

Potential environmental and socioeconomic effects overseas due to the mainstreaming of sustainability-motivated niche practices in Sweden

Nils Brown Mårten Berglund Viveka Palm



The research has been conducted at:

Statistics Sweden Solna strandväg 86 171 54 Solna

ISBN: 978-91-7873-779-6

TRITA: TRITA-ABE-RPT-211

Referens till rapporten: Brown, N.W.O., Berglund, M., Palm, V. (2021). *Potential environmental and socioeconomic effects overseas due to the mainstreaming of sustainability-motivated niche practices in Sweden* Mistra Sustainable Consumption, Rapport 1:8. Stockholm: KTH Royal Institute of Technology .

Cover photo: Wikimedia Commons, author Dalee Despain. Used under Creative Commons Attribution-Share Alike 4.0 International license <u>https://creativecommons.org/licenses/by-sa/4.0/deed.en</u>

This report is part of Mistra Sustainable Consumption that is funded by Mistra – The Swedish foundation for strategic environmental research. The report has been reviewed by Elena Dawkins, Stockholm Environment Institute, however it is the authors of who are responsible for the content and conclusions.

Preface

The work reported in this document and appendices has been produced as part of the research programme Mistra Sustainable Consumption – from niche to mainstream. It was carried out as part of work package 2 Potentials and consequences of altered consumption practices.

Upon completion of this work the authors are grateful to our colleagues in the research programme as a whole for their support. In particular we are grateful to our colleagues Åsa Svenfelt and Hanna Eggestrand at KTH SEED for the discussions that contributed to the early development of the method applied in the work.

We are also grateful to Elena Dawkins at Stockholm Environment Institute for her helpful comments as external reviewer for the report, to Emma Gerdin for her patience and administrative support and to work package leader Jonas Nässén for his comments on the report findings.

The authors, Stockholm, 2020-12-16

Summary

This study contributes to fulfilling the overall goal of Work Package 2 in the MISTRA sustainable consumption project of identifying sustainable consumption practices with significant potentials for reducing emissions and/or improving quality of life. The specific aim of the study presented here is firstly to investigate what kind of environmental effects in other countries could be the result of the mainstreaming of niche practices in Sweden, and secondly to investigate what employment effects and economic effects for industries in other countries could be the result of mainstreaming of niche practices in Sweden. A niche practice is considered one that is currently performed by a small number of individuals in society. Mainstreaming is assumed to mean that the practice becomes widespread in society.

The first step to fulfilling the study's aims was to quantify the baseline total private consumption in Sweden and associated environmental pressures and socioeconomic performance for a base year. The total private consumption expenditure in Sweden classified according to 27 consumption categories was calculated from official statistics. An input-output model was used to quantify associated baseline environmental pressures (greenhouse gas emissions, land use, blue water consumption and toxic chemical use) and socioeconomic performance (value added and employment). Since the study aimed to look at effects in other countries, the environmental pressures and socioeconomic performance water consumption were further classified by location for 8 geographical areas covering the entire globe.

A total of 10 different niche practices for mainstreaming were then selected from those inventoried in MISTRA sustainable consumption work package 1 and modelled. These comprised vegan diet, lacto-ovo vegetarian diet, non-bovine-porcine diet, two practices for bus-holidaying, two practices for train-holidaying, staycationing, sustainable home furnishing and appliances and reduced living area. The total Swedish private consumption expenditure after the mainstreaming of each niche consumption practice was modelled by making quantitative assumptions based on the qualitative description of niche consumption practices. For all but two of the mainstreamed niche practices, three different scenarios for indirect (rebound) effects were applied. For the remaining two mainstreamed niche practices, only one scenario for indirect effects was applied. This yielded a total of 26 modelled private consumption profiles. The environmental pressures and socioeconomic performance for each combination of mainstreamed niche practice and scenario for indirect effects were calculated from the environmental intensities (i.e. environmental pressure per unit expenditure) and socioeconomic performance intensities in the baseline and the new expenditure in the mainstreamed niche practice in question.

This study has focussed specifically on evaluating the changes in environmental pressures and socioeconomic performance arising overseas due to the mainstreaming of niche practices. The

work has shown that environmental and socioeconomic effects in other countries and regions can be significant for the overall change in environmental pressures, value added and employment due to mainstreaming of niche practices in Sweden. These conclusions should be understood from the perspective that changes in environmental pressures and socioeconomic performance *in Sweden* due to the mainstreaming of niche practices in Sweden still constitute a large portion of total changes compared to the baseline for all indicators and all combinations of niche practice and scenarios for indirect effects (with the exception of toxic chemical use where "Rest of Europe" is most significant, see also below).

The results of the study show that changes in socioeconomic performance and environmental pressures due to the mainstreaming of niche practices in Sweden in the study region "Rest of Europe" constitute a significant portion of total changes compared to the baseline for very nearly all indicators and very nearly all of the mainstreamed niche practices. In particular, change in toxic chemical use in "Rest of Europe" constitutes the majority of change in the indicator for almost all combinations of mainstreamed niche practices and scenario for indirect effects.

The study also showed that the geographical distribution of total changes in environmental pressures and socioeconomic performance that occur *outside of Sweden* roughly follows the geographical distribution *of overall* pressures and performance in the baseline. However, there are some exceptions to this general rule.

Sammanfattning

Denna studie bidrar till arbetspaket 2 i projektet MISTRA Sustainable Consumption. Målet för arbetspaket 2 är att identifiera konsumtions- praktiker med stor potential för att minska utsläppen och/eller förbättra livskvalitén. Denna studies syfte är för det första att undersöka vilka miljöeffekter som kan uppkomma *i övriga länder* från en uppskalning av nischade konsumtionspraktiker i Sverige, och för det andra att undersöka vad för sysselsättningseffekter och ekonomiska effekter som kan uppkomma *i övriga länder* från en uppskalning av nischade konsumtionspraktiker i Sverige. En nischad konsumtionspraktik är en praktik som utförs av ett mindre antal individer just nu. Uppskalning syftar till att dessa praktiker anammas av en mycket stor andel av individer i samhället i framtiden. Praktikerna handlar om mer miljövänliga sätt att äta, att fira semester och att inreda sitt hem.

Först kvantifieras ett utgångsläge för de totala privata konsumtionsutläggen i Sverige och tillhörande miljöpåverkan och socioekonomiska effekter för ett basår. Det totala privata konsumtionsutlägget i Sverige klassades efter 27 konsumtionskategorier och baserades på officiell statistik. En input-output modell användes för att kvantifiera tillhörande miljöpåverkan (växthusgasutsläpp, mark-, vatten- och kemikalieanvändning) och socioekonomiska effekter (förädlingsvärde och sysselsättning) i detta utgångsläge. Miljöpåverkan och de socioekonomiska effekterna som uppstår på grund av den svenska privata konsumtionen redovisas för åtta grupper av länder där påverkan och effekter uppstår. Detta på grund av att studiens syfte är att undersöka ändringar *i länder utanför Sverige*.

Totalt 10 nischade konsumtionspraktiker valdes från inventarielistan över praktiker som togs fram i MISTRA Sustainable Consumption arbetspaket 1. De utvalda praktikerna var vegansk kosthållning, vegetarisk kosthållning, kosthållning med mindre rött kött, två praktiker för busssemestrande, två för tågsemestrande, hemestrande, hållbar inredning och minskad boyta. De totala privata konsumtionsutläggen efter uppskalning av nischpraktikerna modellerades genom att ändra utgångsutläggen med hjälp av kvantitativa antaganden baserade på tidigare kvalitativa beskrivningar av praktikerna. För åtta av de uppskalade konsumtionspraktikerna applicerades också tre olika scenarier för att modellera indirekta (rekyl) effekter. För resterande två applicerades enbart ett scenario för indirekta effekter. Totalt modellerades därför 26 privata konsumtionsprofiler. Miljöpåverkan och socioekonomiska effekter för varje kombination av uppskalad nischad konsumtionspraktik och scenario för indirekta effekter beräknades från *miljöoch socioekonomiska intensiteter* (dvs. miljöpåverkan respektive socioekonomisk effekt per krona i utlägg) i utgångsläget (se ovan) och de nya totala konsumtionsutläggen för den uppskalade nischade praktiken. Studien har fokuserat specifikt på att utvärdera ändringar i miljöpåverkan och socioekonomiska effekter *i utlandet* som uppstår i samband med uppskalningen av de nischade praktikerna. *Studien* visar att miljöpåverkan och socioekonomiska effekter i övriga länder och regioner kan utgöra en stor andel av de totala ändringarna i miljöpåverkan, förädlingsvärde och sysselsättning som uppstår i samband med uppskalning av nischade praktiker. Ändringar i miljöpåverkan och socioekonomiska effekter i Sverige på grund av uppskalning av de nischade praktikerna utgör trots allt en stor andel av de totala ändringarna för alla indikatorer, förutom för kemikalieanvändning, där ändringar i resten av Europa dominerar. Resultat visar att ändringar i miljöpåverkan och socioekonomiska effekter i Sverige utgör en stor andel av de totala ändringarna för så gott som alla indikatorer och för så gott som alla uppskalade nischpraktiker.

Studien visade också att fördelningen av ändringarna i miljöpåverkan och socioekonomiska effekter mellan olika världsregioner utanför Sverige i stort sett följer fördelningen av miljöpåverkan och socioekonomiska effekter totalt i utgångsläget.

Contents

1	l	Int	roc	duction	9		
2	Aim of study						
3		od	12				
	3.1		Ove	erview of method	12		
	3.2		Bas env	seline private consumption in the Swedish economy and ensuing /ironmental pressures and socioeconomic performance	12		
	3.3		sessing the changes in environmental pressures and socioeconomic icators arising due to the mainstreaming of niche practices	17			
		Intermediate consumption profiles based on mainstreaming of niche practices	. 17				
		3.3.	2	Final consumption profiles for niche practice	.22		
	3.4		Ass	sessment of final consumption profiles for mainstreamed niche			
			pra	ictices	25		
4	I	Re	su	lts	26		
	4.1		Ind	icator values for baseline Swedish private consumption	26		
	4.2		Cha ma	anges in baseline indicator values outside Sweden due to instreamed niche practices	29		
F				ission and future work	27		
5	l	וט	SCL		37		
6	(Сс	onc	lusions	41		
7		Re	efer	rences	42		

1 Introduction

The Swedish economy imports almost 2000 billion SEK worth of goods and services every year (Statistics Sweden, GDP: expenditure approach by type of use, aggregated. Year 1950 - 2018, 2020a). This amounts to about a quarter of the total final demand in the Swedish economy, including exports (Statistics Sweden, 2020a). Meanwhile, the generational goal of the Swedish environmental quality objectives states:

"The overall goal of Swedish environmental policy is to hand over to the next generation a society in which the major environmental problems in Sweden have been solved, without increasing environmental and health problems outside Sweden's borders." (Swedish Environmental Protection Agency, 2020)

By specifically mentioning "environmental and health problems outside Sweden's borders", it is reasonable to assume that in order to make steps towards achieving the generational goal, environmental and health problems arising due to Sweden's imports of goods and services need to be addressed.

The understanding of environmental and health problems arising due to Sweden's imports of goods and services has increased significantly over recent years. 2019 was the first time that Sweden produced official statistics about environmental pressures arising from consumption in Sweden's economy (Statistics Sweden, 2020b). The model used to produce these statistics was largely developed in the multi-year research collaboration PRINCE - Policy-Relevant Indicators for National Consumption and Environment¹ (PRINCE Project, 2020). The model arising from the project, the PRINCE model is based on environmentally extended input-out analysis. Output from the model includes data on a wide array of environmental pressures (e.g. greenhouse gas and other air emissions, chemical use, land use, blue water consumption) and socioeconomic indicators (e.g. employment and value added) arising from consumption in the Swedish economy. The Swedish economy in the model is classified according to 59 different product groups covering the entire economy. Environmental pressures arising from consumption can also, according to the model be connected to the geographical regions in which the pressures arise (Palm, et al., 2019). Knowledge provided by the output of the PRINCE model is important in understanding how measures can be established to address environmental pressures outside of

¹ The project was financed by the Swedish environmental protection agency and was carried out by a consortium including Stockholm Environment Institute, Chalmers Institute of Technology, Statistics Sweden, the Norwegian University of Science and Technology (NTNU), the Netherlands Organisation for applied scientific research (TNO) and led by KTH Royal Institute of Technology.

Sweden that arise as a result of consumption in Sweden. Fauré, et al. (2019) used the model to show that Sweden is "a net importer of all embodied environmental pressures, except for land use and water" (pp. 693). Such environmental pressures include emissions of greenhouse gases, sulphur dioxides, nitrogen oxides and particles.

The work presented in this report has been carried out as part of the MISTRA Sustainable Consumption (SC) research program. An overarching goal of this program is "to explore, suggest and analyse pathways for enabling solutions and strategies for sustainable food, furnishing and vacation practices in Sweden". Work Package 1 contributed to this goal by inventorying potentially sustainable consumption practices in each of the three focus areas identified in the aforementioned goal (Kamb, Svenfelt, Carlsson-Kanyama, Parekh, & Bradley, 2019; Lehner, et al., 2019; Thorson, et al., 2019). Potentially sustainable consumption practices are often termed "niche consumption practices" because they are often performed by a small number of people, i.e. a niche. Work Package 2 builds on the program goal by "identify(ing) which of the emerging sustainable consumption practices from WP1 have significant potentials for reducing emissions and/or improving quality of life." The rationale for the study presented in this report is to support this identification. The specific aim of the study is presented in the following section.

2 Aim of study

The aim of the study presented here is twofold, to investigate:

what kind of environmental effects in other countries could be the result of mainstreaming of niche practices in Sweden?

and

what employment effects and economic effects for industries in other countries could be the result of mainstreaming of niche practices in Sweden?

The way these aims are interpreted in practical terms is made clear in the Method section below. As used in the aim statements above, mainstreaming is intended to mean that a consumption practice currently applied by a niche group of people in Sweden is adopted by all people in Sweden. It is important to note in the aim statement above that the study is aiming specifically to look at effects *outside of Sweden*. Effects inside of Sweden are quantified in the study in order to provide context to effects outside of Sweden. Another study carried out in the MISTRA SC project is focussing more specifically on effects inside Sweden.

3 Method

3.1 Overview of method

This study has been carried out firstly by quantifying the overall baseline private consumption expenditure in Sweden, ensuing environmental pressures (greenhouse gas emissions, blue water consumption, land use and chemical use) and socioeconomic performance (value added and employment) for a given reference year (see Figure 1). Secondly, the overall monetary consumption profiles due to the mainstreaming of a number of niche consumption practices and their ensuing environmental pressures and socioeconomic performances were calculated, as shown in Figure 2. A detailed description of each of these steps is provided in the sections below.

3.2 Baseline private consumption in the Swedish economy and ensuing environmental pressures and socioeconomic performance

As shown in box 1 in Figure 1, the baseline level of private consumption (in MSEK, purchaser's prices) for the chosen reference year was taken from Statistics Sweden's PRIOR database on demand in the economy. Private consumption expenditure was classified according to the Classification of Individual Consumption by Purpose (COICOP) system (United Nations, 2000). The specific classification into different COICOP product groups was based on the study's need to be able to model changes in consumption for certain types of products in light of the consumptions practices chosen. Therefore a custom classification into 27 different COICOP categories was used, as shown in Table 8 in the Appendix.

A starting point for evaluating the environmental pressures and socioeconomic performance due to private consumption expenditure is the PRINCE-model (shown in box 2, Figure 1). The model is named after the research project in which it was created, Policy-Relevant Indicators for National Consumption and Environment (PRINCE Project, 2020). The model connects Statistics Sweden's national input-output tables with the global multiregional input-output (MRIO) model, EXIOBASE (Stadler, et al., 2018; Wood, et al., 2015). This hybrid approach combines the benefits of a multi-regional approach with those of a single region approach. EXIOBASE provides data about economic activities and environmental pressures beyond Sweden's borders. These activities are relevant for pressures from Swedish consumption in light of Sweden's import of goods and services. Meanwhile the use of Swedish single-region input-output tables in the model provides data of the highest quality and the highest degree of timeliness for economic activities and environmental pressures for model simplemented in MATLAB.

The environmental and socioeconomic indicators provided by the PRINCE model in this study comprise greenhouse gas emissions, land use, blue water consumption, use of toxic chemicals, value added and employment. The reference year for the study is set as 2014 since this is the final year for which PRINCE data is available. As also shown in box 2, Figure 1 output data from PRINCE for these indicators for total final demand in the Swedish economy (including all consumption, investment, exports from Sweden and other major macroeconomic aggregates) are initially classified for 49 countries and world regions, and 59 product groups according to the statistical classification of products by activity (CPA) used by the European Union (Eurostat, 2020; Fauré, et al., 2019).

For the purposes of the study, it was necessary to re-classify the PRINCE data for environmental pressures and socioeconomic performance into the 27 COICOP-based categories (see also Table 8 in the Appendix). In order to do this, a proportional use table for final demand expenditure in the Swedish economy (in MSEK) was calculated, as shown in box 3, Figure 1. Rows in this table expressed final demand in terms of 59 product groups (and direct emissions) in one dimension and 151 COICOP groups in the other. The initial data for this table also came from Statistics Sweden's PRIOR database.

It was recognized that using a *monetary* matrix such as this to reclassify *environmental* pressures does not in some cases apportion the *environmental* pressures in the way they actually occurred. In particular in this study, it was acknowledged that the monetary reclassification of the CPA categories for agricultural products and food products in the PRINCE output data (A01 agricultural products and C10 – C12, food products, beverages and tobacco respectively) to the nine food products categories according to the COICOP classification used for this study (see Table 8 in Appendix 1) did not adequately reflect the real proportional split of the respective CPA categories in the COICOP food product categories for the environmental pressures considered.

For a more accurate reclassification, environmental pressure intensities for greenhouse gas emissions, land use and blue water consumption in terms of unit of pressure per SEK for food products in COICOP were extracted from the EAP data produced earlier in the MISTRA sustainable consumption project (Carlsson-Kanyama, et al., 2019). For blue water consumption the EAP data were supplemented with data from (Mekonnen & Hoekstra, 2010a; Mekonnen & Hoekstra, 2010b; Mekonnen & Hoekstra, 2011; Mekonnen & Hoekstra, 2012; Gephart, et al., 2017). Intensities so extracted were used as a basis for adjusting the expenditure data on food products in the initial matrix described in box 3, Figure 1. Separate adjustments were performed for each of the three environmental indicators previously mentioned in this paragraph, giving three slightly different matrices. For the socioeconomic indicators and use of toxic chemicals the unadjusted matrix was used directly for re-classification. The un-adjusted and adjusted use matrices (box 3, Figure 1) were then multiplied with environmental and socioeconomic indicator data from the PRINCE model (box 2, Figure 1). This resulted in baseline data for environmental pressures and socioeconomic performance related to household consumption for 151 COICOP product groups classified for 49 countries and world regions (box 4, Figure 1). For the purposes of this study, the geographical classification was then simplified to cover eight country groups - Sweden, the rest of Europe, Russia, China, North America, Rest of world (Asia/Middle East/Australia), Rest of World (Africa) and Rest of World (Americas), also mentioned in box 4, Figure 1. The product groups were further simplified from 151 COICOP product groups to 27 COICOP-based product groups reflecting the level of detail most appropriate for the study (see Table 8 in Appendix 1).

In this way, the baseline data for private consumption expenditure in Sweden and for related environmental and socioeconomic indicators were assembled and classified according to the needs of the study. Baseline private consumption in the Swedish
 economy (in MSEK) classified by 27 COICOP product
 categories in purchasers' prices. Data from National
 accounts division, Statistics Sweden.

2. Output from the PRINCE model:

4 environmental pressure and 2 socioeconomic indicators for final demand in the Swedish economy for reference year disaggregated by: 60 categories (59 product groups according to CPA and direct emissions, see e.g. Fauré et al. 2019) and 49 countries/world regions

3. Proportional use tables for final demand in the Swedish economy:

60 product groups (59 CPA groups and direct emissions) x 151 COICOP product groups. Original data from national accounts division, Statistics Sweden. Adapted to include household consumption and to account for differing environmental pressures due to different COICOP food groups (see also accompanying text) 4. Baseline private consumption profile for the Swedish economy for the reference year. Including total expenditure in purchasers' prices, 4 environmental pressure and 2 socioeconomic indicators. Environmental pressure and socioeconomic indicators disaggregated for 8 country groups and 27 COICOP product categories

Figure 1: Schematic summary of the method used to establish baseline private consumption expenditure (in MSEK), environmental pressures and socioeconomic performance

Baseline private consumption profile for the Swedish
 economy for the reference year. Including total
 expenditure in purchasers' prices, 4 environmental
 pressure and 2 socioeconomic indicators. Environmental
 pressure and socioeconomic indicators disaggregated
 for 8 countries/world regions and 27 COICOP. See also
 Figure 1 and accompanying text.

2. Qualitative descriptions of niche practices in MISTRA
SC focus areas (Kamb, Svenfelt, Carlsson-Kanyama,
Parekh, & Bradley, 2019; Lehner, et al., 2019; Thorson, et al., 2019)

3. Supporting data for the development of consumption profiles for food (Röös, 2014; Lannhard-Öberg, 2019; Carlsson-Kanyama, et al., 2019; Statistics Sweden, 2020c; Svenska Jordbruksverket, 2019)

4. Scenarios for indirect effects due to the mainstreaming of niche practices

5. Explorative intermediate consumption profiles due to the mainstreaming of selected niche practices

6. Explorative final consumption profiles due to the mainstreaming of niche practices including scenarios for indirect effects 7. Environmental pressures and socioeconomic performance for explorative final consumption profiles due the mainstreaming of niche practices, disaggregated by 27 COICOP product categories and 8 country groups, including indirect effects

Figure 2: Schematic summary of the method used to establish final consumption profiles (in MSEK) due to mainstreamed niche practices, and resulting environmental pressures and socioeconomic performance. See also accompanying text.

3.3 Assessing the changes in environmental pressures and socioeconomic indicators arising due to the mainstreaming of niche practices

To assess the effect of the mainstreaming of niche practices it was necessary first to develop adapted private consumption expenditure profiles for the Swedish economy arising from the mainstreamed niche practices. This itself was performed in two steps. Firstly, an *intermediate* private consumption profile was developed considering the direct expenditure changes to the baseline arising from the mainstreaming of the niche practice in question. This step is described in more detail in Section 3.3.1 below. In the second step, *final* private consumption profiles arising due the mainstreaming of each niche practice were developed from their respective intermediate consumption profiles by applying changes to the intermediate consumption profiles due to assumed indirect (rebound) effects due the mainstreaming of the niche practice. Final consumption profiles therefore consider both direct effects and indirect effects due to the mainstreaming of niche practices. A key parameter for modelling indirect changes in baseline expenditure is the difference in total expenditure between the intermediate consumption profiles and the baseline, which are presented below for each mainstreamed niche consumption practice.

3.3.1 Intermediate consumption profiles based on mainstreaming of niche practices

Niche practices for mainstreaming in this study were selected from the practices and accompanying qualitative descriptions presented in three previous reports produced in the MISTRA SC project (Kamb, Svenfelt, Carlsson-Kanyama, Parekh, & Bradley, 2019; Lehner, et al., 2019; Thorson, et al., 2019). This is also shown in box 2, Figure 2. Practices were selected according to a number of criteria. Firstly, it was intended to select at least one niche practice from each of the focus areas for the MISTRA sustainable consumption project – food, holiday and furnishing. Secondly, niche practices were selected based on the authors' judgement of the appropriateness of the practices as described in the aforementioned reports to be modelled according to the method established. Thirdly, practices were selected based on the authors' initial judgement of which could be considered to make a significant difference to environmental pressures due consumption in the Swedish economy. It was also intended to select practices based on the possibility of being able to demonstrate interesting results related to the study's aims.

A starting point for this step in the study was the baseline private consumption expenditure in the Swedish economy previously calculated, shown in box 4, Figure 1 and box 1, Figure 2 as well as the description in Section 3.2. The consumption profile for each mainstreamed niche practice was developed in terms of expenditure changes to the baseline consumption profile. *Intermediate* consumption profiles (shown in box 5, Figure 2) for each niche practice were developed by

making expenditure changes that are assumed to be *directly resulting* from the niche practice in question.

The niche practices chosen for mainstreaming are presented in Table 1. The specific quantitative interpretation of each mainstreamed niche practice is presented further in the text below. The consumption profiles have been developed with an explorative approach to develop a better understanding and comparison of the effects of certain niche practices when they are scaled up to the entire Swedish economy. In developing consumption profiles exploratively it is accepted that the profiles are markedly different from consumption in the entire Swedish economy as practiced today. It has further not been intended to assess the consumption profiles for the mainstreamed niche practices from a normative perspective beyond through the indicators that are explicitly evaluated.

MISTRA Sustainable Consumption focus area	Name of mainstreamed niche practice	Summary of assumptions for expenditure profile
Food	Lacto-ovo vegetarian diet	Expenditure on meat a fish set to zero. Additional expenditure on milk, cheese and eggs, vegetables and cereals and grains in light of this evaluated based on a protein balance.
Food	Non-bovine/ porcine diet	Expenditure on pork and beef products is set to zero. Additional expenditure on poultry, milk, cheese and eggs, vegetables (including beans, tofu and other meat-free protein sources) and cereals and grains based on a protein balance.
Food	Vegan diet	Expenditure on all animal products (meat, dairy products and eggs) is set to zero. Additional expenditure on vegetables (including beans, tofu and other meat-free protein sources) and cereals and grains based on a protein balance.
Holiday	Bus holiday (a)	Baseline expenditure on air transport (COICOP 0733 - approximately 13 thousand MSEK) set to zero. Baseline expenditure on bus transport (COICOP 0732) increased by an equivalent amount to yield unchanged total consumption expenditure.
Holiday	Bus holiday (b)	Baseline expenditure on air transport (COICOP 0733 - approximately 13 thousand MSEK) set to zero. Baseline expenditure on bus transport (COICOP 0732) increased by half of the original baseline expenditure on air transport.

Table 1: Niche practices selected for mainstreaming in this study

		Baseline expenditure on air transport (COICOP 0733 - about 13		
Holiday	Train holiday (a)	thousand MSEK) is set to zero. Expenditure on rail transport		
		(COICOP 0731) increased by an equivalent amount.		
-		Baseline expenditure on air transport (COICOP 0733 - about 13		
Holiday	Train baliday (b)	thousand MSEK) is set to zero. Expenditure on rail transport		
поциау	Train Houday (D)	(COICOP 0731) increased by double the baseline expenditure		
		on air transport.		
		Reductions to baseline expenditures		
		railway transport (COICOP 0731), bus transport (COICOP 0732)		
		by 25 %		
		air transport (COICOP 0733) by 50 %		
		restaurants and hotels (COICOP 11) by about 11 thousand		
Helidov	Stay actioning	MSEK (the baseline expenditure on the subcategory of hotels,		
поцаау	Stay- Cationing	COICOP 1120)		
		Increases to baseline expenditure:		
		housing and utilities (COICOP 04) would increase by about 2 %		
		due to increased energy and maintenance costs from being		
		at home more		
	Sustainable	Baseline expenditure on furnishing and household equipment		
Furnishing	home furnishing	(COICOP 05) is reduced by 22 %.		
	and appliances			
	Doducod living	Reductions to baseline expenditure:		
Furnishing		Housing (COICOP 04) by 18 %		
	area	Furnishings and household equipment (COICOP 05) by 20 $\%$		

For the intermediate consumption profile for the mainstreamed niche practice "lacto-ovo vegetarian diet", meat and fish consumption (COICOP 0112 and 0113 respectively) was set to zero in monetary terms in the consumption profile. Then, changes in monetary consumption of non-meat and non-fish food products in light of the absence of meat and fish was estimated. This was done with a protein balance. The total quantity of protein derived from meat and fish in the reference year for the study for the Swedish population was evaluated based on recent data (Lannhard-Öberg, 2019). This is shown in box 3, Figure 2. It was assumed that one quarter of the protein previously consumed by the Swedish population as meat or fish was replaced by protein from bread and cereals (COICOP 0111). A further quarter was assumed to be replaced by protein from milk, cheese and eggs (COICOP 0117 – vegetables) and a further quarter from protein-rich vegetable-derived products (for the purposes of this study also included in COICOP 0117 –

vegetables and including for example tofu, and Ooumph). The quantities and expenditure increases in each of these COICOP product groups to provide this extra protein demand was evaluated using data from previous work in Mistra SC (Carlsson-Kanyama, et al., 2019). The so-evaluated expenditure increases were added to the expenditure on those categories in the baseline consumption profile to provide an intermediate consumption profile for the mainstreamed niche practice. The total expenditure for the intermediate consumption profile due to "lacto-ovo vegetarian diet" was slightly lower than the total expenditure in the baseline consumption, as shown in Table 2.

A similar approach was adopted for the other food-related mainstreamed niche practices. In the intermediate consumption profile for the practice "non-bovine/porcine diet", expenditure on beef and pork was set to zero. With the same protein balance principle as used for the consumption profile for "lacto-ovo vegetarian diet", expenditure increases were then evaluated for chicken (also in COICOP 0112), fish and seafood (COICOP 0113), milk, cheese and eggs (COICOP 0114) and vegetables (COICOP 0117) using previous work in Mistra SC (Carlsson-Kanyama, et al., 2019). The total expenditure for the intermediate consumption profile due to "non-bovine/porcine diet" was slightly lower than the total baseline expenditure, as shown in Table 2.

For the mainstreamed niche practice "vegan diet", expenditure in the categories meat (COICOP 0112), fish and seafood (0113) and milk cheese and eggs (COICOP 0114) were all set to zero. Expenditure increases were then evaluated for the food products bread and cereals (0111) and vegetables (0117) also using previous work in Mistra SC (Carlsson-Kanyama, et al., 2019). The total expenditure for the intermediate consumption profile due to "vegan diet" was slightly *higher* than the total baseline expenditure, as shown in Table 2.

In the MISTRA sustainable consumption focus area holidays, a different approach was adopted. For scaling up "bus holiday (a)" it was assumed simply that all expenditure that in the baseline had been made on air transport (COICOP 0733) – approximately 13000 MSEK - was redirected to expenditure on bus transport (COICOP 0732). Note that there is no overall reduction or increase in total private consumption for this niche practice in light of these background assumptions (see Table 2). To provide an interesting comparison, "bus holiday (b)" assumes instead that only half of the baseline expenditure on air transport goes to bus transport and the other half leads to a reduced total expenditure for the intermediate consumption profile compared to the baseline, as shown in Table 2.

For scaling up the niche practice "train holiday (a)" it is assumed that all the baseline expenditure on air transport (COICOP 0733 - about 13000 MSEK) is redirected to rail transport (COICOP 0731). Also here there is no overall reduction or increase in total private consumption for this niche practice in light of these background assumptions, see Table 2. For the mainstreamed niche practice "train holiday (b)" meanwhile, it is assumed that expenditure on rail transport (COICOP 0731) increases by double the baseline expenditure on air transport. This means that "train holiday (b)" actually assumes an *increase* in total consumption expenditure in Sweden compared to the baseline, shown in Table 2. These assumptions are considered interesting in light of the observation that to travel an equivalent distance by train is generally more expensive than air travel. This also means that slightly different assumptions are necessary for the scenarios for indirect effects for this mainstreamed niche practice (see section 3.3.2).

The final mainstreamed niche practice in the MISTRA sustainable consumption focus area holidaying, "staycationing", it was firstly assumed that baseline expenditure on railway transport (COICOP 0731), bus transport (COICOP 0732) and air transport (COICOP 0733) were reduced by 25 %, 25 % and 50 % respectively. Baseline expenditure on package holidays (COICOP 096) was assumed to reduce by 50 %. It was assumed that baseline expenditure on restaurants and hotels (COICOP 11) was reduced by the baseline expenditure on the subcategory of hotels (COICOP 1120) – about 11000 MSEK. This assumption is made in light of the fact that according to the principle of staycationing people are likely to reduce hotel stays but would still go out to restaurants but in their hometown instead. Finally it was estimated that the baseline consumption expenditure on housing and utilities (COICOP 04) would increase by about 2 % due to increased energy and maintenance cost from being at home more. As shown in Table 2 the total expenditure for the intermediate consumption profile for "staycationing" is about 1 % lower than the baseline.

For the MISTRA SC focus area on furnishing, two mainstreamed niche practices are modelled. For the first, "sustainable home furnishing and appliances" it is estimated that baseline expenditure on furnishing and household equipment (COICOP 05) is reduced by 22 %. This reduction is based on assumed changes to baseline expenditure within the COICOP 05 category. Firstly, it is assumed that the baseline expenditure on furnishings (COICOP 0512) and household equipment (COICOP 053) is reduced by 30 %. Secondly, it is assumed that baseline expenditure on repairs to furniture (COICOP 0513) and repairs to household equipment (COICOP 0533) increases ten-fold. The expenditure weighted effect of these changes was then calculated to yield a 22 % reduction in expenditure in the household equipment category overall. As shown in Table 2 the total expenditure for the intermediate consumption profile for "sustainable home furnishing and appliances" is about 1 percent lower than the baseline.

For the mainstreamed niche practice "reduced living area" it is assumed firstly that the expenditure on housing (COICOP 04) was reduced by 18 % – due to smaller living area. This reduction was estimated as a weighted average of assumed expenditure changes lower down in the hierarchy - 20 % expenditure reductions on actual rent payments (COICOP 041), housing maintenance (COICOP 043) and energy in the home (COICOP 045) and expenditure on water supply unchanged from the baseline (COICOP 044). The estimate for water supply expenditure is based on the assumption that water supply is more closely related to the number of residents than to home area. It is also assumed that expenditure on furnishings (COICOP 05) and household

equipment decreases by 20 % compared to the baseline. As shown in Table 2 the total expenditure for the intermediate consumption profile for "reduced living area" is about 6 % lower than the baseline.

3.3.2 Final consumption profiles for niche practice

As summarized in Table 2, for most but not all niche practices, direct expenditure changes caused a change in the total consumption expenditure for the intermediate niche consumption profile compared to the baseline. The surplus or deficit so arising is the starting point for modelling scenarios for indirect (rebound) expenditure changes due to the mainstreaming of the niche practice. A range of scenarios are assumed (see box 4, Figure 2) for how the surplus or deficit arising in the intermediate consumption profiles reassigned (or not) to yield final consumption profiles, as presented in this section. The aim of these scenarios is to demonstrate how indirect effects (e.g. rebound effects) may affect the change in environmental pressures and socioeconomic performance due to mainstreaming the niche practices.

<u>Table 2:</u> Difference between intermediate total consumption expenditure due to niche practice and baseline for each mainstreamed niche practice

Name of mainstreamed niche practice	Difference between intermediate total consumption expenditure due to niche practice and baseline			
	'000 MSEK	percent		
Lacto-ovo vegetarian diet	-5.7	-0.3%		
Non-bovine/porcine diet	-7.5	-0.4%		
Vegan diet	2	0.1%		
Bus holiday (a)	0	0.0%		
Bus holiday (b)	-6.7	-0.4%		
Train holiday (a)	0	0.0%		
Train holiday (b)	13.3	0.7%		
Staycationing	-21.5	-1.2%		
Sustainable home furnishing and appliances	-22	-1.2%		
Reduced living area	-110	-6.1%		

The scenarios considered for indirect effects are different depending on if the total expenditure in the intermediate consumption profiles is less than, greater than or the same as the total expenditure in the baseline private consumption for the Swedish economy. The scenarios are described with these classifications in Table 3 below.

The final consumption profiles that are used to calculate environmental and socioeconomic effects of mainstreamed niche practices (see box 6, Figure 2) are a combination of each

intermediate consumption profile (see previous section) and the scenarios for indirect effects presented in Table 3.

By comparison with Table 2, eight of the ten niche consumption practices considered yielded intermediate consumption profiles with total expenditure greater than or less than the baseline total consumption expenditure. For each of these mainstreamed niche practices, the three relevant scenarios for indirect expenditure changes (shown in Table 3) were applied. This yielded 24 distinct final consumption profiles due to mainstreamed niche practices. Meanwhile, two mainstreamed niche practices yielded intermediate consumption profiles with the same total expenditure as the baseline (Train holiday (a) and Bus holiday (a), as shown in Table 2). As also shown in Table 3, only one specific scenario for indirect effects is relevant in this case (i.e. that there are no indirect effects) yielding a total of 2 distinct final consumption profiles. Therefore, for all ten mainstreamed niche consumption practices, there were a total of 26 distinct final consumption profiles (see box 6, Figure 2).

Table 3: Overview of scenarios for indirect effects due to surpluses and deficits between

intermediate consumption profiles for niche practices and baseline

Relationship between total expenditure in baseline and intermediate niche consumption profile	Name of scenario for modelling indirect effects	Description of scenario
Total consumption in	Reduced income	It is assumed that consumers choose to take advantage of the reduced expenditures by reducing their income by the same amount, e.g. by working less. In practice the total expenditure in the final consumption profile is equal to the intermediate consumption profile. Expenditure for final consumption profiles is thus less than in the baseline.
baseline greater than total consumption for intermediate niche consumption profile	Redistributed consumption	It is assumed that the initial surplus is redistributed proportionally to COICOP categories not directly affected by the niche profile in question. Expenditure for final consumption profiles is the same as the baseline.
	Increased investment	It is assumed that the initial surplus is put into a bank which uses the money to pay for investments on a one- to-one basis. Expenditure for final consumption profiles is less than in the baseline, though investment is increased.
	Increased income	It is assumed that incomes increase by the same amount as the increased expenditure entailed by the mainstreamed niche practice. Expenditure for final consumption profiles is greater than the baseline.
Total consumption in baseline less than total consumption for intermediate niche consumption profile	Redistributed consumption	It is assumed that the extra expenditure entailed by mainstreaming the niche practice is provided by proportionally reallocating expenditure from COICOP categories not directly affected by the mainstreamed niche practice to the COICOP categories that are affected. Expenditure for final consumption profiles is the same as the baseline.
	Reduced investment	It is assumed that the extra expenditure necessitated by the niche practices is made available by reducing bank savings and therefore reducing investment. Expenditure for final consumption profiles is greater than the baseline, however this is matched by a reduction in investment (not otherwise considered as consumption)
Total consumption in baseline equal to total consumption for intermediate niche consumption profile	Total expenditu baseline and the	re for final consumption profiles is the same as for the erefore it is assumed that no indirect effects arise.

3.4 Assessment of final consumption profiles for mainstreamed niche practices

The final calculation of environmental pressures and socioeconomic performance for each combination of mainstreamed niche practice and scenario for indirect effects were calculated from the environmental intensities (i.e. environmental pressure per unit expenditure) and socioeconomic performance intensities (i.e. socioeconomic effect per unit expenditure) in the baseline and the new expenditure in the mainstreamed niche practice in question. This was done with the classification of environmental pressures and socioeconomic performance according to 27 COICOP categories (see Table 8 in the Appendix) and 8 country groups. Final calculations are performed in Microsoft Excel spreadsheets.

4 Results

The results of the study are presented in a number of ways. Here in the main body of the report, firstly the indicator values for the baseline Swedish private consumption are shown. In the next section, the results are summarized with respect to the aim of the study (see Section 2 above) in tables covering all environmental pressures and socioeconomic indicators for all combinations of mainstreamed niche practices and scenarios for indirect effects.

Results are presented in more detail in the appendices. Appendix 2 contains figures presenting the full geographic breakdown of the changes to the environmental pressures and socioeconomic indicators for each combination of mainstreamed niche practice and scenario for indirect effects. Discussion text in this appendix picks out in more detail than is presented here the *changes in socioeconomic parameters and environmental pressures abroad* that are the focus of this work (see Aim, Section 2).

An even more detailed presentation of results data is provided to readers in the supplementary excel spreadsheet for this report, see also Section 10: Appendix 3: Supplementary data.

4.1 Indicator values for baseline Swedish private consumption

Figure 3 and Figure 4 show the impacts due to the baseline Swedish private consumption (as in box 4 in Figure 1) classified by COICOP and by country group respectively. Table 4 shows the absolute values of the indicators for the baseline level of Swedish private consumption.

Figure 3 shows that certain consumption categories are more important than others for the indicators considered. Transport for example is a major contributor in many indicators, especially to greenhouse gas emissions, and toxic chemical use. Food is also a major contributor in general, and especially to greenhouse gas emissions and blue water consumption. Housing is a major contributor also in most categories with the exception of blue water consumption. Healthcare on the other hand makes only minor contributions to most indicators, with the possible exception of toxic chemicals where it makes a contribution approaching 15 %.

Leisure and culture on the other hand makes its largest contributions to socioeconomic indicators – employment and value added. In this area it is further interesting to note that the disaggregation amongst the various consumption categories for employment and value added in general resemble each other and are in turn quite different to those for the environmental indicators.



<u>Figure 3:</u> Baseline Swedish private consumption and environmental pressures and socioeconomic performance due to it, disaggregated by 12 COICOP categories.

<u>Table 4:</u> Absolute values of environmental pressures and socioeconomic performance due to baseline private consumption in Sweden.

Blue water consumption	Employment	Greenhouse gas emissions	Land use	Toxic chemicals	Value added
Mm3	1000 p	kton CO2-e	km2	tonnes	MSEK
852	2850	62356	96703	7993125	1424384



<u>Figure 4</u>: Geographical distribution of impacts due to baseline Swedish private consumption for socioeconomic and environmental indicators considered. Abbreviations: RoW – Rest of World, NA – North America, CN – China, RU – Russia, SE – Sweden.

Figure 4 meanwhile shows that between about 20 and 80 % of impacts for the indicators considered occur in Sweden. The Rest of Europe is also a major contributor, accounting for up to almost 70 % of total toxic chemical use according to the figure. Outside of these categories, the category Asia/Mid East/Australia also accounts for a significant proportion of impacts considering blue water consumption and employment. Russia also makes a notable contribution to greenhouse gas emissions. Other country groups do not make a contribution exceeding 10 % of total indicator values.



<u>Figure 5:</u> Geographical distribution of impacts due to baseline investment in the Swedish economy for socioeconomic and environmental indicators considered. Abbreviations: RoW – Rest of World, NA – North America, CN – China, RU – Russia, SE – Sweden.

Figure 5 shows the geographical distribution for the indicators considered for *investment* in the Swedish economy. It is mainly interesting to note that there are certain differences arising in the distribution compared to that for private consumption in the Swedish economy (Figure 4). For example for blue water consumption and greenhouse gas emissions, impacts arising in China are proportionally greater for investment than for private consumption.

4.2 Changes in baseline indicator values outside Sweden due to mainstreamed niche practices

Table 5, Table 6 and Table 7 summarise the results of the assessment of each selected mainstreamed niche practice in combination with assumed scenarios for indirect effects. These tables have been produced specifically with the aim of addressing the research question for the work with the focus on changes occurring *outside of Sweden*. The data have nevertheless been simplified for this summary by aggregating into only three country groups, as shown in the tables. It is easy to observe in the tables that changes in environmental pressures and socioeconomic

parameters abroad (i.e. in the Rest of Europe and Others/Rest of World) can constitute a large proportion of total changes due the mainstreaming of niche practices, though this also depends to a great extent on the mainstream niche practice, the scenario for indirect effects and the indicators in question. Appendix 2 shows these results in greater detail, showing the distribution of changes between the six country groups used in the assessment that have been aggregated in the category "Others/Rest of World" in the tables below.

One key insight with the specific aims of the study in mind is that for changes of about one percent or more (as shown in the tables) the geographical distribution of total changes in environmental pressures and socioeconomic performance that occur *outside of Sweden* roughly follows the geographical distribution *of overall* pressures and performance in the baseline. However, there are some exceptions to this, as noted below.

Considering each mainstreamed niche practice in more detail, for lacto-ovo vegetarian diet, the Rest of Europe makes a significant contribution in particular for greenhouse gas emissions, use of toxic chemicals, value added and employment. Meanwhile, changes in the Others/Rest of World are significant for in particular land use, blue water consumption and employment. As can be seen in the appendices, the change in blue water consumption arises specifically in the region Asia/Mid-East/Australia. There was little difference between the scenarios for indirect effects in this mainstreamed niche practice.

The mainstreamed niche practice vegan diet showed large reductions for many of the indicators considered. The geographic distribution of the reductions was also similar to that for the mainstreamed niche practice non-bovine porcine diet. Having said that, for the latter, the overall reductions and therefore the reductions for the regions shown were smaller across the board. As shown in the table, the observed reductions in greenhouse gas emissions, land use, blue water consumption were notable for these mainstreamed niche practices in both Rest of Europe and Rest of World/others. Meanwhile, for toxic chemical use and value added, reductions in the Rest of Europe are the most significant of those outside of Sweden.

For the mainstreamed niche practice bus holiday (a) decreases outside of Sweden were more modest. Decreases in the Rest of Europe in particular were significant for total decreases in greenhouse gas emissions, value added and employment. Decreases in Others/Rest of the World were significant for land use, blue water consumption and employment.

For the mainstreamed niche practice bus holiday (b), there was a significant variation in changes to the indicators considered between different scenarios for indirect effects. Depending on the scenario considered for indirect effects, reductions outside of Sweden occurred in Rest of Europe for greenhouse gas emissions, use of toxic chemicals, value added and employment. Meanwhile, reductions in the Others/Rest of the World occurred for land use, blue water consumption and employment.

For the mainstreamed niche practice train holiday (a), reductions in greenhouse gas emissions outside of Sweden occurred principally in the Rest of Europe. Meanwhile, reductions in land use occurred in the Others/Rest of the World. As shown more specifically in the appendix with complete results, reductions occurred principally in North America and Asia/Mid-East/Australia. Reductions in blue water consumption occurred in Others/Rest of World also. As shown in the appendix with complete results, this occurred principally in Asia/Mid-East/Australia.

Train holiday (b) showed small changes overall to environmental pressures and socioeconomic performance as a result of mainstreaming the niche practice. The results show that the mainstreaming of the niche practice also led to increases or decreases for certain regions and indicators, often depending on the scenario considered for indirect effects.

For the mainstreamed niche practice "staycationing", changes in total values for the environmental and socioeconomic indicators considered and for different country groups are dependent upon the scenario for indirect effects. Examples of notable changes abroad as a result of the mainstreamed niche practice include the reduction in greenhouse gas emissions in the Rest of Europe in all three scenarios. Changes in the Rest of Europe are also significant in the category use of toxic chemicals in the increased investment and reduced income scenarios. Changes in the Rest of World are significant for changes in the total values for blue water consumption for the reduced consumption and reduced income scenarios.

The mainstreamed niche practice sustainable home furnishings and appliances also shows notable differences in changes to environmental pressures and socioeconomic performance depending on the scenario considered for indirect effects. The scenarios affected both the total differences and the differences observed in the different world regions shown in the tables. In any case, the change in use of toxic chemicals was significant for the total in the Rest of Europe in all scenarios for indirect effects. Meanwhile, the change in blue water consumption was significant in Others/Rest of the World compared to the total for the scenarios reduced income and increased investment.

The most interesting feature of the mainstreamed niche practice "reduced living area" is the large difference in the changes to environmental pressures and socioeconomic performance due to the different scenarios for indirect effects considered. On the whole, the mainstreaming of the niche practice led to reductions for all indicators considered and for all country groups considered for the reduced income scenario. For the other two scenarios, increases were noted in all country groups and scenarios. Considering the specific country groups outside of Sweden, changes in the Rest of Europe were significant for total changes for the use of toxic chemicals in the reduced

income and redistributed consumption scenarios. Meanwhile, changes in the Others/Rest of the World were significant for blue water consumption for the increased investment scenario, for example.

For greenhouse gas emissions, food-related mainstreamed niche practices show changes compared to the baseline that broadly follow the distribution of overall greenhouse gas emissions between the country groups considered. However, for other mainstreamed niche practices, the distribution of the changes varies from the distribution of overall greenhouse gas emissions in the baseline. For example for bus and train-related mainstreamed niche practices, the change in greenhouse gas emissions in Europe due to the niche practices is proportionally greater than greenhouse gas emissions arising in Europe overall.

Reductions in land use due to food-related mainstreamed niche practices shown in Table 5 are almost 25 % for the Rest of Europe, slightly larger than the region's proportion of overall environmental pressure in the category in the baseline of about 15 %. Changes in land use for other mainstreamed niche practices are in general much smaller than for food-related practices. Distribution of changes amongst the various country groups (Table 6 and Table 7) for these mainstreamed niche practices varies considerably from the distribution for land use from Swedish consumption in the baseline, depending of course on the practice and scenarios in question. One exception to this is the 5.7 % reduction in land use arising for "reduced living area" in the reduced income scenario, where the proportional reduction in Sweden (see Table 7) is only slightly greater than that for land use from total baseline consumption.

Only for vegan diet and the redistributed consumption scenario in "reduced living area" do changes in blue water consumption amount to more than one or two percent in either direction. For these niche practices with comparatively larger changes in blue water consumption, the distribution of the changes shown in Table 5, Table 6 and Table 7 broadly follows the overall geographical distribution of blue water consumption in the baseline. Where changes in blue water consumption are smaller (also in Table 5, Table 6 and Table 7), the distribution of changes differs considerably from the distribution of overall blue water consumption.

<u>Table 5:</u> Summary of changes (as a percentage of the total baseline for Swedish consumption) in environmental pressures and socioeconomic performance due to food-related mainstreamed niche practices. The colour coding has been applied for each indicator separately, but for a redto-green scale for all the mainstreamed niche practices together (including in other tables). RoW – Rest of World

	Scenario for				Blue	Use of		
Main-streamed	indirect			Land	water	toxic	Value	
niche practice	effects	Country	GHG	use	cons.	chems	added	Emp.
		Sweden	-2,2%	-3,1%	-1,1%	-0,4%	-1,5%	-0,8%
	Incroscod	Rest of Europe	-2,5%	-1,8%	-3,4%	-1,4%	-0,8%	-0,9%
	incomo	Others/RoW	-1,9%	-2,8%	-6,4%	-0,3%	-0,2%	-1,4%
	lincome	Total	-6,6%	-7,7%	-10,9%	-2,1%	-2,5%	-3,1%
		Sweden	-2,3%	-3,2%	-1,1%	-0,5%	-1,6%	-0,8%
Vegan diet	Redistributed	Rest of Europe	-2,5%	-1,8%	-3,5%	-1,5%	-0,8%	-0,9%
_	consumption	Others/RoW	-2,0%	-2,8%	-6,5%	-0,3%	-0,2%	-1,5%
		Total	-6,8%	-7,8%	-11,1%	-2,3%	-2,6%	-3,2%
		Sweden	-2,2%	-3,2%	-1,1%	-0,5%	-1,6%	-0,8%
	Reduced	Rest of Europe	-2,5%	-1,8%	-3,4%	-1,5%	-0,8%	-0,9%
	investment	Others/RoW	-2,0%	-2,8%	-6,4%	-0,3%	-0,2%	-1,5%
		Total	-6,7%	-7,8%	-10,9%	-2,3%	-2,6%	-3,2%
		Sweden	-0,7%	-2,4%	-0,2%	-0,2%	-0,5%	-0,3%
	Reduced	Rest of Europe	-0,8%	-1,4%	-0,5%	-0,6%	-0,3%	-0,4%
	income	Others/ RoW	-0,6%	-2,1%	-0,9%	-0,1%	-0,1%	-0,8%
		Total	-2,1%	-5,9%	-1,6%	-0,9%	-0,9%	-1,5%
Non		Sweden	-0,6%	-2,2%	-0,1%	-0,1%	-0,2%	-0,1%
NON-	Redistributed consumption	Rest of Europe	-0,7%	-1,3%	-0,4%	-0,3%	-0,2%	-0,3%
dict		Others/ RoW	-0,5%	-2,0%	-0,7%	-0,1%	-0,1%	-0,6%
ulet		Total	-1,8%	-5,5%	-1,2%	-0,5%	-0,5%	-1,0%
	Increased investment	Sweden	-0,7%	-2,1%	-0,1%	0,0%	-0,3%	-0,1%
		Rest of Europe	-0,7%	-1,3%	-0,4%	-0,3%	-0,2%	-0,2%
		Others/ RoW	-0,5%	-2,0%	-0,7%	0,0%	0,0%	-0,5%
		Total	-1,9%	-5,4%	-1,2%	-0,3%	-0,5%	-0,8%
		Sweden	-0,7%	-2,8%	-0,1%	-0,3%	-0,8%	-0,4%
	Reduced	Rest of Europe	-0,9%	-1,6%	0,0%	-0,9%	-0,5%	-0,5%
	income	Others/ RoW	-0,6%	-2,5%	-0,5%	-0,2%	-0,1%	-0,9%
		Total	-2,2%	-6,9%	-0,6%	-1,4%	-1,4%	-1,8%
		Sweden	-0,5%	-2,6%	0,0%	-0,2%	-0,6%	-0,3%
Lacto-ovo	Redistributed	Rest of Europe	-0,8%	-1,5%	0,1%	-0,6%	-0,4%	-0,5%
vegetarian diet	consumption	Others/ RoW	-0,5%	-2,4%	-0,4%	-0,1%	-0,1%	-0,8%
		Total	-1,8%	-6,5%	-0,3%	-0,9%	-1,1%	-1,6%
		Sweden	-0,6%	-2,5%	-0,1%	-0,1%	-0,6%	-0,3%
	Increased	Rest of Europe	-0,8%	-1,5%	0,0%	-0,7%	-0,4%	-0,4%
	investment	Others/ RoW	-0,5%	-2,4%	-0,4%	-0,1%	-0,1%	-0,7%
		Total	-1,9%	-6,4%	-0,5%	-0,9%	-1,1%	-1,4%

<u>Table 6:</u> Summary of changes (as a percentage of the total baseline for Swedish consumption) in environmental pressures and socioeconomic performance due to vacation-related mainstreamed niche practices. The colour coding has been applied for each indicator separately, but for a redto-green scale for all the mainstreamed niche practices together. GHG – greenhouse gas emissions, Emp. – employment. RoW – Rest of World.

	Scenario for				Blue	Use of		
Main-streamed	indirect			Land	water	toxic	Value	
niche practice	effects	Country	GHG	use	cons.	chems	added	Emp.
		Sweden	-0,7%	0,1%	0,0%	0,1%	0,6%	0,3%
Bus holiday (a)	One scenario	Rest of Europe	-1,3%	0,0%	0,0%	-0,6%	-0,4%	-0,3%
Bus notiday (u/	one sechano	Others/RoW	-0,2%	-0,1%	-0,2%	-0,1%	-0,1%	-0,3%
		Total	-2,2%	0,0%	-0,2%	-0,6%	0,1%	-0,3%
		Sweden	-0,9%	0,0%	0,0%	0,0%	0,1%	0,1%
	Reduced	Rest of Europe	-1,3%	0,0%	0,0%	-0,8%	-0,5%	-0,3%
	income	Others/RoW	-0,4%	-0,1%	-0,2%	-0,1%	-0,1%	-0,4%
		Total	-2,6%	-0,1%	-0,2%	-0,9%	-0,5%	-0,6%
		Sweden	-0,7%	0,2%	0,1%	0,1%	0,4%	0,3%
Bus boliday (b)	Redistributed	Rest of Europe	-1,3%	0,0%	0,1%	-0,6%	-0,4%	-0,3%
Bus noticuty (b)	consumption	Others/RoW	-0,3%	0,0%	0,0%	0,0%	-0,1%	-0,2%
		Total	-2,3%	0,2%	0,2%	-0,5%	-0,1%	-0,2%
		Sweden	-0,8%	0,3%	0,0%	0,1%	0,4%	0,3%
	Increased	Rest of Europe	-1,3%	0,0%	0,0%	-0,6%	-0,4%	-0,2%
	investment	Others/RoW	-0,3%	0,0%	-0,1%	0,0%	0,0%	-0,2%
		Total	-2,4%	0,3%	-0,1%	-0,5%	0,0%	-0,1%
		Sweden	-0,6%	0,1%	0,0%	0,1%	0,7%	0,4%
Train holiday (a)	One scenario	Rest of Europe	-1,3%	0,0%	0,0%	-0,6%	-0,4%	-0,3%
including (cl.)		Others/RoW	-0,2%	-0,1%	-0,2%	-0,1%	-0,1%	-0,3%
		Total	-2,1%	0,0%	-0,2%	-0,6%	0,2%	-0,2%
	Increased	Sweden	-0,2%	0,2%	0,0%	0,3%	1,7%	0,9%
		Rest of Europe	-1,1%	0,0%	0,0%	0,0%	-0,3%	-0,2%
	income	Others/RoW	0,4%	0,0%	-0,1%	0,0%	0,0%	-0,1%
		Total	-0,9%	0,2%	-0,1%	0,3%	1,4%	0,6%
	Redistributed consumption	Sweden	-0,5%	-0,2%	-0,1%	0,1%	1,1%	0,6%
Train holiday (b)		Rest of Europe	-1,3%	-0,1%	-0,2%	-0,5%	-0,4%	-0,4%
,		Others/RoW	0,1%	-0,2%	-0,5%	-0,1%	-0,1%	-0,4%
		Iotal	-1,7%	-0,5%	-0,8%	-0,5%	0,6%	-0,2%
		Sweden	-0,3%	-0,4%	0,0%	0,0%	1,2%	0,5%
	Reduced	Rest of Europe	-1,3%	-0,1%	0,0%	-0,4%	-0,5%	-0,5%
	Investment	Others/Row	0,1%	-0,2%	-0,3%	-0,1%	-0,1%	-0,5%
		I otal	-1,5%	-0,7%	-0,3%	-0,5%	0,6%	-0,5%
	Deducerd	Sweden	-0,8%	0,1%	0,0%	0,0%	-1,2%	-0,8%
	Reduced	Rest of Europe	-1,0%	-0,1%	-0,2%	-0,9%	-0,4%	-0,3%
	income	Others/ Row	-0,0%	-0,2%	-0,4%	-0,1%	-0,1%	-0,4%
		Iotal	-2,4%	-0,2%	-0,6%	-1,0%	-1,/%	-1,5%
		Sweden	-0,2%	0,8%	0,3%	0,2%	-0,4%	-0,2%
Staycationing	Redistributed	Rest of Europe	-0,7%	0,2%	0,3%	0,1%	-0,1%	0,0%
	consumption	Utners/ ROW	0,0%	0,2%	0,5%	0,1%	0,0%	0,2%
		i otal	-0,9%	1,2%	1,1%	0,4%	-0,5%	0,0%
	Inoroccod	Sweden	-0,6%	1,0%	0,0%	0,4%	-0,4%	-0,2%
	increased	Others (Da)	-0,8%	0,1%	-0,1%	-0,2%	-0,1%	0,0%
	investment	Utners/ ROW	-0,1%	0,1%	0,0%	0,1%	0,1%	0,2%
		Iotal	-1,5%	1,2%	-0,1%	0,3%	-0,4%	0,0%

<u>Table 7</u>: Summary of changes (as a percentage of the total baseline for Swedish consumption) in environmental pressures and socioeconomic performance due to furnishing-related mainstreamed niche practices. The colour coding has been applied for each indicator separately, but for a red-to-green scale for all the mainstreamed niche practices together. GHG – greenhouse gas emissions, Emp. – employment.

Main-								
streamed	Scenario for				Blue	Use of		
niche	indirect			Land	water	toxic	Value	
practice	effects	Country	GHG	use	cons.	chems	added	Emp.
		Sweden	-0,1%	-0,3%	-0,1%	-0,2%	-0,5%	-0,3%
	Reduced	Rest of Europe	-0,3%	-0,2%	-0,2%	-1,4%	-0,3%	-0,4%
	income	Others/RoW	-0,6%	-0,5%	-0,7%	-0,3%	-0,1%	-0,8%
Custainable		Total	-1,0%	-1,0%	-1,0%	-1,9%	-0,9%	-1,5%
Sustainable		Sweden	0,4%	0,4%	0,2%	0,1%	0,4%	0,3%
furnichings	Redistributed	Rest of Europe	0,0%	0,0%	0,2%	-0,6%	-0,1%	-0,1%
and	consumption	Rest of World	-0,2%	-0,1%	-0,1%	-0,2%	-0,1%	-0,3%
anu		Total	0,2%	0,3%	0,3%	-0,7%	0,2%	-0,1%
appliances	Increased investment	Sweden	0,1%	0,6%	0,0%	0,3%	0,3%	0,3%
		Rest of Europe	0,0%	0,0%	-0,1%	-0,7%	0,0%	0,0%
		Others/RoW	-0,1%	-0,1%	-0,2%	-0,1%	0,0%	-0,1%
		Total	0,0%	0,5%	-0,3%	-0,5%	0,3%	0,2%
	Reduced income	Sweden	-2,1%	-3,9%	-0,6%	-1,8%	-4,6%	-1,7%
		Rest of Europe	-0,6%	-0,7%	-0,4%	-3,3%	-0,6%	-0,6%
		Others/RoW	-1,7%	-1,0%	-1,0%	-0,5%	-0,3%	-1,2%
		Total	-4,4%	-5,6%	-2,0%	-5,6%	-5,5%	-3,5%
		Sweden	0,8%	-0,8%	0,9%	-0,9%	0,0%	1,3%
Reduced	Redistributed	Rest of Europe	1,0%	0,4%	1,9%	1,4%	0,8%	0,7%
living area	consumption	Others/RoW	0,9%	1,1%	3,4%	0,3%	0,2%	1,7%
		Total	2,7%	0,7%	6,2%	0,8%	1,0%	3,7%
		Sweden	-1,0%	0,5%	-0,3%	0,4%	-0,6%	1,1%
	Increased	Rest of Europe	0,7%	0,1%	0,1%	0,5%	1,1%	1,3%
	investment	Others/RoW	0,7%	0,7%	1,4%	0,5%	0,5%	2,1%
		Total	0,4%	1,3%	1,2%	1,4%	1,0%	4,5%

Changes in the use of toxic chemicals are largest for the reduced income scenario for "reduced living area" at -5.6 % compared to the baseline. The proportional decrease in Sweden here at 32 % of the total decrease is slightly larger than the environmental pressure in Sweden in the baseline of about 20 %. The increased investment scenario for "reduced living area" is also interesting since the total change in the use of toxic chemicals is distributed roughly equally between the three regions shown in Table 7, in contrast to the domination of the Rest of Europe in the category for Swedish consumption in the baseline. Changes in the use of toxic chemicals are also relatively large for "vegan diet". As shown in Table 5, the regional distribution of the changes roughly matches the regional distribution for the environmental pressure category as a whole, where pressures arising in the Rest of Europe account for about 70 %. This pattern is also roughly followed for the other two food-related mainstreamed niche practices. For mainstreamed niche practices where the change in the use of toxic chemicals is smaller, less than about one percent or so, some deviation in the regional distribution of changes from the overall regional distribution

for the environmental pressure category can be seen. One example of this is for train vacation (b) where over 90 % of the total reduction arises in Sweden.

The largest change in value added is seen for the reduced income scenario for "reduced living area" at – 5.5 %. Here, the proportion of the total change occurring in Sweden at 84 % is only very slightly larger than Sweden's proportion of the total value added in the baseline of about 75 %. Meanwhile, for food-related niche practices that also show relatively large reductions in value added, changes in the Rest of Europe amount to between 32 % and 45 % of the total changes. These proportions are larger than the Rest of Europe's proportion of the total value added in the baseline of about 20 %. For mainstreamed niche practices where the change in value added was smaller, the regional distribution in the changes differed somewhat from the regional distribution for value added as a whole.

The change in employment was largest for all scenarios for "reduced living area", spanning from a decrease of 3.6 % to an increase of 4.5 % compared to the baseline. In the reduced income and redistributed consumption scenarios the regional distribution of the changes as shown in the table is broadly similar to the regional distribution of employment in the baseline. On the other hand, the regional distribution of the changes in the increased investment scenario saw an overrepresentation of changes in the Rest of Europe and the Rest of the World (and underrepresentation for Sweden) as compared to the baseline distribution. For food-related mainstreamed niche consumption practices changes in Sweden were also underrepresented and changes in the Rest of the World and the Rest of Europe overrepresented compared to the baseline distribution. The reduced income scenario of "sustainable home furnishings and appliances" is another example where the regional distribution of changes in employment do not follow exactly the regional distribution of changes in the baseline. In this case, changes in Sweden are underrepresented and changes in the Rest of the World are overrepresented compared to the baseline. For most other mainstreamed niche practices, the total changes in employment are comparatively smaller and the regional distribution can vary widely compared to the regional distribution in the baseline.
5 Discussion and future work

One major feature of the study (noting the aim, see Section 2) is that it has specifically focussed on understanding changes in socioeconomic performance and environmental pressures *abroad* due to changes consumption practices *in Sweden*. Clearly changes in socioeconomic parameters and environmental pressures arise in Sweden due to changing Swedish consumption. These changes have been presented in the results. However, they are presented in the current report only to give an understanding of their importance relative to the changes occurring abroad, in light of the aim of this study.

Broadly speaking, regions that are shown to be significant for socioeconomic performance and environmental pressures due to Swedish consumption overall (see Figure 4 and also Figure 5 for investment) are also those that are significant in terms of the changes in indicator values arising from the mainstreaming of niche practices. Considering the generational goal of the Swedish environmental quality objectives, the work has shown that the mainstreamed niche practices can make significant differences to environmental and socioeconomic indicators abroad. It is further interesting to note that by evaluating many environmental pressures, effects are demonstrated that would not have been demonstrated if the study had focussed solely on greenhouse gas emissions. A significant example here is the reduction in blue water consumption arising in "Rest of World Asia/Middle East/Australia".

Though it is not directly relevant to the aims of the study, it is notable that mainstreaming of the niche practices considered seems to involve significant changes to everyday life and practices, though the analysis shows that the reallocation of expenditure rarely exceeds a few percent of the total baseline expenditure. Thus it is not surprising that the change in the values of the indicators rarely exceeds a few percent either. An interesting illustration here comes from the bus and train-related mainstreamed niche practices. It was assumed for each of these that in mainstreaming them consumption of air transport (COICOP 0733) was reduced to zero. According to the model, this consumption of air transport accounts for less than one percent of total baseline expenditure and only 3 % of total baseline greenhouse gas emissions for example. Total reductions from train- and bus-related mainstreamed niche practices amounting in some cases to over 2 % of total baseline greenhouse gas emissions represents a significant portion of the total emissions from consumption of air transport. It is also notable that the emissions reductions achieved exceed the proportion of baseline expenditure reallocated by about a factor of three. In light of these observations, it may be interesting in the future to carry out a study that more specifically aims to evaluate and compare efficiency of a particular mainstreamed niche practice in light of the changes in consumption expenditure entailed and the reductions in environmental pressures achieved according to the model. Such work is outside the scope of the current study.

The input-output modelling approach applied relies on the assumption that equal expenditures in a given category applied in the model give rise to the same environmental pressures or socioeconomic outcomes. It is possible that this assumption affects the accuracy of the overall changes in environmental pressures calculated in the study. One interesting example to consider is GHG emissions from air travel. Kamb and Larsson (2019) in their study found that the total GHG emissions from Swedish residents' air travel in 2017 amounted to about 10 million tonnes of carbon dioxide equivalents. By comparison, the baseline GHG emissions due to private consumption in the COICOP area of air travel in this study amounted to 1972 kilotonnes CO2equivalents. There are several reasons for the difference between the two values. Firstly, the value from Kamb and Larsson (2019) considers the greater radiative forcing of greenhouse gas emissions at high altitude, which the model used in this study does not. GHG emissions due to private consumption of air travel in the baseline of this study also does not directly include emissions arising from air travel for business. Some emissions arising due to air travel are accounted for in the model used in this study in the COICOP category 096 package holidays, which has a total of about 700 kilotonnes CO2-equivalents. Kamb and Larsson (2019) also calculate that business travel is responsible for about 20 % of GHG emissions from Swedish residents' air travel. Taken together these considerations suggest that the model used in this study underestimates the baseline emissions due Swedish residents' private air travel. A final potential contribution to this underestimation is the possibility that significant final expenditures on air travel are grouped together with less-emissions intensive expenditures related to travel, e.g. expenditure on accommodation, travel administration etc. and are therefore not accounted for sufficiently accurately.

Another potential reason for the change in indicators being relatively small is that it is assumed in this assessment that the means of production and their environmental pressures are assumed constant. This is in contrast to other studies that specifically aim to evaluate the potential of changing the means of production (e.g. from fossil energy to renewable) to reduce environmental pressures. In future it may be interesting therefore to include improved means of production as a further element in such an assessment.

Beyond simply changed environmental pressures due to changed means of production, the structure of the economy as whole may require significant changes in order to mainstream the niche practices. This may for example cause changes in the profile of investment that could be considered in the assessment. Nor does the work consider how socioeconomic parameters such as employment and value added may change dynamically in a transition to a world where the niche practices have been mainstreamed.

The food-related mainstreamed niche practice in general gave rise to the largest reductions in indicator values mentioned, in particular the practice "vegan diet". The change in indicator values for "vegan diet" and the other food-related niche practices due to scenarios for indirect effects

was smaller than for non-food related niche practices. This is partly due to the fact that the surplus or deficit between the baseline total consumption and the intermediate consumption profiles for the niche practices was smaller for those that were food-related. It may also be related to the observation that the reductions in indicator values for food-related niche practices was in general greater than for other niche practices. It is also noticeable if not surprising that none of the mainstreamed niche practices considered yielded unambiguously desirable indicator changes, i.e. increases in socioeconomic indicators and decreases in environmental indicators. Further analysis of the data produced in the work (see the spreadsheet appendix) could be interesting in understanding such effects. One idea could be to evaluate the ratio between the change in indicator values and the amount of reallocated expenditure.

It is further interesting to note that the area where the largest change in environmental pressures were noted were for food-related niche practices, where (as described in Section 3) a specific procedure was used in order to better model the different environmental intensities of different food groups. On this point, another recent study (Vita, et al., 2019) found reductions in GHG emissions of 6.4 and 16 % due to adopting a vegetarian and healthy vegan diet respectively. As with this study, Vita, et al. (2019) use an input-output model however there are many differences in the studies that can lead to the differing quantitative results. Vita, et al. (2019) for example start from a baseline for European consumption rather than Swedish. More specifically, the modelling for changes in food-related practices are based on a calorie balance rather than this study that is based on a protein balance. Nor did Vita, et al. (2019) aim to study specifically the change in GHG emissions abroad due to changed consumption patterns as in this study.

It should also be noted that one area with a large impact in terms of GHG emissions and consumption expenditure that was not considered is transportation by personal motor vehicles (COICOP 0711 and 0722). However, it was judged that there are already so many initiatives aiming at reducing environmental pressures from personal motor vehicles that the MISTRA SC project would not focus on it. The study has considered mainstreamed niche practices exploratively. The practical implementation of the scenarios involve changes for all individuals. However it is judged outside the scope of this study to judge if such changes are desirable beyond the evaluation performed according to the method chosen.

In the future it may be interesting to develop new consumption profiles aimed at achieving improved outcomes from the perspective of the evaluated indicators. "Reduced living area" for example yielded large reductions in a "reduced income" scenario yet in other scenarios yielded increases for many indicators. In future work it might be interesting to understand if it is possible to maintain lower impacts by reallocating the surpluses arising due to "reduced living area" to specific areas of consumption (for example train holidays) or to investment instead.

To support further analyses of these results, a large amount of results data from this study is made available in a supplementary excel spreadsheet, as mentioned in Section 10 Appendix 3: Supplementary data.

6 Conclusions

This study has focussed specifically on evaluating the changes in environmental pressures and socioeconomic performance arising overseas due to the mainstreaming of niche practices. The work has shown that environmental and socioeconomic effects in other countries and regions can be significant for the overall change in environmental pressures, value added and employment due to mainstreaming of niche practices in Sweden. These conclusions should be understood from the perspective that changes in environmental pressures and socioeconomic performance *in Sweden* due to the mainstreaming of niche practices in Sweden still constitute a large portion of total changes compared to the baseline for all indicators and all combinations of niche practice and scenarios for indirect effects (with the exception of toxic chemical use where "Rest of Europe" is most significant, see also below).

The results of the study show that changes in socioeconomic performance and environmental pressures due to the mainstreaming of niche practices in Sweden in the study region "Rest of Europe" constitute a significant portion of total changes compared to the baseline for very nearly all indicators and very nearly all of the mainstreamed niche practices. In particular, change in toxic chemical use in "Rest of Europe" constitutes the majority of change in the indicator for almost all combinations of mainstreamed niche practices and scenario for indirect effects.

The study also showed that the geographical distribution of total changes in environmental pressures and socioeconomic performance that occur *outside of Sweden* roughly follows the geographical distribution *of overall* pressures and performance in the baseline. However, there are some exceptions to this general rule.

7 References

- Carlsson-Kanyama, A., Baraka, N., Benders, R., Berglund, M., Dunér, F., Kok, R., & Losada, R. L. (2019). *Analysis of the environmental impacts of 218 consumption items.* Stockholm: KTH: Mistra Sustainable Consumption, report 1:4.
- Eurostat. (2020, 06 30). *Glossary: Statistical classification of products by activity (CPA).* Retrieved from Statistics Explained: https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Statistical_classification_of_products_by_activity_(CPA)
- Fauré, E., Dawkins, E., Wood, R., Finnveden, G., Palm, V., Persson, L., & Schmidt, S. (2019). Environmental pressure from Swedish consumption–The largest contributing producer countries, products and services. *Journal of cleaner production*, 231, 698-713.
- Gephart, J., Troell, M., Henriksson, P., Beveridge, M., Verdegem, M., Metian, M., . . . Deutsch, L. (2017). The seafood gap in the food-water nexus literature—issues surrounding freshwater use in seafood production chains. *Advances in water resources*, *110*, 505-514.
- Kamb, A., & Larsson, J. (2019). Climate footprint from Swedish residents' air travel. Gothenburg, Sweden: Chalmers University of Technology.
- Kamb, A., Svenfelt, Å., Carlsson-Kanyama, A., Parekh, V., & Bradley, K. (2019). Att äta hållbart?: En kartläggning av vad hållbar matkonsumtion kan innebära. KTH Royal Institute of Technology.
- Lannhard-Öberg, Å. (2019). *Marknadsrapport MATFÅGEL utvecklingen till och med 2018.* Jönköping, Sweden: Svenska Jordbruksverket (Swedish Board of Agriculture).
- Lehner, M., Schoonover, H., Mont, O., Bradley, K., Kamb, A., & Svenfelt, Å. (2019). Att inreda hållbart?: En kartläggning av vad hållbar heminredning kan innebära. KTH Royal Institute of Technology.
- Mekonnen, M., & Hoekstra, A. (2010a). *The green, blue and grey water footprint of farm animals and animal products.* UNESCO-IHE Institute for Water Education Research Report Series No. 48.
- Mekonnen, M., & Hoekstra, A. (2010b). *The green, blue and grey water footprint of farm animals and animal products. Volume 2: Appendices.* UNESCO-IHE Institute for Water Education Research Report Series No. 48.
- Mekonnen, M., & Hoekstra, A. (2011). The green, blue and grey water footprint of crops and derived crop products. *Hydrol. Earth Syst. Sci*, *15*, 1577-1600.
- Mekonnen, M., & Hoekstra, A. (2012). A global assessment of the water footprint of farm animal products. *Ecosystems*, *15*(3), 401-415.
- Palm, V., Wood, R., Berglund, M., Dawkins, E., Finnveden, G., Schmidt, S., & Steinbach, N. (2019). Environmental pressures from Swedish consumption: A hybrid multi-regional input-output approach. *Journal of Cleaner Production*, 634-644.

- PRINCE Project. (den 29 06 2020). *About Prince*. Hämtat från The Prince Project: https://www.prince-project.se/about/
- Röös, E. (2014). *Mat-klimat-listan: version 1.1.* Institutionen för energi och teknik, Sveriges lantbruksuniversitet (Swedish University of Agricultural Sciences).
- Stadler, K., Wood, R., Bulavskaya, T., Södersten, C.-J., Simas, M., Schmidt, S., . . . Bruckner, M. (2018). EXIOBASE 3: Developing a time series of detailed environmentally extended multiregional input-output tables. *Journal of Industrial Ecology*, *22*(3), 502-515.
- Statistics Sweden. (2020a, 06 29). *GDP: expenditure approach by type of use, aggregated. Year 1950* - 2018. Retrieved from Statistics Sweden: http://www.statistikdatabasen.scb.se/pxweb/en/ssd/START__NR__NR0103__NR0103E/ NR0103T01BNAr/

Statistics Sweden. (2020b, 06 29). Environmental pressure from household consumption expenditure by purpose COICOP and substance. Year 2008 - 2017. Retrieved from Statistics Sweden Environmental Accounts: http://www.statistikdatabasen.scb.se/pxweb/en/ssd/START__MI__MI1301__MI1301F/MI 1301MPCOICOPN/

- Statistics Sweden. (2020c, 06 30). *Household budget surveys.* Retrieved from Statistics Sweden: https://www.scb.se/hitta-statistik/statistik-efter-amne/hushallens-ekonomi/hushallenutgifter/hushallens-utgifterhut/#:~:text=Statistiken%20visar%20utgifter%20f%C3%B6r%20olika,Unders%C3%B6kningen %20har%20gjorts%20sedan%201958.
- Svenska Jordbruksverket. (2019). *Jordbruksstatistisk sammanställning 2019 med data om livsmedel - tabeller.* Jönköping, Sweden: Svenska Jordbruksverket (Swedish Board of Agriculture).
- Swedish Environmental Protection Agency. (den 29 09 2020). *The generational goal*. Hämtat från Swedish Environmental Protection Agency: http://www.swedishepa.se/Environmentalobjectives-and-cooperation/Swedens-environmental-objectives/The-generational-goal/
- Thorson, M., Larsson, J., Nässén, J., Bradley, K., Kamb, A., & Svenfelt, Å. (2019). *Att semestra hållbart?: En kartläggning av vad hållbart semestrande kan innebära.* Stockholm: KTH: MISTRA Sustainable Consumption, Report 1:3.

United Nations. (2000). Classifications of expenditure according to purpose. Statistical papers M 84.

- Vita, G., Lundström, J. R., Hertwich, E. G., Quist, J., Ivanova, D., Stadler, K., & Wood, R. (2019). The Environmental Impact of Green Consumption and Sufficiency Lifestyles Scenarios in Europe: Connecting Local Sustainability Visions to Global Consequences. *Ecological Economics*.
- Wood, R., Stadler, K., Bulavskaya, T., Lutter, S., Giljum, S., De Koning, A., . . . Usubiaga, A. (2015). Global sustainability accounting—Developing EXIOBASE for multi-regional footprint analysis. *Sustainability*, 7(1), 138-163.

About the research programme

Mistra Sustainable Consumption – from niche to mainstream is a research programme consisting of researchers from: KTH Royal Institute of Technology, Chalmers University of Technology, Lund University, University of Gothenburg, Karolinska Institutet, Luleå University of Technology, The Swedish University of Agricultural Sciences and Statistics Sweden. KTH is the programme host. The research is conducted in cooperation with societal partners from businesses, public authorities and non-governmental organisations.

Read more at our webpage: www.sustainableconsumption.se









Appendix 1: Custom COICOP classification

<u>Table 1:</u> Custom COICOP classification used in the study for calculating environmental pressures and socioeconomic effects

Description	COICOP codes
Bread and cereals	0111
Meat (ND)	0112
Fish and seafood (ND)	0113
Milk, cheese and eggs (ND)	0114
Oils and fats (ND)	0115
Fruit	0116
Vegetables	0117
Other food	01 nec
Alcohol, tobacco and narcotics	02
Clothing and footwear	03
Housing and utilities	04
Furnishing and household equipment	05
Health	06
Personal car transport	071 - 072
Railway transport	0731
Bus transport	0732
Air transport	0733
Other transport	07 nec
Communication	08
Recreational equipment	091-092
Games, sports, gardening, pets	093
Recreational services	094
Newspapers and books	095
Package holidays	096
Education	10
Restaurants and hotels	11
Miscellaneous goods and services	12

Appendix 2: Detailed Results presentation

Contents

1.1	Lacto-ovo vegetarian diet	2
1.2	Non-bovine/porcine diet	6
1.3	Vegan diet	. 11
1.4	Bus holiday (a)	.16
1.5	Bus holiday (b)	.19
1.6	Train holiday (a)	.24
1.7	Train holiday (b)	.27
1.8	Staycationing	.32
1.9	Sustainable home furnishing and appliances	36
1.10	Reduced living area	.41

1.1 Lacto-ovo vegetarian diet

Table 9 shows the baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "lacto-ovo vegetarian diet" for three scenarios for indirect effects. As shown in the table, the reduction in total expenditure in the "reduced income" scenario is very small compared to the baseline expenditure. However it should be noted that the table does not show that in the design of the expenditure profile for the scenario about 50000 MSEK has shifted within the COICOP 01 food category from meat and meat products and fish and seafood to non-meat products.

<u>Table 1:</u> Baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "lacto-ovo vegetarian diet" for three scenarios for indirect effects. Disaggregated by COICOP category.

		000 MSEK				
			Δ	Δ	Δ	
COICOP			Reduced	Redistributed	Increased	
group	COICOP description	Baseline	income	consumption	investment	
	FOOD AND NON-ALCOHOLIC					
01	BEVERAGES	222	-5.7	-5.4	-5.7	
	ALCOHOLIC BEVERAGES, TOBACCO					
02	AND NARCOTICS	64	0.0	0.2	0.0	
03	CLOTHING AND FOOTWEAR	82	0.0	0.3	0.0	
	HOUSING, WATER, ELECTRICITY,					
04	GAS AND OTHER FUELS	463	0.0	1.6	0.0	
	FURNISHINGS, HOUSEHOLD					
05	EQUIPMENT, MAINTENANCE	103	0.0	0.4	0.0	
06	HEALTH	59	0.0	0.2	0.0	
07	TRANSPORT	216	0.0	0.7	0.0	
08	COMMUNICATION	54	0.0	0.2	0.0	
09	RECREATION AND CULTURE	192	0.0	0.7	0.0	
10	EDUCATION	6	0.0	0.0	0.0	
11	RESTAURANTS AND HOTELS	124	0.0	0.4	0.0	
	MISCELLANEOUS GOODS AND					
12	SERVICES	208	0.0	0.7	0.0	
INV	INVESTMENTS	0	0	0	5.70	

Figure 6 through Figure 11 show the changes in environmental and socioeconomic indicators due to the mainstreaming of the "lacto-ovo vegetarian diet" niche practice compared to the baseline. The figures show that for all of the scenarios considered for indirect effects, the mainstreaming leads to an overall decrease for all environmental and socioeconomic indicators. The decrease is slightly larger for all indicators for the reduced income scenario compared to the other scenarios. A significant reason for there being little difference in the results depending on the scenarios for indirect effects is that total expenditure in the intermediate consumption profile due to the mainstreaming of the niche practice was at a very similar level to total consumption in the baseline (see also Table 2).

Figures below show that for greenhouse gas emissions, land use, chemical use and value added, a majority of the reductions occur either in Sweden or in the Rest of Europe. Meanwhile, according to Figure 8 the largest reductions in blue water consumption occur in Asia/Mid East/Australia and reductions in employment (see Figure 11) occur in Sweden, Rest of Europe and Asia/Mid East/Australia.



<u>Figure 1:</u> Difference in GHG emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "lacto-ovo vegetarian diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world



<u>Figure 2:</u> Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "lacto-ovo vegetarian diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world



<u>Figure 3:</u> Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "lacto-ovo vegetarian



diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world

<u>Figure 4</u>: Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "lacto-ovo vegetarian diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world



<u>Figure 5:</u> Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "lacto-ovo vegetarian diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world



<u>Figure 6</u>: Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "lacto-ovo vegetarian diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world

1.2 Non-bovine/porcine diet

Table 10 shows the baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "non-bovine/porcine diet" for three scenarios for indirect effects. The table shows that the change in expenditure due to the mainstreaming of the niche practice is minimal compared to total consumption. Note even here that the table does not show that in the design of the expenditure profiles for the scenario a certain amount of expenditure has shifted within the COICOP 01 food category from bovine and porcine products to other foods.

<u>Table 2:</u> Baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "non-bovine/porcine diet" for three scenarios for indirect effects. Disaggregated by COICOP category.

		000 MSEK				
			Δ	Δ	Δ	
COICOP			Reduced	Redistributed	Increased	
group	COICOP description	Baseline	income	consumption	investment	
	FOOD AND NON-ALCOHOLIC					
01	BEVERAGES	222	-7.5	-7.0	-7.5	
	ALCOHOLIC BEVERAGES, TOBACCO					
02	AND NARCOTICS	64	0.0	0.3	0.0	
03	CLOTHING AND FOOTWEAR	82	0.0	0.4	0.0	
	HOUSING, WATER, ELECTRICITY, GAS					
04	AND OTHER FUELS	463	0.0	2.1	0.0	
	FURNISHINGS, HOUSEHOLD					
05	EQUIPMENT, MAINTENANCE	103	0.0	0.5	0.0	
06	HEALTH	59	0.0	0.3	0.0	
07	TRANSPORT	216	0.0	1.0	0.0	
08	COMMUNICATION	54	0.0	0.2	0.0	
09	RECREATION AND CULTURE	192	0.0	0.9	0.0	
10	EDUCATION	6	0.0	0.0	0.0	
11	RESTAURANTS AND HOTELS	124	0.0	0.6	0.0	
	MISCELLANEOUS GOODS AND					
12	SERVICES	208	0.0	0.9	0.0	
INV	INVESTMENTS	0	0	0	7.55	

Figure 12 through Figure 17 show the changes in environmental pressures and socioeconomic performance due to the mainstreaming of the "non-bovine/porcine diet" niche practice. The figures show that for all of the scenarios considered for indirect effects, the mainstreaming leads to an overall decrease for all environmental and socioeconomic indicators. The decrease is slightly larger for all indicators for the reduced income scenario compared to the other scenarios. A significant reason for there being little difference in the results depending on the scenarios is that total expenditure in the intermediate consumption profile due the mainstreaming of the niche practice is at a very similar level to total expenditure in the baseline consumption (this can be seen in Table 2 and Table 10).

Figures below show that for greenhouse gas emissions, land use, chemical use and value added, a majority of the reductions occur either in Sweden or in the Rest of Europe. Meanwhile, according to Figure 14, the largest reductions in blue water consumption occur in Asia/Mid East/Australia and the Rest of Europe, and reductions in employment (see Figure 17) occur in Sweden, Rest of Europe and Asia/Mid East/Australia.



<u>Figure 7:</u> Difference in greenhouse gas emissions (in kton CO₂-e), due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "non-bovine/porcine diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 8:</u> Difference in land use (in km2), due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "non-bovine/porcine diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 9</u>: Difference in blue water consumption (in Mm³), due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "non-bovine/porcine diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 10:</u> Difference in toxic chemical use (in tonnes), due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "non-bovine/porcine diet" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 11:</u> Difference in value added (in MSEK), due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "non-bovine/porcine diet" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 12:</u> Difference in employment (in '000 persons), due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "non-bovine/porcine diet" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

1.3 Vegan diet

Table 11 shows the baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "vegan diet" for three scenarios for indirect effects. Firstly, the table shows that the direct changes in expenditure due to the mainstreaming of the niche practice actually causes an increase in the total expenditure level compared to the baseline, albeit by only 0.1 % (see also Table 2). Note even here that the table does not show that in the design of the expenditure profile for the scenario a certain amount of expenditure has shifted within the COICOP 01 food category from animal products to plant products.

<u>Table 3:</u> Baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "non-bovine/porcine diet" for three scenarios for indirect effects. Disaggregated by COICOP category.

		000 MSEK				
			Δ	Δ	Δ	
COICOP			Increased	Redistributed	Reduced	
group	COICOP description	Baseline	income	consumption	investment	
01	FOOD AND NON-ALCOHOLIC BEVERAGES	222	2.0	1.9	2.0	
	ALCOHOLIC BEVERAGES, TOBACCO AND					
02	NARCOTICS	64	0.0	-0.1	0.0	
03	CLOTHING AND FOOTWEAR	82	0.0	-0.1	0.0	

	HOUSING, WATER, ELECTRICITY, GAS AND				
04	OTHER FUELS	463	0.0	-0.6	0.0
	FURNISHINGS, HOUSEHOLD EQUIPMENT,				
05	MAINTENANCE	103	0.0	-0.1	0.0
06	HEALTH	59	0.0	-0.1	0.0
07	TRANSPORT	216	0.0	-0.3	0.0
08	COMMUNICATION	54	0.0	-0.1	0.0
09	RECREATION AND CULTURE	192	0.0	-0.2	0.0
10	EDUCATION	6	0.0	0.0	0.0
11	RESTAURANTS AND HOTELS	124	0.0	-0.1	0.0
12	MISCELLANEOUS GOODS AND SERVICES	208	0.0	-0.3	0.0
INV	INVESTMENTS	0	0	0	-2.00

Figure 18 though Figure 23 show the changes in environmental and socioeconomic indicators due to the mainstreaming of the "vegan diet" niche practice. The figures show that for all of the scenarios considered for indirect effects, the mainstreaming leads to an overall decrease for all environmental and socioeconomic indicators. A significant reason for there being little difference in the results depending on the scenarios is that total consumption in monetary terms after mainstreaming is at a very similar level to total consumption before mainstreaming.

Figures below show that for greenhouse gas emissions, land use, chemical use and value added, a majority of the reductions occur either in Sweden or in the Rest of Europe. Meanwhile, according to Figure 20 and Figure 23, the largest reductions in blue water consumption and employment occur in Sweden, Asia/Mid East/Australia and the Rest of Europe.

It should be noted that the reductions in all indicators compared to the baseline for "vegan diet" are greater than for the other two niche practices considered in the MISTRA Sustainable Consumption focus area on food (see figures 6 through 17). In particular, the reduction in greenhouse gas emissions for "vegan diet" is almost three times greater than for the other two food-related mainstreamed niche practices.



<u>Figure 13:</u> Difference in greenhouse gas emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "vegan diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 14:</u> Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "vegan diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 15:</u> Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "vegan diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



Figure 16: Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "vegan diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 17</u>: Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "vegan diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 18:</u> Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "vegan diet" compared to baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

1.4 Bus holiday (a)

Firstly it should be noted that it is assumed that there is no change in total consumption expenditure in the mainstreaming of this niche practice compared to the baseline (see Table 2). However, a total amount of 13000 MSEK has been reallocated from air transport to bus transport. This is less than one percent of total baseline private consumption in Sweden.

According to Figure 24 through Figure 29, the mainstreamed niche practice "bus holiday (a)" causes reductions in greenhouse gas emissions, land use, water consumption, chemical use and employment. The only indicator for which an overall increase is seen is for value added (see Figure 28). Since the total consumption expenditure due to the mainstreamed niche practice in question is equal to the total consumption expenditure in the baseline indirect effects do not occur for this scenario (see also Section 3.3.2) hence there is only one set of region-disaggregated bars in the figures below.

The figures further reveal an interesting geographical distribution of the noted changes. For chemical use, value added and employment (Figure 27 through Figure 29), increases are noted for Sweden but decreases in the Rest of Europe. Land use (Figure 25) decreases in North America and Asia/Mid East/Australia, but increases in Sweden, leading to an overall reduction. For blue water consumption (Figure 26), the main reduction occurs in Asia/Mid East/Australia. Reductions in greenhouse gas emissions occur mainly in Sweden and the Rest of Europe (see Figure 24).



<u>Figure 19</u>: Difference in greenhouse gas emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (a)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 20:</u> Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (a)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 21:</u> Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (a)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 22:</u> Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (a)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 23:</u> Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (a)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 24</u>: Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (a)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

1.5 Bus holiday (b)

Table 12 shows the baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "bus holiday (b)" for three scenarios for indirect effects. The table shows that the reallocated expenditure constitutes less than one percent of total private consumption expenditure.

<u>Table 4</u>: Baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "bus holiday (b)" for three scenarios for indirect effects. Disaggregated by COICOP category.

		000 MSEK				
			Δ	Δ	Δ	
COICOP			Reduced	Redistributed	Increased	
group	COICOP description	Baseline	income	consumption	investment	
	FOOD AND NON-ALCOHOLIC					
01	BEVERAGES	222	0.0	0.8	0.0	
	ALCOHOLIC BEVERAGES, TOBACCO AND					
02	NARCOTICS	64	0.0	0.2	0.0	
03	CLOTHING AND FOOTWEAR	82	0.0	0.3	0.0	
	HOUSING, WATER, ELECTRICITY, GAS					
04	AND OTHER FUELS	463	0.0	1.7	0.0	
	FURNISHINGS, HOUSEHOLD					
05	EQUIPMENT, MAINTENANCE	103	0.0	0.4	0.0	

06	HEALTH	59	0.0	0.2	0.0
07	TRANSPORT	216	-6.7	-5.9	-6.7
08	COMMUNICATION	54	0.0	0.2	0.0
09	RECREATION AND CULTURE	192	0.0	0.7	0.0
10	EDUCATION	6	0.0	0.0	0.0
11	RESTAURANTS AND HOTELS	124	0.0	0.5	0.0
12	MISCELLANEOUS GOODS AND SERVICES	208	0.0	0.8	0.0
INV	INVESTMENTS	0	0	0	6.66

According to Figure 30 through Figure 35, the mainstreamed niche practice "bus holiday (b)", contributes to reductions for all indicators considered according to the reduced income scenario for indirect effects. Even considering only this one scenario for indirect effects, the geographic distribution is quite complex. For greenhouse gas emissions (Figure 30), it is in common with other mainstreamed niche practices in Sweden and the Rest of Europe where most reductions occur. For land use (Figure 31) there is no single stand-out country or region, yet it can be noted that land use actually increases in Sweden compared to the overall decrease. For blue water consumption (Figure 32), reductions in Asia/Mid East/Australia make a significant contribution to the overall reduction. Meanwhile for chemical use, value added and employment (Figure 33 through Figure 35), most of the reductions arise in the Rest of Europe.

For the scenarios "redistributed consumption" and "increased investment", the changes in greenhouse gas emissions, chemical use and employment (Figure 30, Figure 33 and Figure 35) are largely the same if somewhat different in magnitude compared to the "reduced consumption" scenario. However, the changes to other indicators for the other scenarios for indirect effects are increasingly complex. For example, for land use, a total reduction according to the "reduced income" scenario becomes an increase according to the other scenarios for indirect effects. One observation here is that the general order of magnitude for the indicator changes noted for this mainstreamed niche practice (with the notable exception of greenhouse gas emissions) is smaller (and often considerably so) than the reductions noted for food-related mainstreamed niche practices (see Figure 6 through Figure 23).



<u>Figure 25</u>: Difference in greenhouse gas emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 26:</u> Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 27:</u> Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 28:</u> Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 29</u>: Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 30:</u> Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "bus holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

1.6 Train holiday (a)

A starting assumption for the mainstreamed niche practice "train holiday (a)" is that the overall direct change in private consumption expenditure due to the mainstreaming is zero (see also Table 2). Having said that it should be noted here that within this assumption, about 13000 MSEK is reallocated from air travel (COICOP 0733) to rail travel (COICOP 0731).

Figure 36 through Figure 41 show the mainstreaming of the niche practice "train holiday (a)" yields overall reductions for all indicators except value added, where there is a slight increase. For greenhouse gas emissions (Figure 36), the reductions arise mostly in Sweden and the Rest of Europe. For land use (Figure 37), reductions arise in North America and Asia/Mid East/Australia in spite of an increase in Sweden. For blue water consumption (Figure 38), reductions arise in Asia/Mid East/Australia. For chemical use (Figure 39) reductions arise in Rest of Europe. For value added and employment, Figure 40 and Figure 41 respectively, reductions arise in the Rest of Europe in spite of increases in Sweden (leading to an overall reduction for employment and an overall increase for value added). For employment, reductions also arise in North America and Asia/Mid East/Australia.

It should also be noted that the general order of magnitude of total changes to indicators, with the exception of greenhouse gas emissions is low for this mainstreamed niche practice compared to food-related niche practices (see Figure 6 through Figure 23).



<u>Figure 31</u>: Difference in greenhouse gas emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (a)" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 32:</u> Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (a)" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 33</u>: Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (a)" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 34</u>: Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (a)" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 35:</u> Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (a)" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 36:</u> Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (a)" compared to the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

1.7 Train holiday (b)

In contrast to most of the other niche practices, for "train holiday (b)" it is assumed that the total intermediate consumption expenditure due to the mainstreamed niche practice is actually greater than in the baseline, see also Table 2. Therefore the scenarios considered for indirect effects are also somewhat different, giving rise to final expenditures as shown in Table 13. Table 13 also shows that the reallocation of expenditure is relatively small compared to total private consumption level.

<u>Table 5:</u> Baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "train holiday (b)" for three scenarios for indirect effects. Disaggregated by COICOP category.

		000 MSEK				
COICOP			∆ Increased	∆ Redistributed	∆ Reduced	
group	COICOP description	Baseline	income	consumption	investment	
01	FOOD AND NON-ALCOHOLIC BEVERAGES	222	0.0	-1.7	0.0	
	ALCOHOLIC BEVERAGES, TOBACCO AND					
02	NARCOTICS	64	0.0	-0.5	0.0	
03	CLOTHING AND FOOTWEAR	82	0.0	-0.6	0.0	
	HOUSING, WATER, ELECTRICITY, GAS AND					
04	OTHER FUELS	463	0.0	-3.5	0.0	
	FURNISHINGS, HOUSEHOLD EQUIPMENT,					
-----	-----------------------------------	-----	------	------	--------	
05	MAINTENANCE	103	0.0	-0.8	0.0	
06	HEALTH	59	0.0	-0.4	0.0	
07	TRANSPORT	216	13.3	11.8	13.3	
08	COMMUNICATION	54	0.0	-0.4	0.0	
09	RECREATION AND CULTURE	192	0.0	-1.4	0.0	
10	EDUCATION	6	0.0	0.0	0.0	
11	RESTAURANTS AND HOTELS	124	0.0	-0.9	0.0	
12	MISCELLANEOUS GOODS AND SERVICES	208	0.0	-1.6	0.0	
INV	INVESTMENTS	0	0	0	-13.32	

Figure 42 shows that the mainstreaming of the niche practice causes reductions in greenhouse gas emissions irrespective of the scenario assumed for indirect effects. Interestingly, the reductions arise mainly due reductions in the rest of Europe and in spite of increases in Russia.

Figure 46 shows that the mainstreamed niche practice brings about increases in value added, also irrespective of the scenario assumed for indirect effects. The noted increase arises mainly in Sweden, whilst decreases are noted for each scenario in the Rest of Europe.



Figure 37: Difference in greenhouse gas emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 38</u>: Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

Figure 43 shows that whilst land use increases in the "increased income" scenario, it decreases for the "redistributed consumption" and "reduced investment". These changes are all dependent on changes in land use occurring in Sweden.

Figure 44 shows that blue water consumption remains largely unchanged for the "increased income" scenario. It also shows that blue water consumption decreases in the "redistributed consumption" and "reduced investment" scenarios. The noted reductions arise in Sweden, Europe, Asia/Mid East/Australia and to a lesser extent China.

Figure 45 shows that chemical use increases in the "increased income" scenario, due to an increase occurring in Sweden. Chemical use however decreases in the other two scenarios due to use reductions in the Rest of Europe.

Finally, Figure 46 shows that employment increases in the "increased income" scenario but decreases in the other scenarios. These aggregate effects occur in all cases in light of increases in Sweden and decreases in the Rest of Europe.

In comparison with the changes in indicators due to food-related mainstreamed niche practices (see Figure 6 through Figure 23), the changes in value added, chemical use, blue water consumption and greenhouse gas emissions are relatively low. The changes in land use and employment are very low compared to changes observed in food-related niche practices.



<u>Figure 39</u>: Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 40:</u> Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (b)" compared with the baseline.



<u>Figure 41</u>: Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (b)" compared with the baseline.



<u>Figure 42:</u> Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "train holiday (b)" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

1.8 Staycationing

Table 14 shows the baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "staycationing" for three scenarios for indirect effects. The table shows that the expenditure reallocations are quite large compared to the other mainstreamed niche practices considered. Nevertheless, the absolute changes still only amount to between one and two percent of total baseline private consumption expenditure in Sweden.

For this mainstreamed niche practice only for greenhouse gas emissions and value added (Figure 48 and Figure 52 respectively) can reductions be seen for all the scenarios considered for indirect effects. Having said that, the figures show that the magnitude for these changes differs widely between scenarios. Figure 48 further shows that decreases in greenhouse gas emissions arise largely in Sweden or the Rest of Europe. Meanwhile Figure 52 shows that decreases occur for value added due to reductions occurring in Sweden.

<u>Table 6:</u> Baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "staycationing" for three scenarios for indirect effects. Disaggregated by COICOP category.

		000 MSEK			
			Δ	Δ	Δ
COICOP			Reduced	Redistributed	Increased
group	COICOP description	Baseline	income	consumption	investment
01	FOOD AND NON-ALCOHOLIC BEVERAGES	222	0.0	4.1	0.0
	ALCOHOLIC BEVERAGES, TOBACCO AND				
02	NARCOTICS	64	0.0	1.2	0.0
03	CLOTHING AND FOOTWEAR	82	0.0	1.5	0.0
	HOUSING, WATER, ELECTRICITY, GAS AND				
04	OTHER FUELS	463	9.3	9.3	9.3
	FURNISHINGS, HOUSEHOLD EQUIPMENT,				
05	MAINTENANCE	103	0.0	1.9	0.0
06	HEALTH	59	0.0	1.1	0.0
07	TRANSPORT	216	-10.0	-6.5	-10.0
08	COMMUNICATION	54	0.0	1.0	0.0
09	RECREATION AND CULTURE	192	-9.8	-6.6	-9.8
10	EDUCATION	6	0.0	0.1	0.0
11	RESTAURANTS AND HOTELS	124	-11.0	-11.0	-11.0
12	MISCELLANEOUS GOODS AND SERVICES	208	0.0	3.9	0.0
INV	INVESTMENTS	0	0	0	21.54

As seen in figures 49, 50, 51 and 53, the way that other indicators change due to the mainstreaming of staycationing is complex and varies between overall reductions and overall increases, often dependent on assumed scenario for indirect effects. It is mainly in Sweden and the Rest of Europe where changes occur for most indicators. The exception is Asia/Mid East/Australia, where changes contribute to the overall change in blue water consumption (Figure 50).



<u>Figure 43:</u> Difference in greenhouse gas emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Staycationing" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 44</u>: Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Staycationing" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 45</u>: Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Staycationing" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 46:</u> Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Staycationing" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 47</u>: Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Staycationing" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 48:</u> Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Staycationing" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

Notably for staycationing, the overall magnitude of the changes observed is of a similar order of magnitude as for the mainstreamed niche practices "lacto-ovo vegetarian diet" and "non-bovine/porcine diet".

1.9 Sustainable home furnishing and appliances

Table 15 shows the baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "sustainable home furnishings and appliances" for three scenarios for indirect effects. According to the table, the expenditure reallocation amounts to a little over one percent of the total private consumption expenditure in Sweden.

<u>Table 7</u>: Baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "sustainable home furnishings and appliances" for three scenarios for indirect effects. Disaggregated by COICOP category.

		000 MSEK				
COICOP			Δ	Δ	Δ	
group			Reduced	Redistributed	Increased	
	COICOP description	Baseline	income	consumption	investment	
01	FOOD AND NON-ALCOHOLIC BEVERAGES	222	0.0	3.0	0.0	
	ALCOHOLIC BEVERAGES, TOBACCO AND					
02	NARCOTICS	64	0.0	0.9	0.0	

03	CLOTHING AND FOOTWEAR	82	0.0	1.1	0.0
	HOUSING, WATER, ELECTRICITY, GAS AND				
04	OTHER FUELS	463	0.0	6.2	0.0
	FURNISHINGS, HOUSEHOLD EQUIPMENT,				
05	MAINTENANCE	103	-22.7	-22.7	-22.7
06	HEALTH	59	0.0	0.8	0.0
07	TRANSPORT	216	0.0	2.9	0.0
08	COMMUNICATION	54	0.0	0.7	0.0
09	RECREATION AND CULTURE	192	0.0	2.6	0.0
10	EDUCATION	6	0.0	0.1	0.0
11	RESTAURANTS AND HOTELS	124	0.0	1.7	0.0
12	MISCELLANEOUS GOODS AND SERVICES	208	0.0	2.8	0.0
INV	INVESTMENTS	0	0	0	22.70

As shown in Figure 54 through Figure 59, mainstreaming the niche practice "sustainable home furnishing and appliances" leads either to overall decreases in the environmental and socioeconomic indicators considered or to very little change (increase or decrease), often dependent on the scenario assumed for indirect effects. Indicator values are generally higher (i.e. less reductions or even increases) for the scenarios "redistributed consumption" and "increased investment" than for "reduced income".

For value added, chemical use and land use (see Figure 58, Figure 57 and Figure 55 respectively) changes in Sweden and the Rest of Europe make the most significant contribution to the overall indicator changes. Changes in Sweden and the Rest of Europe are also significant for other indicators, namely blue water consumption, greenhouse gas emissions and employment (see Figure 56 Figure 54, and Figure 59 respectively). For these latter indicators, changes in Asia/Mid East/Australia and China are also notable for their contribution to overall changes.

The overall reductions in chemical use (see Figure 57) for "sustainable home furnishings and appliances" are of the same order of magnitude as those for food-related practices (see Figure 9, Figure 15 and Figure 21 above). For value added, employment and blue water consumption (see Figure 58, Figure 59 and Figure 56), indicator changes at their greatest for "sustainable home furnishings and appliances" reach the same levels as for "non-bovine/porcine diet" and "lacto-ovo vegetarian", though for the current mainstreamed niche practice vary widely in light of the scenario for indirect effects considered.



<u>Figure 49</u>: Difference in greenhouse gas emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Sustainable home furnishing and appliances" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 50:</u> Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Sustainable home furnishing and appliances" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 51:</u> Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Sustainable home furnishing and appliances" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



Figure 52: Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "sustainable home furnishing and appliances" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 53</u>: Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Sustainable home furnishing and appliances" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 54</u>: Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Sustainable home furnishing and appliances" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

1.10 Reduced living area

Table 16 shows the baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "reduced living area" for three scenarios for indirect effects. Notable from the table is the fact that the expenditure reallocation entailed by the mainstreaming for the niche practice is many times larger than that entailed by the other mainstreamed niche practices considered in this work. One factor that causes this is the considerable proportion of expenditure that goes to the COICOP 04 category for housing and utilities (see the table).

Table 8: Baseline private consumption expenditure in Sweden, and changes in consumption expenditure according to the mainstreamed niche practice "reduced living area" for three scenarios for indirect effects. Disaggregated by COICOP category.

		000 MSEK			
COICOP			Δ	Δ	Δ
group			Reduced	Redistributed	Increased
	COICOP description	Baseline	income	consumption	investment
01	FOOD AND NON-ALCOHOLIC BEVERAGES	222	0.0	20.1	0.0
	ALCOHOLIC BEVERAGES, TOBACCO AND				
02	NARCOTICS	64	0.0	5.8	0.0
03	CLOTHING AND FOOTWEAR	82	0.0	7.4	0.0
	HOUSING, WATER, ELECTRICITY, GAS AND				
04	OTHER FUELS	463	-92.5	-92.5	-92.5
	FURNISHINGS, HOUSEHOLD EQUIPMENT,				
05	MAINTENANCE	103	-18.6	-18.6	-18.6
06	HEALTH	59	0.0	5.3	0.0
07	TRANSPORT	216	0.0	19.6	0.0
08	COMMUNICATION	54	0.0	4.9	0.0
09	RECREATION AND CULTURE	192	0.0	17.4	0.0
10	EDUCATION	6	0.0	0.5	0.0
11	RESTAURANTS AND HOTELS	124	0.0	11.2	0.0
12	MISCELLANEOUS GOODS AND SERVICES	208	0.0	18.9	0.0
INV	INVESTMENTS	0	0	0	111.10

According to the results presented in Figure 60 through Figure 65, the mainstreamed niche practice "reduced living area" decreases the values of all indicators compared to the baseline consumption profile for the "reduced income" scenario for indirect effects. However, for the "redistributed consumption" and "increased investment" scenarios, *increases* are observed for all indicators.

For the "reduced income" scenario, reduction in greenhouse gas emissions (Figure 60) and land use (Figure 61) occur principally in Sweden, Rest of Europe and Russia. For the same scenario, reductions in Blue water consumption occur in Sweden, Rest of Europe, Asia/Mid East/Australia and China (Figure 62). For chemical use (Figure 63), reductions occur in Sweden and the Rest of Europe for the "reduced income" scenario. For value added (Figure 64), reductions occur principally in Sweden for the "reduced income" scenario. For Employment (Figure 65), reductions occur in Sweden, Europe but also Asia/Mid East/Australia. Furthermore, by comparison with the effect of other niche practices, "reduced living area" if only in the scenario "reduced income" yields large reductions, of a magnitude exceeded in general only by the mainstreamed niche practice "vegan diet" (see above). Indeed, for chemical use and the "reduced income" scenario, the reduction for this mainstreamed niche practice is more than double even that for "vegan diet".

In broad terms, the regions making a major contribution to the reductions observed for the scenario "reduced income" are the same as those that contribute to the increases observed in the scenarios "redistributed consumption" and "increased investment". One interesting feature to note here, which occurs e.g. for greenhouse gas emissions for "increased investment" (Figure 60) is that the mainstreamed niche practice causes a decrease in emissions in Sweden, but an increase elsewhere, notably the Rest of Europe.



<u>Figure 55:</u> Difference in greenhouse gas emissions (in kton CO₂-e) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Reduced living area" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 56:</u> Difference in land use (in km²) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Reduced living area" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 57</u>: Difference in blue water consumption (in Mm³) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Reduced living area" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 58</u>: Difference in toxic chemical use (in tonnes) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Reduced living area" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 59</u>: Difference in value added (in MSEK) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Reduced living area" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.



<u>Figure 60:</u> Difference in employment (in '000 persons) due to private consumption in the Swedish economy arising from the mainstreaming of the niche practice "Reduced living area" compared with the baseline. SE – Sweden, RU – Russia, CN – China, NA – North America, RoW – Rest of world.

Appendix 3: Supplementary data

An excel sheet containing complete results for the calculations performed is provided in order to facilitate readers' own analyses.