation are reduced, and the exploitation of low-income workers diminishes (Schneidewind and Zahrnt, 2014). Policy measures to facilitate less distance include raising the price of fossil fuels through taxation and emissions trading, and introducing local currencies to strengthen the local economy (ibid.).

Less clutter calls for a world with simpler and fewer material artifacts. Policies to prevent the accumulation of clutter include labels that provide information on the durability and repairability of products, restricting advertising in public areas, and facilitating non-commercial spaces in cities, as well as shifting the taxation base from labor to goods and services that are environmentally damaging and resource intensive (Schneidewind and Zahrnt, 2014).

Finally, *less market* entails shrinking the monetized economy and expanding opportunities for non-market provisioning. This could occur, for example, by facilitating commons (e.g., parks and libraries) and more opportunities for self-provisioning (via educational policies and designated spaces to practice DIY skills), the intention being to limit the spread of a market rationale into ever more areas of social life and "protect or extend non-marketised goods, services, infrastructure and activities" (Schneidewind and Zahrnt, 2014, p. 64).

Many of the policy measures outlined by Schneidewind and Zahrnt (2014), and direct or indirect appeals to the 'four lessens,' can also be found in the anthology *Sufficiency: Moving beyond the Gospel of Eco-Efficiency* (Rijnhout and Mastini (eds), 2018), published by Friends of the Earth Europe. For example, Coote (2018) suggests that reducing hours of paid work is key to the transformation to a sufficiency-oriented society because it would release more time to live more sustainability. Lorek (2018) stresses that sufficiency solutions reach beyond consumption as an economic activity using money as the medium of exchange, focusing instead on non-commercial values, such as community engagement and cooperation, enabled through non-market activities such as DIY and voluntary work. To address the issue of shrinking state tax revenue from waged labor (which would be the result of less work performed in the formal economy), Mastini and Rijnhout (2018) argue in favor of transforming the tax system to one based on the use of energy and resources—i.e., green taxation. The same authors also suggest a progressive VAT tax on luxury and resource-intensive goods and services, and tax breaks on repair services as a way to make it attractive for individuals to keep their products in use for longer. Other policy suggestions to enable a sufficiency-oriented society include debt-free national currencies, a job guarantee, and Universal Basic Services (Mastini and Rijnhout, 2018).

In comparison to the policy suggestions for sufficiency put forward by Schneidewind and Zahrnt (2014), more space and elaboration are devoted in the Friends of the Earth anthology to policies that set caps on environmental resource use. For example, Alcott (2018) argues that putting caps on the extraction of various resources (e.g., forests and fisheries) is key to solving over-exploitation and that the permits ought to be distributed justly. Kiss (2018) develops this further by advocating for an EU-level 'Energy Budget

Scheme' as a way to deliver absolute reductions in fuel and electricity consumption. The size of the 'budget' would be in line with the EU carbon emissions targets, and energy would then be (fairly) rationed out (ibid.). These rations would be tradable, which would allow "people to consume based on their choices regarding their lifestyles" (Kiss, 2018, p.16). Another alternative to resource caps would be to place a cap on wealth and/or income (Gough, 2017; Buch-Hansen and Koch, 2019). Buch-Hansen and Koch (2019, p. 270) stress, however, that to make such a policy acceptable "it is important not to dictate it as a top-down measure but to develop and deliberate it in democratic forums where experts, citizens and policy makers come together."

2.3 Scaling framework

Proponents of sufficiency, along with other critical approaches such as degrowth and post-growth, are particularly concerned with exploring alternative economic systems and 'deep' changes to achieve social-ecological sustainability. With the understanding that transformation denotes large-scale change across whole societies (Hölscher, Wittmayer and Loorbach, 2018), these critical approaches can therefore be viewed as transformative because they seek to understand how broader systemic changes can be achieved. Against this background, the scaling framework developed by Moore, Riddell and Vocisano (2015), which outlines different scaling processes to achieve systemic impacts and larger systems change, could serve as a useful conceptual tool to discuss the findings from Papers I–IV. Furthermore, this selection could be motivated by the fact that the scaling framework explicitly discusses processes involving deeper changes to values and mind-sets (Lam et al., 2020). As the sufficiency approach involves a cultural reorientation toward non-materialist values (Schneidewind and Zahrnt, 2014; Sachs, 2015; Callmer and Bradley, 2021), any framework that discusses how sufficiency practices can be amplified should ideally involve aspects that relate to deeper changes in worldviews, beliefs, and values. Typically, interventions at this deeper level have greater potential to transform a society but are also subject to higher systemic resistance (Meadows, 2008; Dorninger et al., 2020).

Importantly, my application of the scaling framework in this cover essay differs from how Moore, Riddell and Vocisano (2015) use it in two distinct ways. Firstly, instead of focusing on social innovations, I pay attention here to sufficiency-related practices; specifically anti-consumption, reuse through second-hand ownership, repair, and working-time reduction. Secondly, my primary objective is not to explore *deliberate* strategies for scaling sufficiency practices; rather, I seek to describe how the various sufficiency-oriented cases covered in Papers I–IV can be interpreted in *relation* to the different scaling types. Although I also discuss some examples of deliberate strategies for scaling sufficiency-related practices, as further elaborated in the discussion chapter, I use this framework primarily as a conceptual tool to map out how the investigated cases can be situated within and at the intersections between different scaling types (see Figure 1 for an overview of the scaling types discussed in this cover essay). This also allows me to elucidate the roles that various actors can play in relation to scaling sufficiency-related practices. Moreover, by combining the scaling framework and the sufficiency approach, I aim to contribute to the literature that combines theories of how sustainability initiatives can be amplified[18] and critical sustainability studies (e.g.,Vandeventer, Cattaneo and Zografos, 2019; Khmara and Kronenberg, 2020). Thus, I use the scaling framework to discuss the findings from the different papers taken together (see section 3.3 for a further discussion on the process leading up to the selection of the scaling framework and how I have used it). Below, follows a summary of the scaling framework's theoretical foundations, the different scaling types, and their respective strategies.

The scaling framework for social innovation draws upon two main bodies of literature: social innovation studies (Westley et al., 2014) and strategic niche management (Schot and Geels, 2008). Social innovation research focuses on social and institutional entrepreneurship, studying how organizations, such as non-profits, try to increase their impacts via social innovations in order to promote large systems change (Westley et al., 2014; Moore, Riddell and Vocisano, 2015). Typically, social issues, such as homelessness, poverty, and mental illness, are of concern (Westley and Antadze, 2010). Strategic niche management, on the other hand, is situated within socio-technical transitions research and is theoretically rooted in science and technology studies as well as evolutionary economics (Lam et al., 2020). In particular, strategic niche management is focused on how socio-technical regimes, which develop

[18] See Lam et al. (2020) for an overview of different amplification frameworks.

through dominant technologies, can be replaced by niches, meaning protected spaces where innovation can emerge that challenges and potentially replaces the regime (Smith and Raven, 2012). Within this research field, the transition towards more sustainable energy, mobility, and agricultural systems is typically studied (Loorbach, Frantzeskaki and Avelino, 2017).

The scaling framework consists of three different types of processes for amplifying social innovations: scale up, scale deep, and scale out (Moore, Riddell and Vocisano 2015). Scaling up refers to institutional changes at the level of policy, rules, and laws. This scaling type rests on the recognition that the roots of social problems extend beyond particular places, and that innovative approaches are required to be codified in law, policy, and institutions. Strategies that support the scaling-up process focus on changing policies and laws through, for example, policy development, partnering, and advocacy. Scaling deep concerns impacting cultural roots and is based on the understanding that durable change must come through changing people's values, norms, cultural practices, and the quality of their relationships. There are two main strategies that support scaling deep: 1) disseminating big cultural ideas and reframing narratives to alter beliefs and norms and, 2) investing in transformative learning, networks, and communities of practice. Finally, scaling out entails influencing a greater number of people or communities and consists of two strategies: 1) replicating or spreading initiatives geographically to a greater number of people while safeguarding the fidelity and integrity of the innovation and, 2) disseminating the core principle and approach of an innovation while allowing local communities to adapt it to local conditions. Achieving widespread systems change is likely to necessitate a combination of these scaling types (Moore, Riddell and Vocisano, 2015). Figure 1 summarizes the core aspects of each scaling type.

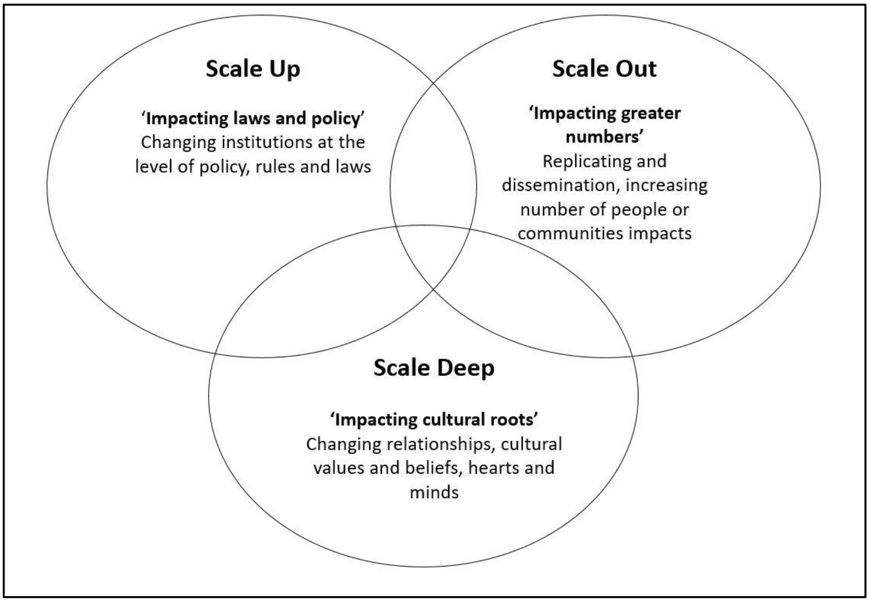

Figure 1. Scaling out, scaling up, and scaling deep for social innovation (Moore, Riddell and Vocisano, 2015).

As mentioned previously, one of the key objectives of this thesis is to explore how sufficiency practices can be scaled. Yet, given that sufficiency as an approach challenges fundamental aspects of contemporary life in affluent societies such as Sweden, in terms of lifestyles and political priorities, among other things, the scaling of sufficiency faces substantial barriers. These include changes to consumer culture, the physical environment and the economic and political system (Sandberg, 2021). For example, in terms of culture, previous research has suggested that individuals who tried to diverge from cultural norms around consumption perceived a risk of disproval and marginalization from family and friends (e.g., Cherrier, Szuba and Özçağlar-Toulouse, 2012; Boström, 2022). Another example could be at the institutional level, where public officials working with sufficiency-related initiatives struggle to navigate the current political and economic system (Callmer and Bradley, 2021).

These barriers, which concern efforts to reduce absolute levels of consumption, can be related to issues of power, including resistance to such changes from entrenched interests and institutions (Fuchs et al., 2016). To take just one example outside the field of sustainable consumption studies, it has been suggested that issues of power and vested interests have played a central role in the failure to bend the global emissions curve for the past three decades (Stoddard et al., 2021). In the case of scaling sufficiency, power relations and vested interests may, for example, inhibit more stringent efforts to improve the durability and repairability of products or to implement a VAT tax on luxury and resource-intensive goods and services. These aspects related to power and resistance are largely absent from the scaling framework.[19] A possible explanation for this relates to how the framework was developed in the context of social innovation and social entrepreneurship, where issues of resistance and counterforces are not as likely to emerge as salient issues as in the scaling of sufficiency-related initiatives and practices, which entails a significant break with contemporary lifestyles and politics. Although the scaling framework provides a useful conceptualization of how sufficiency practices can be amplified, it thus lacks a theorization of the dominant structures that may resist change. As a result of this theory choice, the possible power relations and resistance to transforming unsustainable consumption patterns are given relatively little attention in my thesis. This, I acknowledge, can be viewed as a limitation. However, this thesis does provide some insights into the challenges and tensions that emerge when sufficiency practices are in the process of being scaled.

[19] A recurring criticism from scholars interested in the politics and power of sustainability transitions is the tendency among transition studies to underemphasize the power struggles and inequalities that come with social change (Avelino, 2021).

3 Methodology

This chapter begins with a discussion of the methods used in the different papers. In the second part, I outline my research positionality, which I understand as referring to who I am in this research work and why that matters. The chapter closes with a third part in which I reflect upon the unfolding process of conducting research, with the intention of making this process visible by showcasing the ambiguities and making my choices throughout my PhD transparent. Here, I am inspired by the work of Isacs (2021) and Witzell (2021). The research context, and specifically being part of a transdisciplinary research program, has also influenced the selection of cases and the ambition to explore different actors. Therefore, in the final part of this chapter, I also include reflections upon the research context within which I am situated. Together, these reflections upon the research context and process are intended to give an insight into the ‘messiness’ of doing research. This is to make the point that research does not always play out as a rationally planned and controlled process, in contrast to the impression one may derive from some research outputs.

3.1 Methods used: qualitative and quantitative

In this thesis, the use of qualitative methods has been the primary methodological approach, Paper II being the exception (see Table 2 below for an overview). Such an approach is particularly useful for examining unfolding social processes (Clifford, Hardman and Hosp, 2008), for example how non-governmental environmental organizations are working to disseminate sufficiency-related practices. Although qualitative methods can evoke different interpretations, they generally consider, and pay attention to, empirical material that is open and ambiguous (Alvesson and Sköldberg, 2018). Another distinct feature of qualitative methods is that they focus on the perspectives and actions of the subjects being studied (ibid.). The presence and interpretive work of the researcher are often seen as vital in qualitative research.

Table 2. Summary of empirical materials and applied theoretical perspectives.

Study	Methods	Empirical material	Theoretical perspectives
Paper I	Qualitative	*Interviews* Semi-structured interviews with 21 volunteers and employees working with Fix the Stuff, Buy Nothing Day, and White Monday campaigns. The 'Swedish Society for Nature and Conservation' was the organization mainly responsible for Fix the Stuff campaign, while 'Responsible Consumption' was the main coordinating organization for the other two campaigns. *Documents* Newspaper and opinion articles, press releases. *Observations* Four Fix the Stuff repair events in Stockholm-Mälaren region.	Framing theory (Benford and Snow, 2000) combined with the sufficiency literature.
Paper II	Quantitative	*Survey* 994 respondents employed by the city of Gothenburg who had utilized the 'right to part-time' policy.	No specific theory was used. The empirical material was analyzed and discussed in relation to claims made in the working-time reduction literature.

Paper III	Qualitative	(Based on the material from Fix the Stuff campaign in paper I) + *Interviews* Semi-structured interviews with seven city officials and employees at Fixotek. *Documents* Websites, official reports, handbooks, and press releases from the case organizations. *Observations* Three workshops hosted by the city of Gothenburg that focused on scaling out spaces for circular consumption.	Literature on the mainstream circular economy discourse and the role of the citizen consumer, and politics of repair (Graziano and Trogal, 2017).
Paper IV	Qualitative	*Interviews* Semi-structured interviews with seven representatives from not-for-profit and for-profit firms. *Documents* Newspaper articles, financial and sustainability reports. Industry reports and national statistics on the Swedish second-hand clothing market.	Relationship-to-profit theory (Hinton, 2021b).

Among the papers that applied a qualitative methodology, I employed several different types of methods. This can be understood as triangulation, which "entails using more than one method or source of data in the study of social phenomena" (Bryman, 2012, p.392). Much social science research is based on using one single research method (Hult, 2017), and may, as a consequence, suffer limitations associated with that specific method or from how it was applied. Hence, triangulation can add richness and complexity to an inquiry

(Bowen, 2009; Hult, 2017). In Paper II, we did consider also conducting semi-structured interviews with some of those who had opted to reduce their working hours, but due to time constraints as well as a significant time lag between when the survey was sent out (2016) and when we started working on the paper (2020), this idea was eventually abandoned. By triangulating empirical material from the survey with semi-structured interviews, a richer account of the positive and negative outcomes of working-time reduction would have been possible.

As I discuss further in Section 3.3, the entry points for the papers have varied, ranging from collecting empirical material with no strong basis in a particular theory, to theory heavily influencing the research design.

A shared commonality across all four papers is that they involved empirical case studies. The papers range from involving a single case (Paper II) to encompassing multiple cases (Paper IV). So what can be said about the kinds of cases these are? Before elaborating on this further, it is worth pointing out that concrete, context-dependent knowledge gained through case-study research can provide much value for researchers and practitioners (Flyvbjerg, 2006). For example, case-study research can be used for theory building (Moore, Riddell and Vocisano, 2015) or to disprove scientific propositions (Flyvbjerg, 2006).

The cases included in Papers I–IV can be said to represent existing and concrete examples of initiatives and practices facilitated by societal actors that diverge from the existing paradigm of efficiency, which has dominated international policies and politics for sustainable consumption over the past several decades (O'Rourke and Lollo, 2015; Bengtsson et al., 2018). Hence, the rationale for the inclusion of these cases was that they involved sufficiency-related practices; for example, repair or anti-consumption. Moreover, the selection of Sweden as an empirical case setting was motivated by the country's long engagement with sustainable development and its particular focus on technological solutions and ideas of green growth as a way to overcome unsustainable patterns of consumption and production (Isenhour, 2010; Hult, 2017; Niskanen, Anshelm and McLaren, 2020), which underlines an inherent tension in working with sufficiency. At the same time, as I further elaborate in the discussion section, the City of Gothenburg, which serves as the geographical context for Papers II and III, can be seen as an interesting case setting due to its long history of working towards sustainable consumption and progressive social policies, therefore providing rich empirical material relevant to sufficiency. On the basis of this context, the City of Gothenburg emerged as a suitable empirical site. Altogether, these two specific geographical contexts were able to provide rich empirical materials, both in terms of how the amplification of sufficiency practices in affluent nations, with their high, unsustainable, ecological footprints, is a process involving frictions, and how sufficiency-oriented initiatives can be concretely implemented. Therefore, with regards to the first of these aspects, Papers I, II, and IV also illustrate the challenges and tensions that may arise when sufficiency practices are in the process of being scaled. In that sense, these cases can open up new ways of thinking and discussions about how a sufficiency-oriented transformation can take place, which actors are part of it, and what roles they may play. Importantly, my exploration of how the scaling of sufficiency can involve different societal actors should not be viewed as exhaustive. Indeed, the cases included in this thesis reveal empirical examples that are related to different amplification processes but, as I expand on in the discussion chapter, my analysis did not result in one case, on its own, being related to all three scaling types. Had I selected different cases, or if the scaling framework had also served as a theoretical lens for one or several of the appended papers, the results of this cover essay might have been different.

Below, I go into further detail about the specific methods used.

Semi-structured interviews

Among the papers in which I used qualitative methods, semi-structured interviews served as the main source of data, with other sources, such as on-site observations and document studies, being used to complement and enrich the main findings from the interviews. A semi-structured interview can be understood "as an interview with the purpose of obtaining descriptions of the life world of the interviewee with respect to interpreting the meaning of the described phenomena" (Kvale, 2007, p.8). Interviews that are semi-structured allow respondents to describe their understandings and experiences on their own terms and typically involve prepared questions guided by identified themes, which help to steer the conversation toward issues and topics that are of interest to the interviewer (Qu and Dumay, 2011). The degree to which guided interviews are scripted may vary, ranging from extensively to relatively loosely (ibid.). When designing the interview guides, I scripted some overarching themes, which were supported by a set of open-ended questions. The interview guide was distributed in advance of the interview so that the respondent had an opportunity to familiarize him/herself with the questions. Typically, when new issues arose during the interviews which I deemed interesting for the purpose of the study, or when there was a need for clarification, I would ask follow-up questions. In general, the questions had the character of being broad and open-ended, allowing the respondent to answer however he or she chose (Clifford, Hardman and Hosp, 2008). On occasion, however, some of the questions were more closed. This was particularly the case for Paper IV, where I asked some of the business representatives about the details of their second-hand operations, for example what proportion of the collected textiles was incinerated or exported. These questions were meant to provide us with a deeper insight into how the business operated, information that was not always publicly available. After conducting some initial interviews, I would amend the interview guide, either by adding additional questions or clarifying existing ones.

There were different levels of preparation leading up to the interviews for Papers I, III, and IV. For Papers I and III and the Fix the Stuff campaign, there was only limited background material available because the campaign had just been initiated when I started conducting the interviews. Texts that served as preparatory materials for the interviews that were my responsibility included the official Fix the Stuff campaign website, promotional campaign material intended for local chapters,[20] as well as publicly available material, such as press releases. Some information, for example the existence of the White Monday campaign, was obtained during the course of the interviews. Subsequently, I asked additional questions in relation to the newly obtained information regarding the nature of the three campaigns studied. Paper IV involved more thorough preparation, which included reading financial and sustainability reports from all the case firms, including those stretching back several years. This was to ensure that we had an overview of the specific firms' second-hand operations and how the

[20] The internal campaign material was not publicly available, but I gained access to these documents through contacts with people working centrally at one of the case organizations.

business had changed over the past few years with regards to aspects such as profit levels and amounts of textiles collected.

The interviewees were all selected on the basis of their insights into the specific organizational activities with which they were affiliated, such as environmental campaigns or second-hand operations. The respondents took part in the interviews in their professional capacity or as members of the environmental non-governmental organizations. I made sure not to ask about any sensitive personal information, such as racial or ethnic origin, political opinions, or religion.

The semi-structured interviews followed similar procedures for analyzing the transcripts, but differed in terms of how they were carried out and transcribed. To conduct the analysis, I used a combination of the qualitative data analysis computer software NVivo and the online mind-map tool Mindmeister. Using NVivo, I created main codes and sub-categories, which were connected to quotes from the respondents. These main codes and sub-categories were then transferred to Mindmeister, where I developed overarching analytical themes and established connections between them. As the analysis progressed, these themes were relabeled and re-organized. In Papers I and III, the semi-structured interviews were carried out both face to face and online. I fully transcribed all of the interviews that I conducted. Due to the Covid-19 pandemic, all of the interviews for Paper IV had to be conducted online using the video conference tool Zoom. For this paper, I used Microsoft Word's automatic transcription program. To check for accuracy, I listened to the interviews and made adjustments and corrections to the transcripts. Before including any quote in each of the respective papers, I shared the specific paragraph with the respondent concerned to ensure that he/she felt accurately portrayed and quoted. The interviews lasted 30–90 minutes and were all conducted in Swedish. All of the quotes presented in Papers I-IV were translated into English by me.

Document analysis

To complement other sources of knowledge, we analyzed various written materials, such as newspaper articles, campaign materials, industry reports, and national statistics. Document analysis can be understood as referring to a systematic procedure for reviewing or evaluating documents and involves interpretations designed to gain empirical insights (Bowen, 2009). Analyzing secondary data from documents and media archives can fall under the category of 'unobtrusive measures,' which include "any method of observation that directly removes the observer from the set of interactions or events being studied" (Bryman, 2012, p.325).

Documents can serve multiple purposes as part of a research endeavor, and here I use Bowen's (2009) categorization of the five different functions that secondary data can fulfil to further expand upon the roles that the different types of documents have played in the appended papers. Firstly, documents can provide context to the subject of inquiry. In Papers III and IV, we used industry reports, national statistics, websites, and newspaper articles on the international movement around right-to-repair and the Swedish second-hand clothing market, respectively, in order to contextualize the data derived from the semi-structured interviews. Secondly, information obtained from documents can suggest questions that need to be asked or situations that require observations as part of the research undertaking. As mentioned above, the documents used in Paper IV, such as financial and sustainability reports, gave insights into how the firms operated on the second-hand market, but sometimes information about a specific firm was unclear or simply lacking; for example, in terms of how the collecting and sorting of textiles was conducted. Based on the information (or lack of it) in these reports, we designed specific interview questions to further improve our understanding of the studied topic. Thirdly, information and insights gained from documents can serve as valuable research data. Across Papers I, III, and IV, the analysis of organizational documents and newspaper articles supplemented the findings of the semi-structured interviews, providing more richness and complexity to the studies. For example, in Paper III, we used one of the findings from an internal document to highlight how the Swedish Society for Nature and Conservation had engaged in a critical discussion of the mainstream circular economy discourse. Fourthly, documents can be used as a means of tracking change and development. In Paper IV, we looked at financial aspects and sustainability spanning several years in order to understand whether the increasingly competitive second-hand clothing market had any impact on profits. Fifthly, documents can be used to verify findings or corroborate evidence from other sources. Again, using an example from Paper IV, the national statistics and industry reports on the development of the second-hand clothing market were used to verify the finding that the interviewees saw an increasing commercial interest in used clothes in Sweden.

How the documents we obtained were analyzed varied depending on the specific purpose. Materials such as newspaper articles or campaign documents, which served as supplementary research data, were coded using NVivo. These codes either created separate themes or were linked to already existing themes and sub-themes derived from the analysis of the semi-structured interviews. Other written materials, such as industry reports or national statistics, which we used to contextualize the cases, were not subjected to systematic coding. Instead, these types of documents were read through and sections that we considered potentially interesting were marked and coupled with a comment describing their relevance to the specific study.

Observations

The final source of empirical material was on-site observations. Typically, observations can either be participant or non-participant (Eneqvist, 2022). Participant observations can be defined as situations in which the researcher is performing the same activities as those being observed, while non-participant observations refer to the researcher closely following key actors and their practices (Czarniawska, 2007, cited in Eneqvist, 2022). Attending four events related to the Fix the Stuff campaign (Papers I and III), I took the role of a non-participant observer as I did not engage in any repair activities. Instead, I took photos and field notes, and held short conversations with organizers and a few participants. I used the information that I gathered from these events to get a sense of how the repairing activities were actually manifested and who took part in them. Hence, this material served to contextualize the specific case and was not systematically analyzed to the same extent as the other empirical sources used.

A note on quantitative methods

Qualitative and quantitative research are often depicted as embodying two different worldviews (Hammarberg, Kirkman and De Lacey, 2016). Among quantitative circles, it is common to perceive qualitative research as not being objective and lacking generalizability due to often involving relatively small samples. Meanwhile, quantitative research may be viewed in qualitative circles as simplifying individual experiences in favor of generalization and failing to acknowledge biases in research design and the interpretation of results (Hammarberg, Kirkman and De Lacey, 2016).[21]

I have tried to take a careful approach to generalizing the findings from Paper II. For example, the relatively expansive welfare system in Sweden (Andersson et al., 2014) allows for a correspondingly high level of 'decommodification' of public services (Koch, 2020). Hence, the insights in Paper II concerning financial hardships and working-time reduction need to be understood against this background because, in other countries with lower levels of welfare provision, there is greater dependency on income levels to access basic forms of public assistance. Thus, the results may have been different if the paper had not been situated in Sweden. Another aspect related to the specific setting of Paper II that warrants caution in terms of generalizability concerns the norms around working-time reduction at the place of occupation. Given the prevalence of working-time reduction in the Swedish municipal sector, a typically female-dominated workplace, it is plausible that the norm attaching to a 40-hour working week is not as strong as in other sectors and geographical contexts. For example, in a German-based study involving white-collar workers, a key negative outcome of working-time reduction was the perceived loss of occupational status (Buhl and Acosta, 2016). There were specific questions in the survey addressing whether the respondent perceived that colleagues and managers viewed her/his reduction in working hours negatively. However, since most of the respondents did not rank these as salient issues, we did not include them in the final paper. If Paper II had used a different case study, norms and expectations around full-time work might have been more visible as negative aspects of working-time reduction.

With these caveats in mind, a strength of quantitative research methods is that it is useful for collecting information about large groups of people (Clifford, Hardman and Hosp, 2008). Hence, the quantitative method applied in Paper II allowed for a more comprehensive analysis of the policy than if we

[21] Although this may represent a common opinion about how qualitative and quantitative methodologies diverge from each other, some scholars have argued against this duality. It has been claimed, for example, that quantitative methods are also able to study meaning, something which is usually associated with qualitative methods (e.g., Bryman, 2012).

had relied on a qualitative method. Also, the fact that the findings from Paper II, or any of the papers for that matter, cannot be formally generalized does not prevent them from entering into the collective process of knowledge accumulation among those who are concerned with issues linked to working-time reduction and sufficiency more broadly (Flyvbjerg, 2006).

Returning to the issue of how the researcher's presence is felt in terms of research design and interpretation of results, it is important to note that choices were made about the specific statistical method applied in Paper II. Here, we used ordinal logistic regressions, which allow for easier interpretation as this method provides only one coefficient per variable. However, there was a discussion among the co-authors about using generalized ordered logistic regressions instead, which is a more complicated method as it essentially provides more coefficients per variable. If we had used this method, the results would have been more difficult to interpret as there would have been no single number for how working-time reduction increased the odds of, for example, being worried about making ends meet. In other words, what I wish to point out here is that the choices made by a researcher about what quantitative methods to use influence the results and how they can be interpreted. Thus, just as in qualitative research, quantitative research can encompass the presence and interpretive work of researchers like myself.

3.2 Research positionality

Although I am sympathetic to the sufficiency approach, I have on occasion wondered if it is the most fruitful research direction or if I should take a more 'pragmatic' approach to issues related to unsustainable consumption patterns. Prior to starting my PhD, I was a sustainability consultant, working mostly with topics related to corporate social responsibility (CSR). Perhaps not surprisingly, discussions about how we can reduce consumption or questioning profits as one of the three bottom lines, the other two being people and planet, very rarely took place. In the conversations I had with clients, usually the sustainability managers of companies, I often got the feeling that they were facing strong internal resistance to changing the company in a more sustainable direction unless these measures could improve company profits. While working as a sustainability practitioner, I saw first-hand how challenging it can be for organizations and firms to implement even minor reformist measures, let alone more radical ones like sufficiency. I believe that this experience has informed my research positionality and why I consider sufficiency an important approach, based on my professional experience.

To begin with, I have a hard time seeing how we can solve the unfolding social and ecological crisis related to the consumption patterns of the affluent without changing the deeper stories, mind-sets, beliefs, norms, values, and rules that exist within the current economic system. Sufficiency, as I discussed earlier, is concerned with these issues but still remains peripheral in the Swedish public discussion on sustainable consumption. With this in mind, part of my research endeavor has been to illustrate that there are, in fact, real-world examples that relate to and can improve our understanding of how sufficiency can be implemented in practice. In light of this, a source of inspiration for how I position myself as a researcher is the work of Gibson-Graham (2006, 2008) on diverse economies. Their research shifts the focus from the substantive to the performative, whereby speaking about the world—including conducting research—is part of changing it (Schmid, 2019a). In other words, by conducting research on sufficiency, I render it more visible, which in turn, hopefully, can inspire, mobilize, and support efforts towards social-ecological sustainability. From this perspective, I understand my role as "searching for other ways of thinking and making realities for more just socio-environmental change" (Hult, 2017, p.71). Hence, I have an ambition not only to understand the world but also to work towards changing it (Eneqvist, 2022).

At the same time, although I consider myself to be part of a wider academic community focused on sufficiency, one intention with my work has also been to 'speak back' to this community by highlighting some of the inconsistencies or problematic assumptions in the sufficiency literature.

An important aspect of research positionality in qualitative research relates to how the researcher is perceived by other people (Thien and Gilliam, 2020); for example, my physical appearance or how I am concerned with social and ecological issues related to consumption, and how that might influence the data that I as a researcher gain access to and gather. This could include the type of interviewees I gained access to, the information the interviewees shared, how they talked about things, and so on. A recurring aspect across the qualitative interviews was how the interviewees were working, either professionally or as volunteers, with sustainable consumption. Moreover, generally speaking, the interviewees could be seen as eco-oriented, educated, and middle class with Swedish ethnicity, thus sharing several characteristics with me. These shared commonalities entail hidden assumptions about how we—meaning the interviewee and I—discussed and understood sufficiency-related practices and sustainable consumption more broadly. One concrete example is how the phrase "we need to reduce our consumption" was frequently spoken in different interviews. When this phrase was uttered, I cannot recall asking a follow-up question about who was included in 'we.' Instead, my assumption was that this referred to people with the same socio-economic background as the interviewee and myself. If my background had been different, it is likely that I would have reacted to statements like those. A noticeable difference, however, was that most of the interviewees were women, while I identify myself as a man, and they were often older than me. The uneven gender distribution of the respondents is likely to have influenced how the sufficiency practices were discussed. For example, one of the challenges that we identified related to DIY repair in Paper I—how it carries negative connotations of poverty—was often discussed in relation to mending and repairing clothes, a practice typically performed by women. I have tried to handle these specific aspects of the interviews (i.e., sharing similar values and the uneven gender distribution), which may have influenced the results I obtained, by being reflexive about potential biases as well as supplementing the interview-based data with other sources of information to make the results more robust.

Although I share similar values and socio-economic background with the respondents across the majority of the papers, Paper II is an exception. Here, the survey respondents represented a much wider range in terms of occupation types, education, and income levels compared to the other three papers. In addition, most of those who had reduced their working hours did so because they wanted to improve their work–life balance and not for environmental reasons. Besides including a wider range of socio-economic groups, Paper II, together with Paper IV, represents a different approach to Papers I and III, as the former are concerned with exploring the social and ecological outcomes of working-time reduction and the growing second-hand clothing market, respectively. In the discussion chapter, I reflect further on how the papers involved different approaches and the wider implications of this for the literature on sufficiency.

3.3 Reflections on the research

Research context

I am a PhD student in Planning and Decision Analysis and my research is situated within the transdisciplinary research program ‘Mistra Sustainable Consumption: from niche to mainstream.’ The goal of this program is “to contribute to change through increased knowledge of how sustainable consumption that is currently practiced by a few can be scaled up and become more common.” [22] Specifically, the program sets out to examine niche sustainable consumption practices and develop roadmaps for how they can be scaled up and mainstreamed by policymakers, businesses, civil society organizations, and citizen consumers. Undoubtedly, the framing of this research program has influenced my research direction in a number of different ways. Firstly, the specific focus on environmental non-governmental organizations, firms, and local municipalities is by and large an outcome of the program’s framing of looking at the role of different societal actors. This provided me with a clear direction for my different papers. However, as the focus on these particular sets of actors had already been decided before I became a PhD candidate, it has been an ongoing process to make sure I fulfill the program requirements while at the same time pursuing my own research interests. Secondly, the attention of the program, which is directed toward upscaling and mainstreaming, suggests that it also influenced the cover essay’s focus on scaling sufficiency. To some extent this is true, and I would argue that my first paper was particularly shaped by this perspective. However, as my research developed, the focus on upscaling and mainstreaming became less present and, as I further explain below, it was only towards the end of the writing process that I returned to scaling. Importantly, as scaling can refer to various types of amplification processes (Lam et al., 2020), this thesis has a broader take on what scaling can encompass than how it is discussed and used in the program description, which is mainly about how the uptake of sustainable consumption practices can grow.

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[22] From the program website: https://www.sustainableconsumption.se/en/start-eng/

Research process

In this sub-section, I describe how I came across the sufficiency approach, how the theoretical perspective of the cover essay was developed, and the different phases that Papers I–IV went through. I have included these reflections for two interrelated reasons. Firstly, for readers who are themselves considering becoming or currently are PhD candidates, I want to provide insights into how research can unfold. Secondly, coming from my research positionality, the intention is to be transparent about the fact that research does not always follow a rational and planned process. To render the research process more visible, I have also included several different images to showcase the 'hidden' aspects of conducting research. Here, I was particularly inspired by the work of Hult (2017). Of course, it is not possible to include everything that influences a research project. Nevertheless, my intention has been to offer a glimpse of how the research constituting this thesis came to be.

Early on in my PhD, I became interested in the concept of sufficiency through conversations with colleagues and my supervisor. Before I began my PhD, I had very little knowledge of sufficiency or other related concepts, so in this sense I approached sufficiency with curiosity, not knowing in any great detail what it entailed.

If sufficiency is a concept that has been with me since the early days of my PhD, one of the other cornerstones of the thesis's theoretical perspective, how sufficiency practices can be scaled, was only developed during the final stages of my research. This, I would imagine, is not uncommon for a compilation thesis such as this one. However, during the course of my PhD, I have experimented with different theories as a way to synthesize and discuss the findings of Papers I–IV. The first attempt was to situate my research in a transitional setting by using the Multi-Level Perspective (Geels, 2011), a theory that investigates the process of change in socio-technological systems, which are systems that fulfill societal functions and are linked to markets, user practices, policy, and cultural meanings (Geels, 2004; Geels et al., 2015). Change in socio-technical systems is understood as being the result of interactions between three different levels: niche, regime, and landscape (Geels, 2002, 2004). Although I developed a fairly extensive draft, at the time I was not happy with the end result, and I struggled to conceptualize what constituted the regime and niche levels. This echoes the notion that transition theories, such as the Multi-Level Perspective, have had a hard time addressing and incorporating questions concerning sufficiency, degrowth, alternative economic systems, and 'deep' changes (Geels et al., 2015; Köhler et al., 2019).[23] Others have also pinpointed how transition theories tend to assume that a more energy-efficient technology is more sustainable than conventional alternatives, ignoring the accompanying rebound effects (Feola, 2020), and that niches displace the regime via competition and therefore do not adequately capture social changes that can occur through cooperation (Vandeventer, Cattaneo and Zografos, 2019). These points of criticism led me to further re-consider the use of the Multi-Level Perspective.

In my second attempt, I decided to move away from transition theories and head off in a very different direction. This time, drawing on the literature from feminist economics that emphasizes the role of the reproductive economy in addition to the productive economy (e.g., Henderson, 1991; Gibson-Graham, 2006), I aimed to show how the different sufficiency practices that I was studying could be situated within different layers of the economy—from the monetized to the non-monetized layer. This idea originated from Paper III, where, in our theoretical section, we used Henderson's (1991) depiction of the economy as a layer cake to illustrate the struggle for control of repair in the circular economy. At a late stage, this perspective was removed from Paper III, but I still saw some interesting potential in it to illustrate how sufficiency is concerned with both market and non-market activities. Similarly to my experience of applying the Multi-Level Perspective, I was not entirely satisfied with the results, and I found it to be most relevant to Papers I and III, while being less so for the other two papers. Reading Maja Göpel's (2016) work on 'the great mindshift' led me back to thinking about sufficiency, transition, and transformation. It was when I came across the work of Moore, Riddell and Vocisano (2015) and began to apply their framework to my research findings, that it finally became clearer to me how the different papers could fit together to convey a coherent narrative to the reader and pinpoint what the overall contribution of my thesis could be. In terms of Papers I–IV, they followed different research processes, but the

[23] There have, however, been some efforts to combine transition and deeper changes to current economic and political systems, most notably Göpel, 2016; Vandeventer, Cattaneo and Zografos, 2019; Khmara and Kronenberg, 2020.

starting point for all the respective papers was that they could be related in some way to the sufficiency approach.

The specific focus of Paper I, to investigate how environmental non-governmental organizations are working to increase the uptake of sufficiency activities, stemmed from my attendance at a launch event for the 'Fix the Stuff' campaign hosted by the Swedish Society for Nature and Conservation in early autumn of 2018. Participating in this event, and others that took place during the campaign period (see Figure 2), led to further contacts with volunteers and employed staff who were working with the campaign, some of whom I later interviewed. Parallel to this, I was looking for other potential cases, since my intention was for the paper to be a case comparison. Together with a colleague in the same research program, who was also looking at environmental non-governmental organizations but from the perspective of food, I took part in several joint interviews with other organizations. Here, Responsible Consumption, and the campaigns Buy Nothing Day and White Monday, emerged as suitable case studies. In other words, this paper was empirically driven and I did not have a specific theoretical framework in mind while I was designing the research questions or conducting the initial coding. It was through the co-author of this paper that I became aware of framing theory (Benford and Snow, 2000) as a suitable theoretical concept to structure the analysis and develop the research aim more concretely. I struggled for quite some time to find the right terms for the different framings we had identified and I tried different labels, such as soft and hard sufficiency, to capture the strategies utilized by the studied organizations. It was while reading the work of Gibson-Graham (2006) on diverse economies, paired with Lorek (2018), that I became able to articulate that the sufficiency practices I was looking at could be interpreted as involving both market and non-market activities. Reflecting back on how this paper developed, a benefit of not selecting a theoretical framework before I conducted the interviews was that the initial analysis had to be very broad and I encountered a large set of possible themes and sub-themes. In this sense, the approach to the empirical material was fairly open.

Figure 2: Fix the Stuff pop-up repair workshop in the 'recycling mall' Retuna.

Paper II followed a quite different process. The starting point for this paper was that it should focus on one or several types of sufficiency-related policies. I had several tentative ideas, such as working-time reduction, the repairability of products, decommodified urban spaces, and banning product commercials in public spaces, to name just a few. Early on in this process, I became interested in the topic of working-time reduction and one of the researchers within the Mistra research program had already conducted research on Gothenburg city's 'right to part-time' policy. I was given access to the empirical material and, when coupled with reading literature on the topic of working-time reduction, the idea came up that it might be interesting to look at how the negative and positive outcomes of the reduction in working hours are influenced by type of occupation. Eventually, following a rejection from a journal, we included new variables and changed our methodology, but the core premise and conclusions of the paper remained the same. Coming from a qualitative background, with no prior experience of working with quantitative data and statistical analysis, this paper was challenging from a methodological perspective. I spent many hours with my co-authors learning and discussing the basics of statistical methods (see Figure 3). A key take-away from this paper is that applying an unfamiliar method required me to be reflexive about the areas where I needed assistance and to develop a different type of collaboration with my co-authors compared to the other papers.

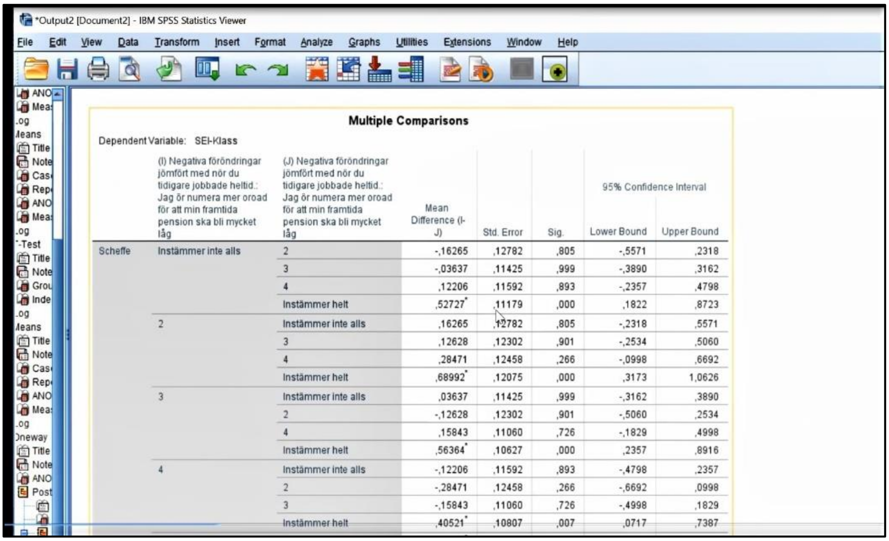

Figure 3. Learning a new method for Paper II.

On Paper III, I was the co-author, and the main author—who is also my main supervisor—came up with the suggestion that we could combine our two different case studies to discuss the wider implications of how repair can be performed in different ways, which in turn rest on different societal visions. As mentioned above, part of this paper's theoretical perspective used Henderson's (1991) layer-cake model, but following comments from a journal reviewer, this part of the theory section was removed. I experienced the development of this paper as relatively straightforward. This was probably aided by the fact that it had a clear aim and that both authors were well acquainted with the empirical material.

It proved challenging to find an interesting direction for Paper IV, which I had originally intended to be one of my first papers. Although there is a growing body of work exploring the relationship between sufficiency, or de/post-growth, and firms, I particularly struggled to combine sufficiency with using firms as cases. In the spring of 2020, I came across the work of Jennifer Hinton and relationship-to-profit theory, and saw an interesting potential in using this theory on empirical cases. Following some meetings, we decided that it might be fruitful to co-author a paper together. The initial premise of this paper was to compare not-for-profit and for-profit businesses across several different sectors, such as finance, food, and retail. However, the not-for-profit scene in Sweden is fairly small, so it proved difficult to find suitable cases. The second-hand market in Sweden, however, has a strong presence of not-for-profit firms and, given that it involves reuse, a sufficiency practice, we decided that this would be a suitable setting for Paper IV. Initially, we had intended that it should be a case comparison between one for-profit and one not-for-profit firm, but we decided at a later stage of the research process that it would be beneficial to include more cases to strengthen the paper. Hence, this paper started from a particular theoretical perspective, which shaped our aim and case selection, and was then applied to analyze the empirical material. Through relationship-to-profit theory and my co-author, I became familiarized with causal loop diagrams (CLDs) as a data analysis method. A CLD is a systems thinking tool that is used to map out the causal relationships between key variables in a system, in order to identify the key feedback loops that drive the system's behavior over time (Meadows, 2008). Based on the empirical findings, we used this tool to identify potential social-ecological outcomes of the changing second-hand clothing market. Over the course of the analysis, several versions of the system map were developed (see Figure 4).

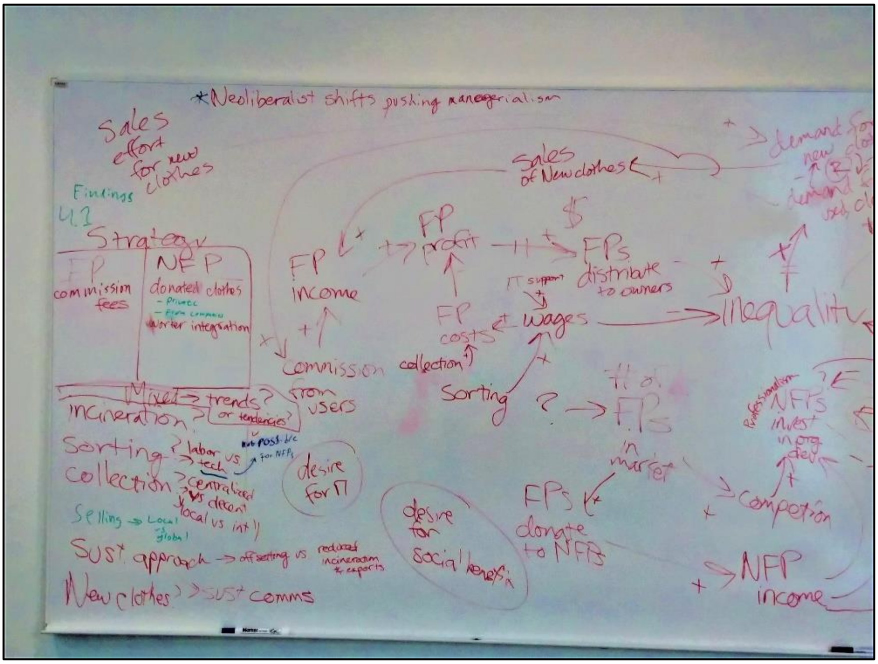

Figure 4. Mapping out the potential social-ecological outcomes of a changing second-hand market.

Reflecting back on the research process for Paper IV, analyzing the empirical material was aided by the fact that the theoretical perspective had already been developed before we conducted the empirical work. One possible downside of this approach is that we were less open to the material than if we had taken a more ‘bottom-up’ approach, focusing on the empirical data first and then proceeding to identify a suitable theoretical framework to explain the patterns emerging from the coding process. On the other hand, due to having a clear analytical entry point to the empirical material, the framing of the paper and key arguments were established relatively early on in the writing process.

In summary, all of the four papers followed different methods and research processes—ranging from empirically driven to theoretically driven. This diversity illustrates how, at least in the context of this thesis, research can unfold in numerous ways and with different opportunities and challenges. Finally, as outlined above, my research was an explorative endeavor. Given that, in the Swedish context, sufficiency is by no means a common approach, explorative research, like this thesis, is a useful technique to investigate new topics of concern.

4 Summary of papers

In this chapter, I provide a brief summary of the four papers that comprise this thesis, highlighting the key results for each paper. I also clarify my individual contribution, as well as those of my co-authors, to Papers I–IV.

Paper I

Persson, O. and Klintman, M., 2022. Framing sufficiency: Strategies of environmental organisations towards reduced material consumption, *Journal of Consumer Culture*, 22(2) pp. 513–533. doi: 10.1177/1469540521990857.

In this paper, we explore the different strategies—both argumentative and practical—that environmental non-governmental organizations (ENGOs) apply in their campaigns to reach a broader audience, focusing on less use, and increased care and maintenance of products. This is achieved through two case study organizations: the Swedish Society for Nature and Conservation and its Fix the Stuff campaign, and Responsible Consumption, which is the organization mainly responsible for the campaigns Buy Nothing Day and White Monday. Semi-structured interviews, participant observations, and a media review served as the empirical material. Drawing on sufficiency literature and framing theory, we create a conceptual distinction between market-based and non-market-based sufficiency activities in order to explain the strategies, challenges, and tensions that emerge when ENGOs attempt to reach a broader audience, beyond those whose consumption-related activities are driven by a strong ethos of reducing environmental or social harms. We illustrate how ENGOs promote activities ranging from those that can be applied within the current market arrangements, to those dealing with social relations and non-commercial values beyond market exchange, in order to gain cultural resonance. We interpret the combination of market-based and non-market-based sufficiency activities as a frame extension undertaken by the organizations to address the challenging nature of Buy Nothing Day and DIY repair. Simultaneously, we highlight the conflicting work around dilemmas for these organizations regarding how to reduce consumption. In particular, while advocating for sufficiency includes redefining the relationship between consumption and life satisfaction, we find that ENGOs' strategies to promote sufficiency-related activities may not always fully adhere to this dimension of sufficiency. We therefore argue that, if sufficiency approaches are to become relevant to a broader audience, ENGOs need to use strategies that work in tandem. This could include, for instance, offering market activities that can reduce material consumption, as well as non-market activities that facilitate alternative notions of well-being, while avoiding having them run counter to each other.

Comments on paper contributions:
I developed the idea for the paper and collected and analyzed all the empirical material. I had the main responsibility for writing the paper. Mikael Klintman contributed with writing and editing. I had the main responsibility for revising and responding to reviewer comments, with valuable input from Mikael Klintman.

Paper II
Persson, O., Larsson, J. and Nässén, J., 2022. Working less by choice: what are the benefits and hardships? *Sustainability: Science, Practice and Policy*, 18(1), pp. 81–96.
doi: 10.1080/15487733.2021.2023292.

This paper explores how the motivations for and the social-ecological outcomes of working-time reduction vary across different socio-economic groups. To address these questions, we used the case of the city of Gothenburg's 'right to part-time' policy, which allows for voluntary and flexible working-time reduction with a proportional salary cut. Our analysis is predominantly based on survey responses (N=994) from municipal employees contracted to work full time who have opted for working-time reduction, supplemented with employment records providing information on socio-economic factors. In this paper, we showcase that working less improved quality of life, not only for higher-income groups, but also for lower-income groups through gains in time affluence, energy, health, and time spent on strengthening social ties. Furthermore, our analysis indicates a possible reduction in environmental impacts—through decreased income and more time spent on relatively low-carbon activities. Among those working fewer days, however, more time was also spent on holiday trips, which suggests a potential rebound effect. In addition, we uncover three main negative outcomes of working-time reduction. Firstly, employees with relatively low salaries were much more likely to reduce their working hours due to the fact that the work itself was mentally or physically demanding compared to those with higher earnings. A question can thus be raised regarding the extent to which the reduction in working hours as truly 'voluntary' for some of the respondents because their decision to work less could be seen as a coping mechanism related to poor working conditions. Secondly, working-time reduction leads to increased work intensification, particularly among higher-income earners. Here, the form of working-time reduction also influences this negative outcome, whereby working shorter days, as opposed to working fewer days, exacerbates work intensification and reduces the feeling of being well rested. Thirdly, concerns regarding making ends meet and future retirement income are particularly salient issues among lower-income earners. Although we conclude that a reduction in working hours can be a viable option across a broader range of socio-economic groups than previously assumed, there are nevertheless potential tradeoffs between social and environmental outcomes which are shaped by different policy designs. These policy options should therefore be carefully considered when discussing and implementing different working-time reduction policies.

Comments on paper contributions:
I developed the idea for the paper and analyzed the empirical material. I had the main responsibility for writing the paper. Jörgen Larsson provided the data and contributed to the analysis as well as writing and editing. Jonas Nässén contributed to the analysis as well as writing and editing. I had the main responsibility for revising and responding to reviewer comments, with valuable input from both the other authors.

Paper III:
Bradley, K. and Persson, O., 2022. Community repair in the circular economy – fixing more than stuff. Local Environment, pp. 1–17. doi: 10.1080/13549839.2022.2041580.

This paper explores the discourses of DIY community repair through two case studies: the ENGO campaign 'Fix the Stuff' in Sweden and the 'Fixotek' open DIY repair spaces in the City of Gothenburg. Our empirical material consists of semi-structured interviews, on-site observations, and documents from the case organizations. Conceptually, we juxtapose the mainstream circular economy discourse with the discourse on DIY community repair, the latter drawing on the 'politics of repair' literature. Through our case studies, we highlight that the DIY community repair discourse emphasizes the benefits of repairing, such as improving the environment, contributing to empowerment, improving quality of life, promoting social inclusion, increasing urban attractiveness, and creating jobs. Moreover, our material reveals that repair organizers, including public officials, aim to reduce consumption and are striving to make space for increased do-it-together practices and non-market relations. Hence, community repair is not only about fixing broken stuff and reducing waste, but also about building social relations, empowering people, and creating space for non-consumerist forms of citizenship to develop. By contrasting these findings with the mainstream circular economy discourse, we argue that these two different discourses rest on different visions of a future circular society, whereby DIY community repair appeals to a degrowth vision in terms of conviviality, non-market-based relationships and post-work. In this paper, we therefore conclude that the path towards more circular economies is not a consensus win-win journey, but is instead characterized by diverging perspectives on the roles and powers of citizen-consumers and corporations as well as on the control of materials, skills, and resources. Importantly, we argue, these differences reveal issues concerning who gets to participate in the circular economy and under what terms, highlighting the need for more debate on the questions of power and equity in the transition towards circular economies.

Comments on paper contributions:

The idea for the paper was developed jointly. I was responsible for collecting the empirical material for one of the case studies ('Fix the Stuff') and Karin Bradley was responsible for collecting the empirical material for the other case ('Fixoteken'). The analysis, writing, and editing was done jointly. Karin Bradley had the main responsibility for revising and responding to reviewer comments; however, I contributed significantly.

Paper IV

Persson, O and Hinton, J., under first round of review. A sustainable second-hand clothing market? Exploring the role of business forms and profit. *Journal of Cleaner Production.*

Through a qualitative comparative case study consisting of three not-for-profit (Stadsmissionen, Erikshjälpen, and Myrorna) and three for-profit (Tradera, Sellpy, and NA-KD) businesses, this paper examines how different legal forms of business impact upon the social and ecological sustainability dynamics of the Swedish second-hand clothing market. The analysis is based on empirical material obtained through semi-structured interviews, secondary company data, such as websites and financial and sustainability reports, and a media review. Applying relationship-to-profit theory and causal loop diagrams as analytical tools, we elucidate how, compared to for-profit firms, not-for-profit firms have greater potential to enable a more social-ecologically sustainable second-hand clothing market. However, the increasingly commercialized and competitive second-hand clothing market indicates that not-for-profit firms are implementing professionalization strategies that may reduce the social benefits they provide. In addition, the large quantities of clothing that are either incinerated or exported to low-income countries by these firms represent a negative environmental outcome. With the growing proliferation of for-profit businesses offering a commission for used textiles, consumers may increasingly turn to these actors to sell their higher-quality clothes and donate lower-quality textiles to not-for-profit businesses. In turn, this may lead to ever greater volumes of clothing being incinerated or exported by not-for-profit firms. We also found that, due to the lack of profitability of selling used clothes, some of the for-profit firms are dependent on revenues from selling new clothes to financially support their second-hand business models. This, we argue, represents a risk that the growing second-hand clothing market may fall short of actually replacing the consumption of new clothes and the associated environmental impacts. We conclude that, while a growing second-hand clothing market may be part of the transition to a future circular economy, there are social-ecological issues related to which market actors have access to the used clothes, how these materials flow and how profits are eventually distributed. By paying greater attention to the legal structures and financial flows of the firms present within circular markets, we can improve our understanding of who benefits from the transition to a circular economy and under what conditions this transition can be made more socially just and environmentally sustainable.

Comments on paper contributions:
The idea for the paper was developed jointly. I had the main responsibility for collecting and analyzing all the empirical material as well as writing the paper. Jennifer Hinton contributed significantly to the analysis and also contributed to writing and editing.

5 Discussion

Across Papers I–IV, I have covered various cases and practices that can be broadly understood as being aligned with the sufficiency approach. In order to understand how each of these may relate to different amplification processes, I return, in the first part of this chapter, to Moore, Riddell and Vocisano (2015) and their scaling framework consisting of three different types. These different scaling types also allow me to tease out the roles that different societal actors may play, as well as some of the contradictions, challenges, and tensions that arise when various sufficiency practices are amplified. The focus is on the main findings of the papers, but I also provide some reflections on how some of the different cases can also be related to scaling types that extend beyond the central results of each respective paper. For this purpose, I will draw on sufficiency-related literature and ongoing changes at the policy level.

In the second part, I discuss the findings from Papers III and IV and how these, in turn, can contribute to the debate on sustainability transitions and circular economies.

5.1 Scaling sufficiency

As I elaborate further below, Papers I–IV cover various sufficiency-oriented cases and practices which can be linked to three different scaling types. Figure 5 provides a summative illustration of the findings of this research work in relation to scaling sufficiency practices. To recapitulate the different scaling types: *Scaling up* concerns changing institutions at the level of policy, rules and laws; *scaling out* involves impacting a greater number of people or communities; and *scaling deep* entails changing people's relationships, cultural values, and beliefs.

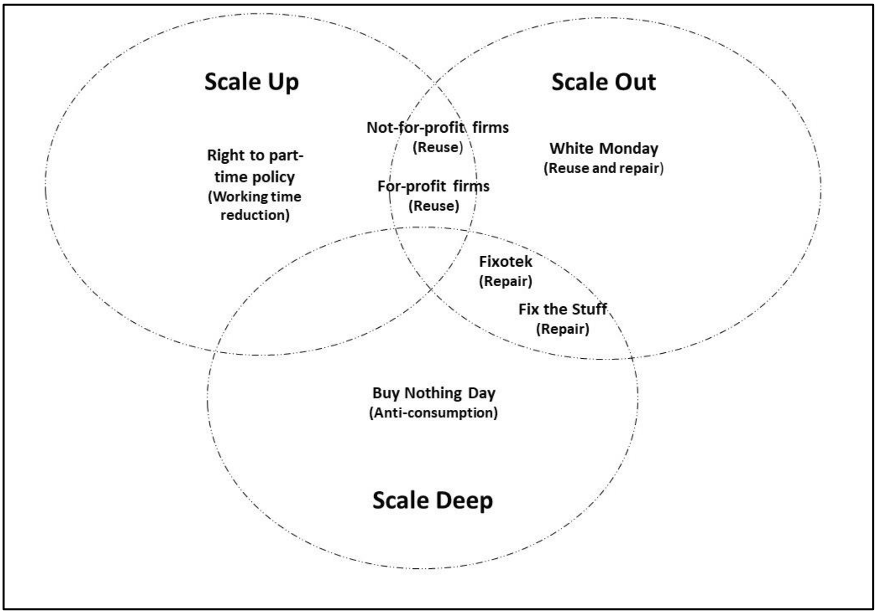

Figure 5. Relating the case studies to different scaling types.

The tensions between scaling out and scaling deep

Paper I illustrates how two ENGOs, the Swedish Society for Nature Conservation (SSNC) and Responsible Consumption (RC), implemented three campaigns—Fix the Stuff, Buy Nothing Day, and White Monday—that centered on disseminating activities that encourage less use, and the increased care and maintenance of products. The Fix the Stuff campaign, organized and led by the SSNC, can be understood as involving both scaling deep and scaling out. As we discuss in both Papers I and III, the organizers viewed DIY repair as a practice that extends beyond reducing the harmful environmental impacts of material consumption. Indeed, DIY repair was portrayed by the interviewees as a collective, non-monetized practice which can foster empowerment and joy. More profoundly, and related to scaling deep, DIY repair entails questioning the sense of well-being one derives from material consumption. Instead, it shifts the norms around consumption by highlighting how individuals can contribute to sustainable consumption by being a caring and repairing owner. This emerging, more critical, consumer culture therefore challenges green consumerism (i.e., buying better and less resource-intensive products), which has been a dominant discourse in environmental policies and politics (O'Rourke and Lollo, 2015; Bengtsson et al., 2018). As we discuss further in Paper III, DIY repair can also be interlinked with shifting norms around the amount of waged labor being performed and emphasizing that other forms of work that do not involve formal waged labor also have high value. Thus, DIY repair can be interpreted as involving changing relationships, cultural values, and beliefs around work and consumption.

Although not as clearly expressed by representatives from the organization RC, other representatives of the Buy Nothing Day campaign argued that the campaign also resonates with aspects related to scaling deep through promoting alternative ways of increasing well-being beyond markets and consumption.

Yet, disseminating these DIY repair and anti-consumption practices to a broader group of people, beyond those who are strongly committed to social and environmental issues, was seen as challenging by the organizations we studied. Thus, in order to influence a greater number of people, both SSNC and RC deployed scaling-out campaign strategies that centered on disseminating market-based sufficiency strategies (i.e., Fix the Stuff included the promotion of commercial local repair shops while RC embraced the campaign White Monday). Indeed, there is clearly room for both markets and firms in a sufficiency-oriented society (e.g., Schneidewind and Zahrnt, 2014; Niessen and Bocken, 2021; Gossen and Kropfeld, 2022), so in principle, these scaling-out strategies are not at odds with the sufficiency approach. However, because the White Monday campaign centered on offering discounted prices on reuse and repair services and products, this scaling-out process was in tension with the scaling-deep potential of Buy Nothing Day, as the former campaign essentially promoted consumption. Thus, we highlight the challenges and tensions that ENGOs may face when attempting to both scale out and scale deep sufficiency activities. Against the background that ENGOs have been given scant attention in the sufficiency literature (Sandberg, 2021) and that these types of organizations can provide valuable engagement with and opportunities for sufficiency (Lorek, 2018), Paper I offers some new insights into the conflicting work around reducing consumption that may be faced by actors who are important for scaling sufficiency.

Besides the insights gained into how ENGOs can work with scaling out and scaling deep sufficiency practices, and the pitfalls that come with these endeavors, Papers I and III also highlight an organizational shift in SSNC's position vis-à-vis efficiency and sufficiency. It has been suggested that, in the late 1970s and early 1980s, some of the Western European ENGOs took a rather radical approach by, for example, discussing limits to growth (Lorek and Spangenberg, 2014). Yet, increasingly over the years, both new and established organizations have increasingly championed efficiency improvements and technical solutions similar to those proposed by the policymakers they are seeking to influence (ibid.). For example, in Sweden, during the 1990s, ENGOs such as SSNC adopted a rhetoric related to efficiency (e.g., buying eco-labelled products) in order to temper the perceived radicalism of their environmental campaigns as a strategy to reach more people (Boström, 2001). This organizational shift from efficiency towards embracing sufficiency-related practices and conceptions was also mentioned by some of the interviewees and is furthermore reflected in one of the internal documents in its critical discussion of the mainstream circular economy discourse. Hence, Papers I and III illustrate an important break with how, over the past few decades, established ENGOs have framed issues of and solutions to unsustainable consumption patterns. Importantly, with the WWF's European Policy Office recently embracing the idea of a 'well-being economy'[24] (WWF, 2020b), there are also signs that large and established ENGOs outside of Sweden have begun to shift their position in relation to efficiency and sufficiency.

Scaling out and scaling deep through collective infrastructure

Paper III also relates to scaling out and scaling deep sufficiency practices, but the second case studied (Fixotek) involved different processes and actors. In this paper, we showcase how the City of Gothenburg has established a number of DIY repair spaces with the aim of providing free, inclusive, and collective infrastructure for repair and reuse. Here, two different strategies contribute to scaling out. Firstly, the Fixotek spaces can be viewed as sites for decommodified repair (Schmid, 2019b), by means of which this non-marketized infrastructure limits the spread of the market rationale and therefore aligns with *less market* (Schneidewind and Zahrnt, 2014). In turn,

[24] A well-being economy refers to an economy that pursues human and ecological well-being over growth in material consumption and GDP (Fioramonti et al., 2022).

this allows for the uptake of repair and reuse among broader groups, particularly those who are socially and economically marginalized, therefore contributing to the sufficiency dimension that is centered on strengthening social justice (Persson and Klintman, 2022). Thus, it resonates with the strategy of disseminating initiatives to a larger number of people (Moore, Riddell and Vocisano, 2015) by making sustainable consumption practices more accessible by going beyond green consumerism, which is typically framed as something that primarily engages eco-oriented, educated, middle-class ethnic majorities (Bradley, 2009; MacGregor, Walker and Katz-Gerro, 2019), and is often predicated on having higher levels of income and education. At the same time, it is important to note that the time-demanding aspect of DIY repair may hinder the wider uptake of repair and means that it may need to be coupled with working-time reduction.

Secondly, an interesting aspect of the Fixotek case is that it involves efforts to make it easier for citizen groups to mobilize, initiate, and organize different activities, thus enabling citizens to develop their own solutions. Specifically, the City of Gothenburg has developed a handbook containing easily understood information and concrete suggestions for how groups can set up a Fixotek space. In practice, this could allow groups to take over an existing Fixotek space and adapt it to local needs, or create new Fixotek units, as it is designed to be an open concept. Hence, this can be viewed as a scaling-out strategy based on disseminating the core principles of Fixotek, namely an open DIY repair space, but one that can be adapted to local contexts. Therefore, the City of Gothenburg is not only an enabler of collective infrastructure for repair, it is also working towards citizen empowerment.

In terms of scaling deep, the interviewees conceded that increasing the uptake of repair facilitated by the Fixotek spaces requires changes not only in the systems of provision but also in social norms and behavior. Importantly, they highlighted that repairing together, coupled with establishing physical meeting places, is essential. The collective nature of the Fixotek spaces extends the practice of repairing as something instrumental to occasions for socializing and strengthening community cohesion. Social meeting places, such as Fixotek, can therefore be seen to fulfill a dual role, both as sites where people can be empowered by acquiring new skills and as free and collective community spaces, with the latter aspect being viewed as particularly important for marginalized groups and young people. In common with the Fix the Stuff campaign, the Fixotek spaces can therefore be said to involve a process of scaling deep, in terms not only of how the interviewees highlighted that repair and reuse practices break with conventional norms around consumption but also of the relationship between less consumption and greater well-being. To be precise, establishing the Fixotek spaces was seen as an effort to reduce waste and promote repair and reuse, but, due to the way in which these spaces catered to community-building and new forms of social relationships, it can be argued that the potential reduction in consumption in this context is not necessarily coupled with a loss of welfare.

With regard to the roles that different actors can play in scaling sufficiency practices and lifestyles, the sufficiency literature has focused on firms, policymakers, and the civil-society trio of citizens, NGOs, and educators, with policymakers receiving most of the attention (Sandberg, 2021). It is relevant to the setting of Paper III that the sufficiency literature focusing on the role of governments and policymakers has often paid attention to initiatives at the national or supranational levels (ibid.). Meanwhile, in the context of the closely related field of degrowth, Khmara and Kronenberg (2020) argue that grassroots action is the main key to societal change, even though top-down approaches also have a strong presence in the degrowth literature (Cosme, Santos and O'Neill, 2017). These grassroots initiatives (e.g., eco-villages, urban farming, time banks, consumer cooperatives etc.) are usually seen to be initiated by local communities, and not by local or central governments (Khmara and Kronenberg, 2020). There are examples of studies that discuss how municipalities can play a role in enabling sufficiency practices and lifestyles (e.g., Schneidewind and Zahrnt, 2014; Ziesemer, Hüttel and Balderjahn, 2019; Ahvenharju, 2020); for example, through local infrastructures for reuse. A key contribution of Paper III, however, is that it provides insights into how local municipal governments can scale out sufficiency-related initiatives in practice by using a different set of strategies. Importantly, the City of Gothenburg has a longstanding history of governance towards sustainable consumption, being one of the first municipalities in the world to adopt reduction targets for consumption-based emissions (Hult and Larsson, 2016) and the city can be considered a pioneer in terms of incorporating a consumption perspective into climate policies (Rask, 2022). Therefore, the potential transformation processes towards a sufficiency-oriented society are likely to unfold differently in different places and involve various types of actors, because social and historical conditions are contingent upon geographical context. Moreover, as one of the municipally-initiated Fixotek spaces was taken over by a local non-profit organization, Paper III shows how local governments can scale sufficiency in collaboration with civil society actors. This nuances the dichotomy between more formal modes of governance and grassroots movements that I would argue is sometimes implicit in the discussion on sufficiency and which actors are driving change.

A growing second-hand market: scaling out and scaling deep

Reuse continues to be a largely marginalized set of practices, but interestingly the second-hand clothing market has seen increasing interest from both consumers and businesses (Appelgren, 2019; Valor, Ronda and Abril, 2022). This is the context in which Paper IV is situated. In particular, the paper sheds light on how not-for-profit and for-profit businesses affect the social and ecological dynamics of the growing second-hand clothing market in Sweden. Thus, in contrast to the understanding of different strategies for how sufficiency practices can be scaled out covered in Papers I and III, Paper IV is instead concerned with unpacking the social and ecological implications when a sufficiency practice is already in the process of being scaled out.

Both not-for-profit and for-profit businesses can contribute to increasing the uptake of reuse; for example, through marketing and providing new platforms to buy and sell second-hand products. However, a key argument of this thesis is that the sufficiency approach is not only concerned with reducing the harmful environmental impacts of consumption, it is also concerned with how resources can be distributed to reduce social and economic inequalities in order to meet everyone's basic needs. From this perspective, one of the key insights provided by relationship-to-profit theory[25] (Hinton, 2021b), used in Paper IV, is that an expanding second-hand clothing market may increase social inequalities, therefore raising questions about the extent to which a growing second-hand market is contributing to

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[25] This theory highlights the importance of a firm's legal purpose (financial gain versus social benefit) and financial rights (whether or not private individuals have the right to receive a business's profits) in supporting social-ecological sustainability (Hinton, 2020).

sufficiency. Here, we show how increasing competition has led to increasing costs for not-for-profit businesses, which in turn risks reducing the amount of profits that can be channeled into socially beneficial causes, where the beneficiaries are often socially marginalized groups, such as homeless individuals. Specifically, due to the growing presence of for-profit firms on the second-hand market, not-for-profit businesses receive lower-quality clothing, which is then either exported to low-income countries or incinerated. Furthermore, in order to survive within the increasingly commercialized and competitive second-hand market, not-for-profit firms have implemented professionalization strategies, which may reduce the social benefits they provide.

One possible point of critique against situating the market-induced growth of second-hand activities—a practice that has traditionally been undertaken in the civic sector, households, or peer to peer (Corvellec, Stowell and Johansson, 2021)—as part of scaling out sufficiency is that this process expands the formal, monetized economy. For example, if more and more people are selling second-hand clothes on the market, as opposed to swapping them with friends or family, this will effectively lead to an expansion of the monetized economy. Hence, such a process might go against the idea that sufficiency entails less market (Schneidewind and Zahrnt 2014). However, there is a need for markets and firms in a future sufficiency-oriented society, something that Schneidewind and Zahrnt (2014) also recognize. Therefore, I would argue that it is more relevant to understand the kinds of purpose that the firms providing products and services which can promote sufficiency have. In other words, is the purpose to maximize profits, meaning that environmental and social goals are subservient, or merely supplementary, to this goal? Or is the main purpose to deliver social and environmental benefits, using the profits as a means to achieve these goals?

In terms of the scaling framework, Paper IV underlines the need to also examine the corresponding logic and purpose linked to the legally binding institutional elements (e.g., not-for-profit or for-profit) of actors who are part of scaling out sustainability initiatives. In turn, this can enrich our understanding of how these actors can potentially contribute to social-ecological sustainability. Thus, by using relationship-to-profit theory, which outlines how for-profit and not-for-profit are two distinct, legally binding institutional elements (Hinton, 2021a), Paper IV can also be related to scaling up. Because these two different business forms are codified in legal frameworks, they are not easy to change and are more permanent by nature, setting the overall institutional context within which other business-related dimensions, such as governance or strategy, are situated (Hinton, 2021b). Put differently, the relationship-to-profit can encourage, allow for, or inhibit the pursuit of certain business objectives (Hinton, 2021a). However, within the academic work on companies in a post-growth setting, there has been a tendency to focus on strategies and the size and scope of firms and to overlook how the legal forms of businesses may influence social-ecological sustainability (Hinton, 2021b). For example, within the literature addressing sufficiency-based business models (e.g., Bocken and Short, 2016, 2020; Niessen and Bocken, 2021; Gossen and Kropfeld, 2022), there has been little attention paid to how the legal structures of different business forms guide and constrain actors' behavior in relation to the distribution of profits. Thus, Paper IV contributes to this literature by highlighting the importance of also mapping out the relationship between legal structures and the financial flows of businesses adopting sufficiency-based business models. In particular, we suggest that not-for-profit firms are more aligned with the sufficiency approach than for-profit firms, due to their respective legal forms.

Working-time reduction and scaling up

In Paper II, we analyze the 'right to part-time' policy implemented by the City of Gothenburg in 2015, which gives all of its 50 000 employees the right to request a reduction in working hours (down to 50% of full-time hours), regardless of reason. Importantly, this policy was also coupled with a right to full-time work. In theory, combining these two sets of policies suggests that those who decided to reduce their working hours did so voluntarily (as opposed to involuntary part-time work). However, our article problematizes this assertion by showing that, compared to those with higher earnings, employees on lower incomes were much more likely to reduce their working hours due to the mentally or physically demanding nature of the work they performed, thus bringing into question the extent to which the working-time reduction was truly voluntary for some of these individuals.

From the perspective of sufficiency, this consequence of the policy is problematic because it shows that there are inequalities related to occupational types, and in turn income levels, which influence the negative outcomes of working-time reduction. Our analysis also reveals other issues related to social inequality, namely that those on lower incomes were much more likely to be concerned about making ends meet and retirement income levels. Furthermore, we identified issues related to gender equality, whereby women were more likely to experience difficulties making ends meet and work intensification than men. Paper II therefore responds to the call sent out by Coote (2018) that working-time reduction policies which are part of a sufficiency politics need to consider the inequality implications concerning income and control over one's time. Nevertheless, this paper indicates that there are also some important positive outcomes of a sufficiency perspective; namely, that working-time reduction can lead to reductions in environmental harm and improvements in quality of life for those who reduce their working hours.

The case of the right to part-time policy could be viewed as an example of scaling up sufficiency because it involved changes in policies at the institutional level. At the same time, this paper does not offer specific insights into the type of strategies, such as advocacy or partnering, that were used by the actors concerned, such as labor unions, that led to the policy being implemented. Therefore, as I argue further in the concluding chapter, one fruitful avenue for future research is to investigate the various strategies actors have used that have resulted in sufficiency-related policies being successfully implemented.

Policy implications of scaling sufficiency

Moving beyond the main findings from each respective paper, and by expanding on their results using insights from previous literature, here I provide some additional reflections upon the potential connections between various scaling types and the wider implications for sufficiency-related policies.

In terms of working-time reduction, and as suggested by the discussion above, there is a clear case to be made that Paper II is related to scaling up. However, there is also an interesting potential for working-time reduction policies, such as the right to part-time policy, to scale deep. To begin with, in the context of Sweden, there is a strong norm to work full time (Björk, Larsson and Lundberg, 2020) and the provision of more opportunities to work less stipulated by laws or policies, such as the right to part-time work, can help change these norms and values around waged labor. In turn, working-time reduction policies can help to break the 'work and spend' cycle (Schor, 2011) and liberate time from the market economy (Kallis, 2018), which can then be spent instead on reproductive work, such as caring for family members, and social activities (Hickel, 2020). Indeed, Paper II shows that the changes in time use following the working-time reduction were channeled into these types of non-waged care work.

Nevertheless, politicians in many countries are introducing or considering reforms that aim to increase working hours, such as raising the retirement age (Larsson, Nässén and Lundberg, 2020). At the same time, with recent examples of countries such as Spain (Noori Farzan, 2021) and Iceland (Haraldson and Kellam, 2021) experimenting with shorter working weeks, there is an emerging counter trend that extends the opportunities for individuals to work fewer hours. The right to part-time policy implemented by the City of Gothenburg could be seen as part of this trend. However, in terms of working-time reduction policies and how they relate to scaling deep, I would like to emphasize that there is a *potential* for these types of policies to challenge norms around waged labor.

Importantly, working part time has historically been highly gendered, and continues to be so, with women more likely to reduce their working hours than men (Coote, Harper and Stirling, 2021). Therefore, there is a risk that, depending on the policy design, working-time reduction may instead reinforce gendered norms around waged and non-waged work. Indeed, among the respondents in Paper II, women were overrepresented. This risk has therefore meant that some scholars (e.g., De Spiegelaere and Piasna, 2017; Coote, Harper and Stirling, 2021) have argued for collective working-time reduction, as opposed to an individual format, the right to part-time policy being an example of the latter. Often, this debate on how individual working-time reduction may negatively influence gender equality stems from the notion that women do not have opportunities to work full time in the first place (see for example De Spiegelaere and Piasna, 2017), leaving them with less control over deciding their use of time. However, as the right to part-time hours was coupled with the right to full time work, there is institutional support for more voluntary part-time work among both women and men, providing better opportunities for individuals to live a time-autonomous life.

Even so, there are gendered norms in both households and workplaces that may limit the opportunities for both men and women to take control over how they want to live their lives with regard to work and care patterns.

With the aforementioned issues discussed in relation to the right to part-time policy, a question may be raised as to whether this policy should be framed as being part of the sufficiency approach. My contention is that the right to part-time policy ought to be viewed as one possible way of scaling working-time reduction through changes in policy and that Paper II is an attempt to assess the positive and negative outcomes by applying a sufficiency lens. Put differently, the insights gained from Paper II can provide further knowledge about how working-time reduction policies can be designed to promote an equitable social-ecological transformation. Indeed, it is these insights that lead us to support those who call for a reduction in working hours coupled with a retained salary for low-income earners in order to decrease issues related to financial hardship (e.g., Levy, 2017; Parrique, 2019). It is important to highlight, however, that a risk associated with this specific policy design is that it may result in a time-use rebound effect, i.e., an increase in environmental harms enabled by more time being available to spend on material- and carbon-intensive activities. Thus, in order to achieve both ecological and socially sustainable outcomes, working-time reduction combined with maintained salary will probably need to be coupled with a broader set of policies. These include, for example, taxation on resource use and environmentally damaging goods and services, the provision of non-commercial spaces, and a redistribution of wealth (for a further discussion, see Pullinger, 2014; Cosme, Santos and O'Neill, 2017; Kallis et al., 2020). In other words, working-time reduction should not be regarded as a 'silver bullet' but as part of a broader policy package that promotes a good life for all within planetary boundaries.

Turning to sufficiency-related policies and repair, the Fixotek spaces, together with Fix the Stuff campaign, explored in Paper III illustrate how municipalities and ENGOs can play important roles in promoting DIY repair, and the skills needed for it, through the provision of open digital and physical DIY repair infrastructures. Nevertheless, as we argue in Paper III, DIY repair is still dependent on producers manufacturing repairable and durable products in the first instance, as well as providing the necessary tools, spare parts, and information. Hence, there is also a need to change policies and laws to amplify the practice of repair; i.e., scaling up. With the implementation of the EU's Circular Economy Action Plan (European Commission, 2020), and moving beyond the main results of Paper III, there are changes in motion that can be related to scaling up. This is because the EU's plan places greater responsibility on producers to provide information on the lifespan of products and ensures new horizontal material rights for consumers.

In terms of other changes in the policy landscape that have important implications for another sufficiency-related practice, namely the reuse of clothing through the second-hand market, the European Commission is currently considering extending producer responsibility for textiles across the European Union by 2025 (European Commission, 2021). At the time of writing, the exact details of how this proposed legislation will be designed are still subject to discussion in Sweden and elsewhere, but drawing on the results from Paper IV there are important policy implications relevant to sufficiency. These considerations could include, for example, the extent to which producers should collaborate with not-for-profit firms in relation to the collecting and sorting of used clothing and how to encourage increased domestic circulation of second-hand products and decrease the amount exported to low-income countries for recycling and reuse.

As a concluding remark, I need to stress that, even though I have provided some examples that can be related to the scaling of sufficiency practices, this does not mean that there are not many other ways in which the amplification of sufficiency practices can take place and many other actors who are part of this process. Importantly, a set of different policies and deep politics is also needed if we are to achieve a sufficiency orientation of society. These could include, for example, indicators that focus on prosperity rather than money or consumption, democratic and collaborative decision-making, and laws that ensure social and ecological justice (Hinton, 2021b; see also section 2.2. in this cover essay).

5.2 Advancing the debate on circular economies from the perspective of sufficiency

As I discussed in section 2.6, practices such as repair and reuse can be found in both the sufficiency and the circular economy literature. Furthermore, the circular economy concept can be placed on a continuum: from resource efficiency and improving existing practices to radical changes in resource use (Velenturf and Purnell, 2021). The former can be illustrated by the position taken by the Ellen MacArthur Foundation (2013) and the European Commission (European Commission, 2020) and the latter by a circular future based on a 'bottom-up sufficiency' scenario (Bauwens, Hekkert and Kirchherr, 2020). Thus, in the emerging literature that draws on sufficiency, degrowth, post-growth, and other related concepts to develop the circular economy concept in a more transformative direction, clearly distinguishing between sufficiency and the circular economy is not always straightforward. It is against this background that Papers III and IV can be understood because they are situated within a circular economy context but bring the critical perspectives of the politics of repair and relationship-to-profit theory to the debates on the circular economy approach. Here, I understand critique "as a means to point out issues that are otherwise considered problem free" (Corvellec, Stowell and Johansson, 2021, p.1). Coming from this understanding of critique, I want to use the findings from Papers III and IV to bring to the fore issues that have yet to receive much attention in the circular economy literature. In particular, they can advance the discussions on power relations and social inequalities during a circular economy transition. Importantly, I consider the perspectives of the politics of repair and relationship-to-profit theory to share some important commonalities with the sufficiency approach.

In Paper III, we specifically highlight how repair in the circular economy can be enacted and steered by a different set of actors. Here, we show that the pathway towards more circular economies is not a consensus win-win journey but involves ideological tensions concerning what roles and powers citizen-consumers and corporations will possess, and who will have control over the skills, materials, and resources involved in the process. Given that the circular economy discourse in Sweden has been presented as a fairly technocratic and de-politicized process (Niskanen, Anshelm and McLaren, 2020), Paper III therefore re-politicizes the circular economy by drawing attention to questions of who will do the repairs in the future circular economy. As we illustrate through our two case studies (Fix the Stuff and Fixotek), repair can involve more than just instrumentally repairing items, it can also carry an alternative vision of the circular society, one that is centered on repair, reuse, and sharing, with empowered citizens who increasingly self-organize and work less. This is in strong contrast to the very influential circular economy vision depicted by the Ellen MacArthur Foundation (2013). Thus, this article contributes with empirical case studies to the body of literature that takes a critical perspective on repair within the circular economy (e.g., McLaren, Niskanen and Anshelm, 2020; Niskanen and McLaren, 2021; Meißner, 2021), showcasing how circular economy practices can indeed be organized in wide-ranging ways, and how this in turn reveals that there are different societal visions of what future circular economies might look like.

Our article also indicates the need for policymakers and circular economy scholars to move beyond the aspiration of creating more circular material flows to also debate and address the question of who gets to have the control and power over repair making. Although the EU Circular Economy Action Plan (European Commission, 2020) can be seen as a promising policy package at the supranational level which opens up opportunities for greater citizen control over repair, Paper III illustrates how municipalities and ENGOs can also play important roles in encouraging repair-making.

In Paper IV, we home in on a different practice that is commonly discussed in the circular economy and sufficiency literature; namely, reuse through second-hand consumption. Here, we show that, if the intention is to understand the conditions under which a socially just transition to a circular economy could emerge, particular attention should be paid to the legal structures and financial flows of firms that are active in circular markets. Thus, this article moves beyond recycling and technological issues, which are common topics in the circular economy literature (Schöggl, Stumpf and Baumgartner, 2020). Instead, we highlight a number of issues related to the distribution of profits gained from the sales of circular practices and how this in turn may have an impact upon wider aspects related to social inequalities. Thus, these findings bring a new set of questions to the circular economy literature, which has tended to focus on the circulation of material flows, and how these flows may impact upon the environment and consumers (McLaren, Niskanen and Anshelm, 2020). In other words, scholars and practitioners should pay attention to how the money flows and circulates within a potential circular economy, just as they have done to the material flows up until now, if the circular economy approach is to embody more radical, transformative change.

This article also reveals that the second-hand business models among some of the for-profit firms were directly or indirectly financed through the sale of new clothes. Hence, this brings to the fore questions concerning the extent to which supposedly circular business models are actually dependent on more conventional, linear, forms of production and consumption. As discussed elsewhere by Stål and Corvellec (2018), it is far from certain that the uptake of take-back systems and second-hand business models challenges key linear activities or value creation within firms. This raises concerns about whether the proliferation of businesses on the second-hand market, especially those that are also involved in selling new products, contributes to reducing total material consumption, or if the growing second-hand consumption is added on top of already high, unsustainable, consumption levels of new products.[26] In addition, circular economy strategies that involve narrowing, slowing, closing, dematerializing, and intensifying material loops tend to be more costly and therefore have a negative impact upon firms' profit margins (Bauwens, 2021). Hence, "these strategies directly run against a political economy that is premised on perpetual economic growth and pressures companies to squeeze costs and maximize shareholders' profits" (Bauwens, 2021, p.1). If the expectation is that circular economy strategies, such as increased reuse via second-hand markets, should deliver the same level of profit margins, or at least close to them, as the sales of new products, profit-oriented firms are likely to resist adopting these strategies. More profoundly, this would suggest that, in order to increase firms' uptake of circular economy strategies, they would need to move away from understanding profit as an end in itself and instead focus on how profits can be used as a means to enable social and environmental sustainability (Hinton, 2021b).

[26] See Niskanen and McLaren (2021) for a similar discussion on repair and the circular economy.

6 Conclusions

To round off this cover essay, this concluding chapter revisits the research questions presented in the Introduction and describes how the findings address them. I then sketch out some of the empirical and theoretical contributions of this thesis work, and suggest some avenues for future research.

I start with the first question: How can sufficiency practices be scaled and what role can non-governmental environmental organizations (ENGOs), businesses, and municipalities play?

This thesis brings together a number of different studies, illustrating how these various types of actors can amplify sufficiency-related practices through scaling out, scaling deep, and scaling up. Although sufficiency is an approach that still remains peripheral in the public debates on how to encourage social and ecological sustainability, the research in this thesis provides concrete examples of how sufficiency can be scaled not only through bottom-up and grassroots movements, but also via more conventional actors such as municipalities, established ENGOs, and firms. It therefore contributes to knowledge about how sufficiency can extend beyond an individual strategy for creating low-impact lifestyles to involve various societal actors and scaling processes. Specifically, I show how ENGOs are involved in scaling out and scaling deep repair, reuse, and anti-consumption activities. Local municipalities, on the other hand, are amplifying repair via scaling out and scaling deep, and enabling working-time reduction through scaling-up processes. Finally, I illustrate how the amplification of reuse by firms active on the second-hand clothing market can be related to scaling out and scaling up. Nevertheless, it is important to note that the cases discussed here are by no means an exhaustive or comprehensive account of how the scaling of sufficiency practices may unfold, or of who is involved in this process. Moreover, the scaling of sufficiency practices represents only one part of a potential sufficiency-oriented transformation. There are many other necessary conditions for this change to be realized.

As most of the research into actors who can aid sufficiency-oriented transformations has focused on one single actor (Sandberg, 2021), the overall contribution of this thesis is that it provides insights into how various types of actors are part of different amplification processes. In line with this, I suggest how the public sector, as in the case of the City of Gothenburg, can work together with civil society to encourage greater citizen empowerment in relation to organizing and developing DIY-repair spaces, thus challenging the notion that public-sector involvement is predicated on top-down measures. Given that Gothenburg as a public authority is relatively unique in its governance directed towards reducing the negative environmental impacts of consumption, the actors who are involved in the scaling of sufficiency practices are likely to be conditioned by the geographical context. Beyond this spatial aspect, the findings of this thesis indicate a temporal feature of actor involvement in amplifying sufficiency. Specifically, I elucidate how the large and established ENGO, SSNC, has undergone a journey from embracing efficiency to promoting sufficiency. Finally, I suggest that it is also important to consider the legally binding institutional elements of actors (e.g., not-for-profit or for-profit firms) that can be said to scale out sufficiency. In other words, actors, such as firms, may be guided and constrained by different laws and rules, and by paying greater attention to such aspects we can better understand how various kinds of actors can aid or hinder a sufficiency-oriented transformation.

Moving on to the second research question: What are the challenges and tensions when sufficiency practices are in the process of being scaled?

My research reveals that these challenges and tensions include weakening the potential for inducing changes in consumerist norms and values, and maintaining or even exacerbating social and economic inequalities. Hence, this thesis responds to the call made by Sandberg (2021), who sees a need for more empirical research on the different roles that various actors involved in sufficiency transformations can play and the potential barriers that may emerge. Specifically, in the context of working-time reduction, it pinpoints potential trade-offs between social inequalities, quality of life, and environmental outcomes depending on the precise policy design.

This thesis also indicates that, when sufficiency practices are scaled out through market actors, there is a need to consider the organizational form of businesses in order to understand the wider social and ecological implications of this process. Finally, among established ENGOs, working towards disseminating sufficiency practices comes with a range of challenges, and this thesis makes the case that, depending on how these organizations respond to those challenges, the strategies employed to scale sufficiency may be more or less effective. Thus, it is clear that the scaling of sufficiency-related practices is a 'messy' process fraught with inconsistencies, challenges, and trade-offs. Yet, by highlighting these tensions and challenges, we can improve our understanding of the conditions under which the scaling of sufficiency practices can better align with the social and ecological goals that are embedded within the sufficiency approach and other related fields, such as post-growth and degrowth.

Unlike sufficiency, the circular economy approach has rapidly emerged as a dominant discourse in the public debate on how to address the adverse environmental outcomes of the consumption and production of goods and services. In light of this, the third, and final, research question asks: How can a sufficiency approach contribute to the debate on sustainability transitions and circular economies?

In particular, I draw attention to how the mainstream circular economy discourse has overlooked questions concerning the roles and powers of citizen-consumers and corporations, as well as the control of materials, skills, and resources. Moreover, there are social-ecological issues related to which market actors have access to used clothes, how these materials flow, and how profits are eventually distributed that have yet to receive much attention in the current circular economy debate. Taken together, these issues have important implications for who benefits from the transition to a circular economy and in what ways. By bringing these issues of power relations and social inequalities to the fore, and exploring alternative business forms and ways of organizing repair, the findings of this thesis can be used to develop the circular economy approach in a more transformational direction compared to the current, mainstream conception advocated by business representatives and policymakers.

The majority of the key contributions in this thesis have been achieved through empirical case studies. Yet, it also offers some theoretical contributions. Firstly, this thesis advances the discussion on sufficiency and transformations by suggesting that sufficiency-related initiatives can pay greater attention to three different scaling types in order to achieve systemic impacts and larger systems change (Moore, Riddell and Vocisano, 2015). Conversely, from the perspective of sufficiency, I simultaneously stress the need for the scaling framework to incorporate ideas of power relations and vested interests that may resist change in order to bring further clarity to how sufficiency practices can be scaled. Secondly, by employing relationship-to-profit theory (Hinton, 2021b), this thesis draws attention to how the different legal forms of businesses active on second-hand markets can increase or decrease social and economic inequalities. This suggests that sufficiency scholars should direct more attention towards the types of legal business forms that exist and how they in turn can shape the monetized economy in the direction of social-ecological sustainability. Thus, by highlighting the existence of not-for-profit firms, it challenges the idea of a market logic centered on profit making, which is implicitly assumed in the idea that sufficiency involves less market (Schneidewind and Zahrnt, 2014), elucidating instead that there is a different kind of market logic more aligned with the sufficiency approach that could be further theorized and empirically explored. Thirdly, I propose that a theoretical distinction can be made between market and non-market sufficiency practices, which in turn brings further conceptual clarity to how sufficiency as an approach is concerned with both the monetized and non-monetized spheres of the economy. Finally, I contribute to the field of sufficiency studies by providing a synthesized understanding of the sufficiency approach captured via four interrelated dimensions.

6.1 Looking ahead

There are several different issues and questions that arise from this thesis work that could be the topic of further research. One such endeavor could be to explore how various societal actors can collaborate around the explicit aim of advancing sufficiency by using different scaling processes. Alternatively, the focus could be on one single actor who deploys various sufficiency-related strategies linked to different scaling processes, shedding further light on the extent to which the scaling framework can be a useful tool for practitioners to amplify sufficiency practices. In this way, further knowledge could be gained about the potential shortcomings and challenges of using the scaling framework as a strategic transformation tool in the context of sufficiency.

In terms of actors' roles in scaling sufficiency, this thesis provides insights into how ENGOs are working towards amplifying sufficiency practices through scaling out and scaling deep. However, I do not examine how these types of organizations are working towards scaling up in this thesis. One fruitful avenue for further research could therefore be to explore the types of strategies that ENGOs are using to change laws and policies which could support sufficiency. For example, what role did these organizations play in successfully lobbying for the inclusion of the right-to-repair policies in the European Commission's Circular Economy Action Plan? Similarly, there are several examples of working-time reduction policies that have been implemented at various levels, including organizational, regional, and national. Here, it could be interesting to explore the types of strategies, such as advocacy or partnering, that were used by the concerned actors, such as labor unions, which led to the policy being successfully implemented.

Previous research has indicated that structural barriers to a sufficiency-oriented transformation include changes to consumer culture, the physical environment, and the political and economic systems (Sandberg, 2021). While the first two of these areas, and how societal actors can influence them, have been discussed in this thesis, the others remain unexplored. The question of the political and economic systems is interwoven with power relations and vested interests and, as previously argued, linking theories of power with the scaling framework could be a fruitful future research avenue.

Although Paper II provides some estimates of whether one type of sufficiency practice can reduce environmental harms, additional research is still needed into the extent to which the uptake of various sufficiency practices among individuals and households can contribute to smaller ecological and carbon footprints (Callmer, 2019; Sandberg, 2021; Antal et al., 2021). One proposed way to investigate this further is to provide households and individuals who adopt sufficiency practices with smartphone applications that pair financial transactions with an environmentally extended input-output analysis (see Andersson, 2020). Given that working-time reduction is often discussed as a sufficiency-related practice that can reduce environmental impacts through decreased income and more time spent on low-carbon activities, such as repair and reuse, longitudinal studies that explore this practice could be particularly fruitful.

Returning to issues of planning and decision analysis, the topic within which this thesis is formally situated, the research work presented here can also open up questions relating to planning for sufficiency. To begin with, much of the mainstream, contemporary planning field is oriented towards competitiveness and growth (Xue, 2022), and is thus in stark contrast to the sufficiency approach. Indeed, as highlighted by Callmer and Bradley (2021), the planners and public officials who took part in their study refrained from using the term 'sufficiency' in order to avoid creating controversies, opting instead to use terms such as 'changing consumption' or 'waste prevention.' Similarly, none of the interviewees who took part in this research work used the term 'sufficiency.' Hence, the question is: under what conditions can sufficiency be explicitly discussed in relation to planning and does the more transformative potential get lost when planners need to re-frame sufficiency, or related concepts such as degrowth, in order to navigate contemporary political and economic systems? (cf. Buhr, Isaksson and Hagbert, 2018; Ferreira and von Schönfeld, 2020). Here, it could be especially fruitful to further investigate cases like the municipality of Amsterdam, which has embraced the 'Doughnut Economy' (Raworth, 2017) as a model for the management and strategic vision of the city (Maldini, 2021). A topic of inquiry could be, for example, to explore the extent to which these types of initiatives, embedded in strategic planning documents, can create better conditions for promoting sufficiency, both practically and discursively. Moreover, as argued by Maldini (2021), cities are typically not direct beneficiaries of consumption taxation and their geopolitical power is not as strongly linked to GDP as that of nations and regions. Hence, in relation to (urban) planning, it could be interesting to further explore whether cities have greater potential to embrace sufficiency-oriented strategies and initiatives than national or regional governments, and if so, what those enabling conditions may be.

Finally, as a concluding remark, it is not difficult to find examples that signify how we are going in the wrong direction in terms of providing a good life for everyone, both now and in the future, within thriving ecosystems. Still, what I hope to have conveyed with this thesis work is that there are concrete, tangible examples of firms, policies, ENGOs, and municipal initiatives that could be part of a broader politics for sufficiency from which we can learn and, hopefully, bring our societies closer to a socially and ecologically sustainable state.

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