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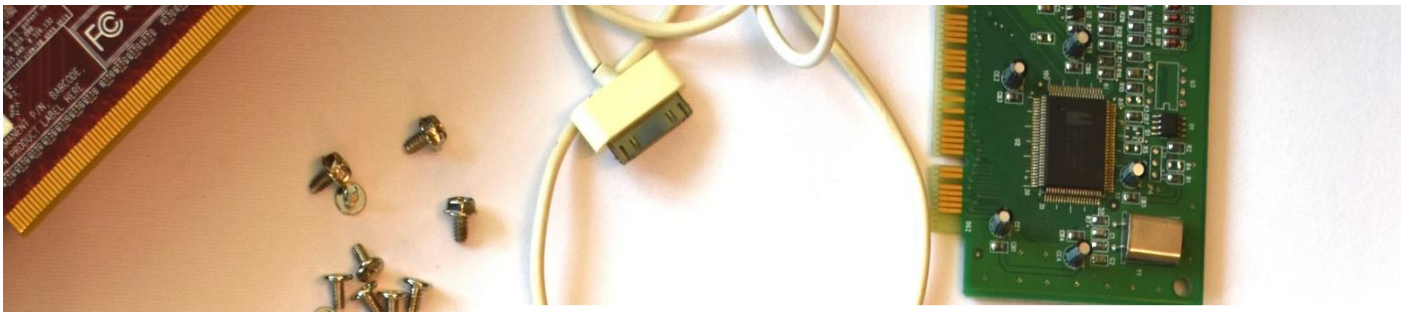

Promoting the Repair Sector in Sweden

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The project is led by IIIEE at Lund University, and has project partners from Sweden and the United States. Read more at the project website: https://repairsociety.blogg.lu.se/

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List of abbreviations

CE - Circular Economy

EU - European Union

EPR - Extended Producer Responsibility

IPR - Individual Producer Responsibility

R2R – Right to Repair

RUT - Rengöring, Underhåll och Tvätt
(English translation: Cleaning, Maintenance and Laundry)

VAT - Value Added Tax

WEEE - Waste Electrical and Electronic Equipment Directive

Executive summary

There is currently a lot of interest in the European Union (EU), the United States (US), and among many other countries to promote product repairs. In the US, the proposed policies are mainly motived from a consumer rights' perspective, whereas in the EU the interest for promoting repairs is also seen as strategy to save resources, which can contribute to the vision of a Circular Economy (CE).

Several states in the US have proposed 'right-to-repair' (R2R) laws to force OEMs to provide spare parts and services and to open up for independent repairers. In the EU, eco-design regulations for 10 products groups were recently adopted with several criteria related to reparability, availability of spare parts, and requirements for manufacturers to ensure the availability of repair and professional maintenance information for independent professional repairers.

In the EU context, several policies important for repairs still need to be adopted at the national level, such as new tax rules and consumer laws. There is, however, limited research about an appropriate policy mix for stimulating repairs at the national level. This research presented in this report explores these issues in a Swedish context. It presents three investigations:

1. A literature review of national initiatives to promote consumer repairs, with a focus on EU countries, to see what Sweden can learn from other nations;

2. An interview study with relevant Swedish stakeholders to obtain their views on the drivers and barriers for repair in Sweden, and what policies should be used to move forward;

3. Interviews with repairers to investigate whether the changes in Swedish tax law, adopted in 2017 with the aim to support repairs, have had any impacts on repairs in Sweden.

The literature review found many relevant initiatives related to repairs among EU Member States. However, at this stage many are mainly propositions and intentions without details of impacts or even implementation. Flanders can be considered to be the frontrunner, as it has implemented policies that have simplified the repair processes and supported repair centres, have initiated collaborations between municipalities' waste management operations and reuse centres, and have adopted a quality label for repaired electrical products.

There are several policies in other EU member states that Sweden should consider, including:

- A proposition similar to the Scottish Circular Economy Bill, making the importance of a CE a legally supported issue, permeating the entire government.
- Different design strategies that hinders repair and promote obsolescence could be criminalized, as in France, where deliberately designing for planned obsolescence is against the law.
- Consumer warranties should be enhanced and be specific, similar to Finland, in order to promote a more long lasting product that is easy to repair.
- Initiatives in Flanders that make it mandatory for municipalities to collect bulky household waste from inhabitants. This, in collaboration with regional changes in waste management, would encourage repair and reuse.
- Implement certifications that prioritise job markets within the repair sector as has been done in France.

In the second part of the study, interviews were conducted with organisation representativea and stakeholders in repair to inquire about their views related to 1) drivers and barriers for repairs and 2) what national policies could be used in Sweden to promote repairs. 33 organisations were approached, and interviews were conducted with nine Swedish and one Norwegian organisation. Further, six organisations did not have the opportunity to be interviewed, but instead shared documents with relevant information, which were included in the study. The low cost of new products were considered a key barrier for repairs, as was the limited access to high-quality repair services. Thus, policies that promote the purchase of expensive, high-quality products are important. While changed pricing, e.g. through taxes, is desirable, it may not be feasible. The proposals of how to move forward included developing extended producer responsibility (EPR) into individual producer responsibility (IPR), influencing the general public through the right communication channels (e.g. influencers), and change the rules of consumer guarantees and when the burden of proof for a faulty product is transferred from the producer to the consumer. Many of the respondents thought that measures that raise the price of products and resources could be combined with other measures such as lower taxes on labour, reduced VAT on repairs, and information. The interviewees also stressed the importance of EU rules on eco-design.

The underlying reason for the lop-sided price relationship between new products and repaired products is due to externalities not accounted for in the price of new products. Therefore, the price of newly produced products should increase, and this is a more important strategy than decreasing the cost of repairs. Nevertheless, most of the environmental pollution and resource depletion occurs outside of Europe, and thus difficulties arise with internalizing these costs in the price.

The third part of the study evaluated if two changes in Swedish tax law, adopted in 2017, have had any effects on the repair. One adopted measures reduced the value added tax (VAT) for some repair services, whereas the other allowed consumers to make a tax deduction for some repairs made at home. Interviews were made with 22 repairers in four different sectors; shoes, bicycles, white goods and IT goods. 9 out of the 22 interviewed companies have noticed an increase in the number of repairs executed since the implementation of the tax changes in 2017. However, the majority of the companies could not determine if the increase was caused by the tax deductions or not. The results differed from sector to sector. The majority of the interviewees of the bicycle and IT repair sectors could see that an increase in the number of repairs had happened. On the other hand, the majority of companies in the other two repair sectors, white goods and shoes, did not observe any changes. The reason no changes were noticed in the white goods sector might be as one company explained it: it does not depend on whether the taxes are low or not, but rather the high purchasing prices for white goods. For shoes, it is mainly consumers that purchase high-quality shoes that take them to the cobbler, and they are probably not influenced very much by the price of the repair.

Interviewees from most sectors (all but the bicycle sector) mentioned that there is a lack of knowledge regarding the tax change among their customers. The interviewees mentioned several barriers to the repair sector: lack of knowledge regarding the tax changes, the slight difference in prices between repair and buying new products, product quality, extra work to apply for tax deduction and unrepairable product designs, and low price of new products.

A bit surprisingly, five of the interviewees within the shoe, bicycle, and white goods repair sectors mentioned that they have enough customers and therefore did not give an answer on how to increase the number of repairs. Policies that promote more repairs may lead to more competition for the current workshops, something that is not going to be beneficial in the short term. Thus, it is not a given that the current actors in the repair sector want to expand the sector.

We can conclude that the future of the repair sector, and how repairs are promoted within the circular economy, is dependent upon both EU and member state policies. For Sweden, there is no 'silver bullet' solution to promote repairs, but most likely it will require a lot of different policies that change the prices on the market and change the culture among consumers. Revising current consumer laws and consumer information campaigns may be the most relevant starting points.

Chapter 1 - Introduction

Throughout the European Union (EU), there is an increasing interest in moving towards a more circular system, or a Circular Economy (CE), where waste generation is decreased through prevention, repair and reuse. Achieving a CE requires relatively large alterations to the manufacturing industries, consumer attitudes and waste management practices.

Longer-lasting products and better recycling processes are key strategies in this transition, and there is also a need for more circular business models where material loops are slowed, and demand for new raw materials decreases.

If more sustainable design and manufacture of products leads to higher-quality products with increased durability, this is likely to increase incentives for product repair and remanufacturing. Remanufacturing and reparation businesses can also serve as a source for new jobs (Dalhammar & Milios, 2016).

There is currently a lot of interest in the European Union (EU), the United States (US), and among many other countries to promote product repairs. In the US, the proposed policies are mainly motived from a consumer rights' perspective, focusing on consumers' right to repair their goods. In the EU, the interest for promoting repairs is also seen as strategy to save resources, which can contribute to the vision of a CE (Svensson et al. 2018).

However, the current situation is quite different compared to the 'good old days' when societies had a thriving repair sector for consumer products:[1] today it is rather cheap to buy new stuff and quite expensive to repair products. Further, many products are of rather low quality and have a limited lifespan, which undermines the economic case for repairs. Further, repairs is no longer part of the everyday culture in modern societies; citizens are not very used to repair their own stuff, and less inclined to hand in broken products for repair than they used to be.

The choice to repair a broken device, or not, is primarily a consumer decision, based on a number of factors, such as the possibilities to repair, the price and functionality comparison between the repair and a new purchase, the convenience and time, consumer needs, and fashions. Consumers with a broken device are faced with four options (Deloitte et al. 2016): 1) contact the seller, the OEM's repair division or authorized repair service provider; 2) approach a local, independent repairer; 3) perform the repair themselves (DIY); or 4) discard and replace the product.

The main barriers for repair include:

• Total costs of repair

• Time and convenience of repair

• Lack of trust,

• Risk of poor quality

[1] We still have large repair sectors, and significant remanufacturing sectors, for durable products such as cars and other vehicles. Less so for more ordinary consumer products like shoes, textiles, ICT and white goods.

• Obsolescence (e.g. system incompatibility or lack of support)

• Availability of cheap new products

• Cultural aspects, such as desire for novel products

Generally speaking, creating a fertile environment for repairs is dependent upon three main pillars (Svensson et al. 2018):

1. **Access to repair and right-to-repair**: this includes a number of fundamental issues affecting access to repair and competition in the repair sectors, such as whether consumers have the right to repair the product at an independent repairer, and whether independent repair shops can repair it (are they allowed to do so? Can they get access to spare parts, tools and manuals necessary to conduct the repairs?).

2. **Competitive repair**: whether repair is economically attractive is dependent upon a number of issues, such as the price of labor for repairs (dependent upon taxes and VAT), the price of spare parts, and the product design (many modern products are hard to take apart, and thus costly to repair).

3. **Mainstream repair**: this includes measures to increase knowledge about repair possibilities and make repair trendier, including repair cafes.

A number of policies could be deployed to support repairs, cf. table 1. In a European context, some of these policies must be adopted by the EU, whereas others need to be adopted by EU member states.

• Ecodesign requirements for durable quality products that are easy to repair and disassemble
• Information requirements to consumers about the expected lifetime and reparability
• Extended legal guarantees and burden of proof on producers
• Conditioning of consumer choice of legal remedy in favour of repair
• Obligation to produce and right to access spare parts at reasonable costs
• Removal of legal barriers to repair (e.g. copyright and patent)
• Progressive tax or financial malus on low-cost non-repairable products and/or tax rebates or other discounts to durable and repairable products
• Tax deduction for the repair sector and/or for consumers who engage in repair activities
• Labeling schemes to guarantee the quality of repaired or remanufactured products
• Requirements about durability and reparability in public procurement rules
• Requirements to offer repair services and take-back in store
• Repair cafés and activities to raise awareness

Table 1: Potential policies and initiatives to support repair.

Several states in the US have proposed 'right-to-repair' (R2R) laws to force OEMs to open up for independent repairers (Svensson et al. 2018). In the EU, eco-design regulations for 10 products groups were recently adopted with several criteria related to reparability, including requirements on product design that makes repairs easy to perform, requirements on the

availability of spare parts, obligations that repairs should be possible with commonly available tools, and mandating manufacturers to ensure the availability of repair and professional maintenance information for independent professional repairers.[2] The EU is also discussing additional policies such as labeling requirements related to reparability of products.

In the EU context, an effective policy mix for repairs is also dependent upon policy measures adopted at the national level. For instance, several EU member states have provided longer consumer guarantees in consumer law than required by EU law. Details of many of these. In January 2017, Sweden reduced the Value Added Tax (VAT = MOMS = mervärdesskatt) for some product repairs from 25 % to 12 %. At the same time, rules on RUT-avdrag with 50 % of the working cost for repairs for white goods and ICT and consumer electronics were adopted.

While Sweden is not considered to be one of the pioneer countries for the CE, the Swedish tax measures for stimulating repairs (above) received a lot of attention internationally. However, the effects of the measure are unknown. There is also some evidence Sweden is also a leader when it comes to green and circular public procurement, e.g. through procurement of remanufactured ICT and furniture.

There is limited research about an appropriate policy mix for stimulating repairs at the national level. This report accounts for research that looks into these issues in a Swedish context. It accounts for three different investigations:

1. A literature review of national initiatives to promote consumer repairs, with a focus on EU countries, to see what Sweden can learn from other nations (Chapter 2);
2. An interview study with relevant Swedish stakeholders to obtain their views on the drivers and barriers for repair in Sweden, and what policies that should be used to move forward (Chapter 3)
3. Interviews with repairers to investigate whether the tax changes adopted in 2017 have had any effects on repairs in Sweden (Chapter 4)

Each chapter details the methodology of the particular investigation, its results, and a discussion of the results and implications for policy for repair in Sweden.

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Chapter 2 - National repair initiatives within the European Union and its Member States

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The aim of this chapter is to present existing and planned policies on an EU level, and national policies among EU Member States, regarding product repair promotion initiatives for consumers. Existing barriers for repair choices are also examined. Finally, the chapter takes a closer look into Swedish policies regarding product repair and what can be learned from other Member State initiatives that could be relevant for the Swedish context.

Method

As part of this research, a literature review was carried out in order to compile existing national initiatives promoting consumers to choose product repair. The initial research was carried out based on articles and reports received from Carl Dalhammar and Jessika Luth Richter. Thereafter, references from those reports were examined, using the snowball method (Snyder, 2019). Directives and legislations regarding repair were researched using directed Google searches and the search functions within the European Commission and different governmental web pages. After an initial analysis of findings on repair strategies within the EU, some countries were selected for a more extensive look into national policies. The countries selected were those that, after introductory research, appeared to have come furthest with implementing a CE perspective regarding consumer repair choice. Further, several existing compilations regarding Member State waste management and CE strategies were studied when choosing selected countries. Due to the time constraints of this study, EU countries with policy information in other languages than English or Swedish were not analysed. Keywords used the literature review were *Policy, European Union, Circular Economy* and *Repair*.

Findings

Barriers to repair

There are several reasons as to why consumers choose to not repair products. Svensson et al (2018) compiled a list of possible barriers to repair and categorized these into three levels. These categories are access to repair, competitive repair and mainstream repair (Figure 1). When striving for a CE, all three levels must be considered, starting with “access to repair”. Access to repair is mostly restricted by legal/non-legal barriers, while competitive repair focuses on factors that make it more difficult or expensive for consumers to choose the repair alternative. To reach the top category of mainstream repair, consumer preferences and attitudes need to be altered to favour repair when possible, in addition, to the bottom two categories being already sufficiently fulfilled (Svensson et al., 2018). In this study, focus lays on access to repair, since legislation, other policies and initiatives are examined. Competitive repair and mainstream repair will not be studied in detail.

Figure 1. Barriers for repair, categorized into three levels (Svensson et al., 2018)

Barriers in access to repair can be exemplified by waste legislation restricting repairs. Reparability of products is an issue that is only partially addressed by the EU (Deloitte, 2016). According to the EU Waste Framework Directive (2008/98/EC), products that are discarded are subsequently defined as waste and subject to legal measures regarding waste management. According to article 6 (1) waste ceases to be waste after having undergone recovery processes (Directive 2008/98/EC). Therefore, it can be assumed that discarded products cannot be re-attained into a circular system without being subject to recovery processes, such as recycling. In addition, chemical legislation has been updated with the purpose to phase out harmful chemicals in new products. This results in difficulties with reusing and recycling older products containing these chemicals (Dalhammar & Milios, 2016). In fact, if second-hand stores choose to sell products that contain chemicals that are currently regulated, they must pay an allocated tax in order to sell them (Nilsson et al., 2017). This impairs the willingness to handle such second-hand products.

Another legislative barrier to repair is the Waste Electrical and Electronic Equipment (WEEE) Directive (2012/19/EU) addressing electronic waste. The directive does not currently apply hierarchical criteria prioritizing reparation; rather equating repair, recycling and recovery of raw materials and setting targets that can be met only by recycling and recovery (Deloitte, 2016). This is problematic when striving for a more CE because repair should be prioritized. Further, according to the Directive (2012/19/EU), when discarded products are defined as waste, transporting defective electronic products within or outside the EU in order to remanufacture or recycle them is no longer possible. Regulations put in place to prevent illegal export of waste products classify electric products as waste when they are discarded and therefore there are limits to where they can be managed (Dalhammar & Milios, 2016: SOU 2017:22).

Intellectual Property Rights (IPRs) are another legal barrier, by restricting access to manuals and spare parts due to patents and copyrights (Svensson et al., 2018). Regarding non-legal barriers, the issue of planned obsolescence in products is of importance. Currently, there are no clear legislative measures on an EU level to oppose this. Despite this, laws have been introduced on a national level in, for example, France, where planned obsolescence was criminalized in 2015 (McVeigh, Dalhammar & Richter, 2019; Svensson et al., 2018).

There are currently several difficulties regarding the development of repair culture, such as problems with the ability to prolong second-hand product warranties and responsibility allocation (IIIEE, 2018). It is apparent that policies on an EU level are lacking in order to regulate these difficulties.

Policies for repair on the EU level

The Waste Framework Directive (2008/98/EC)

The Waste Framework Directive (2008/98/EC) promotes waste reduction and defines different waste management concepts, including recycling and reuse. The Directive provides Member States with basic waste management principles. Furthermore, the Directive includes the waste management hierarchy; a priority pyramid for the Member States to implement, clarifying how resulting waste should be treated (2008/98/EC). Member States are encouraged to prevent initial generation of waste, though at its occurrence, to prioritise repair and reuse of products, followed by recycling, recovery and lastly, disposal. Repair and reuse will always be beneficial in order to prevent extraction of new raw materials (Gåvertsson, Milios & Dalhammar, 2018).

The Ecodesign Directive (2009/125/EC)

The Ecodesign Directive (2009/125/EC) encourages improvement of environmental performance of electronic products (European Commission, n.d.*a*). The Directive describes the minimum requirements for product energy efficiency. The implementation of the Directive beneficially results in the elimination of poorly performing products from the market. The main focus of the Directive is energy efficiency; however, it can be used to regulate other aspects of the product life cycle (Dalhammar, 2014). To incentivize consumers to choose product reparation, products need to meet a certain quality standard and potentially engage some level of sentimental value. The Ecodesign Directive, encourages product development in the direction of increased quality, hence potentially leading to an increase in product reparation and/or reuse (Dalhammar, 2014).

On October 1st, 2019, ten new rules regarding ecodesign for certain products were accepted by the European Commission. These rules must be implemented by Member States by 2021, and include regulations regarding the availability of spare parts, stating that they should remain available from the producer up to a decade after purchasing a product (European Commission, 2019*c*).

The Waste Electrical and Electronic Equipment (WEEE) Directive (2012/19/EU)

The new WEEE Directive (2012/19/EU) became effective in February 2014, replacing the old WEEE Directive (2002/96/EC) from 2003. The main objective of the Directive is to promote reuse, recycling and recovery of electric equipment (Directive 2012/19/EU). The Directive sets criteria on the collection, treatment and recovery of such waste (Directive 2012/19/EU). Electrical waste is one of the fastest growing waste streams in the EU, with an annual growth rate of 3-5% (Deloitte, 2016; Gåvertsson, Milios & Dalhammar, 2018).

Consumer Sales and Guarantees Directive (1999/44/EC)

According to the European Commission, the Consumer Sales and Guarantees Directive (1999/44/EC), “aims to harmonise those parts of consumer sales contract law that concern legal guarantees and commercial guarantees” (European Commission, n.d.*c*). The Directive clarifies

that any product bought within the European Union will be covered by a consumer guarantee for 2 years. During this time, the producer must ensure that the product is usable and functioning. However, after 6 months the consumer must personally prove that the product was defect at the time of purchase and not due to mishandling (Deloitte, 2016). In relation to repair, this policy increases the reliability of buying repaired goods, hence encouraging consumers to buy repaired products.

Circular Economy Action Plan

Furthermore, the EU commission adopted a Circular Economy Action Plan in 2015, with goals aiming to be completed in 2019 (European Commission, 2019*b*). The Action Plan consists of 54 actions meant to support a CE. The work with implementing the actions will continue beyond 2019, until all 54 actions are completed.

National policies and initiatives

The current level of initiatives regarding CE and repairs in the EU differs between Member States (Deloitte, 2016). This is partly due to the lack of comprehensive EU legislation. Therefore, it is up to each Member State to implement repair related initiatives that extend beyond the existing Directives. The following section compiles current or upcoming national policies and initiatives encouraging consumer repair choice.

Belgium

The Belgian government has clear targets for waste reduction (European Environment Agency, 2019*a*). One target targets WEEE; the Belgian government aims to reduce electronic waste by 50% by 2023 compared to 2017 (European Environment Agency, 2019*a*). Moreover, waste prevention measures are stated for overall waste reduction in accordance with the Waste Framework Directive. Innovation in the repair, reuse, and remanufacturing sectors are important to achieve this (European Environment Agency, 2019*a*). Another strategy the Belgian government has applied to reduce waste generation is to support individual and collective sustainable consumption behaviour, which in turn is supported by choosing repair. For example, the Value Added Tax (VAT) on small reparations on items such as bicycles, shoes etc., have been reduced by the Belgian government from 21% to 6% (European Commission, 2019*d*). The Belgian government also aims to organise activities for repair of household equipment, such as local repair projects.

The Belgian-based organisation, RReuse (Reuse and Recycling European Union Social Enterprises), is an international, non-governmental network that represents social enterprises that focuses on reuse, repair and recycling, with the ambition to " [...] move EU and national governments from promoting just recycling and waste management to putting second-hand first" (RReuse, n.d.*a*). RReuse is an umbrella organisation and has active members in 25 European countries (RReuse, n.d.*a*). One of RReuse's missions is to establish a CE; for example, by ensuring that policies regarding CE are followed by the RReuse members providing remanufacturing of electronic waste and by raising awareness among consumers through campaigns (RReuse, n.d.*a*). RReuse promotes a specific strategy that enhances cooperation between actors in the value chain. This policy is meant to prevent goods from being destroyed prematurely (RReuse, n.d.*b*).

There are many local small-scale initiatives in Belgium, such as the project *Closed Loop clOthes System to Rent and Repair (Closerr)* (European Commission, 2019*a*). The responsible organisation is Tale Me, and the project promotes renting and repairing high quality children's clothes. Reparations prolong the use phase of the clothes in the renting system, leading to less consumption (European Commission, 2019*a*).

Belgium is divided into three different regions. Flanders is the most northern federal entity (Vandeputte et al., 2015). Despite its densely populated and developed cities, Flanders has an extensive waste management system and is considered a front runner regarding the prevention of waste generation. Further, Flanders has many regional initiatives that promote reparability of products. Since 1990, when their *Solid Waste Management Plan* was established, it is mandatory for the municipalities within Flanders to provide collection of bulky household waste at least twice annually. Products that can be remanufactured or recycled are sorted from this waste and reusable products are delivered to reuse centres (Vandeputte et al., 2015). This collaboration between reuse centres and the municipalities' waste management lead to the introduction of the Federation of Flemish Reuse Centres (KVK) which was later developed into the Federation of Environmental Entrepreneurs in the Social Economy (KOMOSIE). KOMOSIE is a non-profit umbrella organisation, which requires that the reuse centres involved are accredited by a third-party organisation, OVAM (the Public Waste Agency of Flanders) (Vandeputte et al., 2015). These reuse centres partly gain revenues from their sales of remanufactured products and materials to the recycling sector, but mainly from governmental subsidies (Vandeputte et al., 2015). Due to the implementation of legislation covering an obligated take back of electronic equipment, it became compulsory for the waste to go through reuse centres first, before being sent to recycling, hence prioritizing according to the waste hierarchy. Further, purchased remanufactured electric products can be labelled with the quality label "Rivise". This label was established by the network De Kringwinkel shop, and guarantees the purchaser that the product has been audited and that it is of high quality (Vandeputte et al., 2015).

France

The French government has developed a roadmap for CE, *50 measures for a 100% circular economy* (Ministry for an Ecological and Solidary Transition & Ministry for the Economy and Finance, 2018). The roadmap is extensive and as the title indicates - it states 50 measures that will lead France into a CE. Measures concerning repair are listed below although the roadmap is far more comprehensive. Further, repair is relevant for the entire strategy, but not all points are included here.

No. 6, *From 2019, adapt professional skills for better production at national and regional levels:* To achieve this, the French government will create certifications for skills that are recognized as a contribution towards a CE, and enhance the value of these jobs. Jobs within repair and reuse are areas that will gain extra focus (Ministry for an Ecological and Solidary Transition & Ministry for the Economy and Finance, 2018).

No. 8, *Increase the number of actors in reuse and repair sectors and in the economy of functionality:* With this measure, the French government intends to organize the repair sector and make it more accessible for consumers as well as more competitive. To achieve this, the French government will, for example, set reuse and repair targets to extended producer

responsibility (Ministry for an Ecological and Solidary Transition & Ministry for the Economy and Finance, 2018).

No. 10, *Simple information on reparability:* The French government aim to take this to an EU-level, so that simple reparability information is harmonized throughout the EU (Ministry for an Ecological and Solidary Transition & Ministry for the Economy and Finance, 2018).

No. 41, *Unprecedented communication efforts:* The government of France will inform the general public about sustainable consumption, but also about repair and reuse (Ministry for an Ecological and Solidary Transition & Ministry for the Economy and Finance, 2018).

No. 42 *Raise awareness and educate:* Product repair will be part of educational projects (Ministry for an Ecological and Solidary Transition & Ministry for the Economy and Finance, 2018).

Furthermore, in 2014 and 2015, the French government adopted two amendments to the Consumer Code, with a focus on criminalizing planned obsolescence and improving product reparability (Maitre-Ekern & Dalhammar, 2016; European Environment Agency, 2016*a*). To improve product reparability, the amendment requires sellers to inform consumers about the availability of spare parts and producers to deliver those parts. If this is not achieved, the seller and/or the producer can be fined (Maitre-Ekern & Dalhammar, 2016). This policy simplifies the repairing process for consumers. Regarding planned obsolescence, the French Parliament introduced a new law criminalizing intentional planned obsolescence (Maitre-Ekern & Dalhammar, 2016; European Environment Agency, 2016*a*). Indirectly, this law also contributes to simplifying the process of obtaining spare parts for specific products (Dalhammar, Milios & Richter, 2019).

Finland

The Ministry of Environment in Finland has adopted a national waste plan, *From recycling to a circular economy* (Laaksonen et al., 2018). The plan lays out objectives for national waste management, and the strategies needed to reach them. The aim is to reach the targets within the plan by 2023. One strategy includes studying different economic instruments to boost repair and maintenance services (Laaksonen et al., 2018). Proposals have been stated that VAT for repairs regarding shoes, bicycles, home textiles, clothing and leather goods will be reduced in the future. Further, municipalities have the option to enable repair trough providing low cost premises and publicity for small repair services (O'Leary, Cunningham, & Coakley, 2017). Regarding the WEEE directive, the Ministry suggests that reuse expertise (referring to identification, repair, and preparation for reuse) should be strengthened within the producer responsibility system. Another measure is to increase the consumer information about repairs of EEE products (Laaksonen et al., 2018).

In addition to the national waste plan, the Finnish government has implemented policies regarding warranty lengths (Maitre-Ekern & Dalhammar, 2016). Products purchased in Finland do not come with a specified number of years for a warranty, regardless of whether it is a primary production or second-hand product. The length of the warranty is instead decided based on the predicted lifespan of the product (Maitre-Ekern & Dalhammar, 2016). This measure is unique in the EU.

The Netherlands

Since 2013, the Dutch government has worked to develop a more circular and sustainable waste management. Their programme, *Afvalpreventieprogramma Nederland* (Waste Prevention Program Netherlands), aims to implement more structured waste prevention and contains methods to reduce waste generation and to ensure more efficient resource handling (European Environment Agency, 2016*c*). To achieve these goals, the programme involves different control means; from government policy to more efficient product manufacturing. This includes activities that, for example, cover improved ecodesign and increased information access for the public. Furthermore, infrastructure development is to be carried out to encourage reuse, with leasing and sharing business models being promoted (European Environment Agency, 2016*c*).

The Netherlands also implemented a national roadmap towards a CE that aims to reach set targets by 2050 (Government of the Netherlands, 2016). The roadmap creates a framework for the government, describing what national goals regarding CE have been or will be implemented, how the goals will be achieved, and by whom they will be carried out. For example, the roadmap includes a goal that states a 50% reduction of the primary raw materials used today by 2030 (Government of the Netherlands, 2016). According to the roadmap, by 2050, only a small part of the overall consumption will be sourced from primary raw materials, with extraction being achieved with as little impact on the environment as possible (Government of the Netherlands, 2016). This will most likely involve more efforts working toward repair, since waste prevention and slowing of material loops are key factors in reducing consumption (Richter & Dalhammar, 2019). The Dutch government has also reduced their VAT on minor repair services, for example within the shoe- and bicycle sector, from the original 21% to 9% (European Commission, 2019*d*).

United Kingdom

The government of the United Kingdom decided in 2013 on a programme, *Prevention is better than cure*, which aims to reduce the amount of waste produced but also to reduce the impact of the waste that is produced (the United Kingdom Government, 2013). The UK government will develop a two-year scheme which intends to support communities to take innovative actions within the areas of re-use, repair and other waste preventive measures, working together with local businesses, authorities and civil society groups. This scheme is funded with £800,000. Further, the government developed the Waste and Resource Action Programme (WRAP), a web-based postcode locator tool which enables consumers to find nearby recycling or repair services. In 2014, the recycling aspect of WRAP became available, and the re-use aspect was added in 2015 and repair options of WRAP were considered in 2015/16 (the United Kingdom Government, 2014).

In addition, the UK government will provide clarification on the application of the definition of waste to reuse and repair activities. This intends to help businesses and other organisations recognise opportunities concerning reuse and repair, but also to harmonise the regulatory approach throughout England (the United Kingdom Government, 2013). Further, the UK government together with industries, will explore how Individual Producer Responsibility (IPR) can be implemented. This is meant to benefit industries in their design and manufacture stages, enabling them to produce products that are more easily reused, repaired, and recycled (the United Kingdom Government, 2013). The idea of IPR is that a producer holds a responsibility to manage the end-of-life treatment of products. In contrast to Extended Producer

Responsibility, which is most often implemented through collective producer organisations, IPR differentiates producers and their products. This in turn, is meant to create an incentive to design products that are more easily repaired or recycled, to lower end-of-life management costs (van Rossem, 2008).

The UK government will also act to raise awareness about resource efficient products and business models and supply chain innovations. For this, the government has invested £900,000 in different schemes regarding take-back for resale or hiring/leasing (the United Kingdom Government, 2013). One example is the case of ICT products where products can be owned by a service-based company that leases the equipment to other companies. The ambition with these schemes is to create incentives for industries to produce durable equipment that is easily repaired or upgraded. The repaired or upgraded equipment can then be transferred to other users. The result is varying price levels for different products that are suitable for different consumer budgets, and that at the end-of-life stage there are parts suitable for re-use (the United Kingdom Government, 2013).

Regarding a CE, a leading example within the UK is Scotland. In 2016, the Scottish government introduced a new strategy, *Making Things Last, a Circular Economy Strategy for Scotland*, aiming to align the country's economic and environmental ambitions (Ellen McArthur Foundation, 2017). The CE strategy developed in *Making Things Last* is currently expanding, with a recent coalition of Scottish civil society organisations calling for a Circular Economy Bill, to which the Scottish government has responded with a legislative outline (European Union, 2019). The Scottish government is hoping to pass the bill in 2021 and implementation is expected between 2023 and 2025 (The Scottish Government, 2019). The bill devotes an entire section to reuse, but focuses mainly on the discussion of waste reduction (i.e. prevention of initial occurrence). The concept of product reparation, and therefore initiatives to encourage consumer repair choice is not of primary concern, but rather incorporated into preparation for reuse (The Scottish Government, 2019). Although *Making Things Last* leaves much to be desired when it comes to specific repair policies, the government-funded organization Zero Waste Scotland has major funding projects concerning repair that seem to be aiding in consumer choice (Zero Waste Scotland, 2019). This includes *Revolve*, a national re-use standard "supporting reuse businesses to meet legal, regulatory and trading standards requirements as well as provide retail training and support to improve the overall customer experience" (Zero Waste Scotland, 2019). The standard provides product security for consumers, encouraging the option of purchasing repaired products. Furthermore, Zero Waste Scotland has established three large repair hubs that aim to support partnerships between the organization and repairers, while also expanding an online platform to increase consumer awareness (Zero Waste Scotland, 2019). Finally, the organization provides funding of seven third sector organizations to expand repair training that covers furniture repair, electronics repair and textile repair (Zero Waste Scotland, 2019).

Other Member State initiatives

Comprehensive national repair initiatives from five EU Member States have been analysed above, yet there are several other initiatives for a CE on national, regional and local levels throughout the EU. Although progress toward establishing targets for implementing a CE is common in several Member States, relatively few have strong objectives regarding repair

specifically. Nevertheless, repair initiatives within Member States with less permeating CE plans are discussed below.

As previously mentioned, some Member States (Belgium and The Netherlands) have implemented VAT reductions for repair services. Some reductions have led to VAT for repair services being as low as 5% for Malta, but with most VAT on repair landing at around 6-9% (European Commission, 2019*d*). Repair services that are covered by the reduction include repairs to bicycles, shoes, leather goods and some textile goods. Member States beyond Belgium and The Netherlands that have implemented VAT reductions include; Malta, Luxembourg, Ireland, Poland and Slovenia. Portugal also has reduced VAT repair, albeit covering a smaller number of categories. The Swedish VAT rate on repair is discussed in Chapter 4.

Regarding the implementation of concrete policy in favour of repair, such as tax reductions, Italy has followed the French example concerning legal action against planned obsolescence (Franceschi, 2018). In 2018, the Italian Competition Authority fined the companies Apple and Samsung under separate occasions regarding Unfair Commercial Practices as found in Directive 2005/29/EC and found the offense to be a violation of the Italian Consumer Code, causing product failure earlier than necessary (Franceschi, 2018; Kahlin Mcveigh, Dalhammar & Luth Richter, 2019). Apple was fined 10 million Euros and Samsung 5 million Euros (Franceschi, 2018). Although the fundamental underlying reason that legal action against Apple and Samsung could be taken was not an environmental one, the effects certainly help tip the scale toward constraining planned obsolescence and encouraging product quality.

Several Member States have a published strategy or roadmap for a CE, in fact, as of 2019, 33 strategies from 14 countries have been adopted on a national, regional or local level within the EU (European Economic and Social Committee, 2019). The topic of repair, reuse and refurbishment is the most frequently occurring subject matter in the strategies, indicating a growing realization of the significance of these building blocks within a CE (European Economic and Social Committee, 2019).

Strategies vary in detail and specificity (i.e. clear targets) and in the level at which repair is incorporated into the CE perspective. For example, *Strategy for Circular Economy* (2018) from the Danish Government and *Roadmap Towards the Circular Economy in Slovenia* (2018) from the Ministry of the Environment and Spatial Planning of the Republic of Slovenia, are good examples of comprehensive initial strategies that incorporate the subject of repair into the entire documents in a more general way.

Other strategies have different focus areas in which suggestions concerning the importance of more repair are given. The Italian strategy *Towards a Model of Circular Economy* (2017), is one such example. Examples of two focus areas in the strategy are production and consumption. Regarding production, the Italian Ministry for the Environment aims to replace obsolete products to favour products of quality where maintenance extends the product life cycle (Ministry of the Environment, 2017). The Ministry intends to incentivize repair activities for consumers. It is positive that the government intends to encourage repair on many levels, yet how the Italian government will accomplish this is not clear.

Some strategies have clearer targets regarding repair. The strategy provided by the Environmental Administration in Luxembourg, *Plan national de gestion des dechets et de*

ressources (Eng: National Waste and Resource Management Plan) (2018) aims to promote reuse and repair by 2022, by for example, developing a platform where consumers can easily locate local repair centres. Further, the Luxembourg strategy aims to create a framework for green jobs, including jobs within the repair sector (Luxembourg Environmental Administration, 2018). Similarly, the strategy developed by Greek Ministry of Environment and Energy, *National Circular Economy Strategy* (2018), ensures the implementation of a VAT reduction on repair services in the future, as well as shifting labour tax to material tax. Further, there is an ambition to provide the availability of spare parts for different products (Ministry of Environment and Energy, 2018).

Although many Member States have initiated plans for a more CE as a response to diminishing resources and a need for sustainability action, there are still 14 EU countries without CE strategies or similar (European Economic and Social Committee, 2019). However, several Member States are currently in the process of developing such strategies, such as the Czech Republic, planning to release a CE strategy before the end of 2019 (European Economic and Social Committee, 2019). Furthermore, there are examples of collaborative initiatives for CE strategies. The EU macro region of Danube, led by Chamber of Commerce and Industry of Slovenia, developed *the Danube Goes Circular* (2019). The subject of repair is discussed in the strategy, though more on a general level. The RReuse umbrella organization mentioned under the section on Belgium is another collaborative initiative among Member States that could be replicated or expanded to include other countries.

Sweden

The Swedish government has implemented environmental taxes within the transport and energy sector (SOU 2017:22). In total, Swedish taxes concerning the environment make up 5% of overall tax revenues, which is significantly lower than the EU average (SOU 2017:22). Despite this, the Swedish government is trying to turn this trend, both by implementing tax reduction for repair and proposing new strategies to promote a market favoured by repair (SOU 2017:22).

According to the Swedish tax law regarding VAT (Mervärdesskattelagen (1994:200)), smaller reparation services, including, for example, repairs of shoes and bicycles, are subject to tax reductions, with VAT being reduced to 12% instead of 25% (7 kap. 1§ andra stycket punkt 6 ML). With this policy, the Swedish government aims to make the repair process more accessible, and to promote consumers to choose repair (Hallå Konsument, n.d.). Furthermore, the RUT (Rengöring, Underhåll och Tvätt, Eng: Cleaning, Maintenance and Laundry) tax deduction on repairs of white goods was implemented in 2017 (67 kap. 13§ punkt 9, Revision 2016:1055 in Inkomstskattelagen 1999:1229). This tax deduction relieves the consumer of up to 50% of the total repair labour cost. RUT tax deduction on IT devices was implemented already in 2007 (67 kap. 13§ punkt 8, Inkomstskattelagen 1999:1229). The Swedish government has recently proposed a similar tax deduction on product renting, second-hand products and repair services; the Hyber tax deduction, which would favour repair and remanufacturing (SOU 2017:22). If the Hyber tax deduction is put into place, the repair aspect currently included in the RUT tax deduction, would be transferred to the new Hyber tax (SOU 2017:22).

A fossil free Sweden (Fossilfritt Sverige) is an initiative from the Swedish Government, that aims to guide Sweden into being one of the first fossil free welfare states (Fossilfritt Sverige,

n.d). The initiative includes 27 proposals regarding how Sweden will achieve a fossil free competitive market. Proposal number 10 aims to enable waste reduction and increase circularity by developing waste definitions and legislation concerning classification of waste through more distinct governmental guidance (Fossilfritt Sverige, 2019).

In a Swedish government proposal concerning strategies for sustainable consumption, the government aims to introduce requirements displaying product sustainability, in accordance with the Ecodesign Directive (Finansdepartementet, 2017). The requirements are meant to include more product categories than there are currently. One of the requirements suggestions entails that information regarding repair options will be available on products, similarly to information labels demonstrating how products should correctly be recycled. Furthermore, the government will analyse and suggest policies that are meant to prevent waste to favour a CE (Finansdepartementet, 2017; Naturvårdsverket, 2018).

Discussion

The literature review indicates that EU legislation is insufficient when it comes to successfully implementing a CE, where the waste hierarchy is efficiently implemented, prioritizing product repair. Although many Member States are in the process of establishing policies to move toward a more CE, there are large variations between national initiatives, and some States have a long way to go, especially regarding repair. There are potential benefits associated with further Member State coordinated action regarding reparability of products on an EU level. Varying levels of initiatives among Member States reduces the extent of environmental benefits (Deloitte, 2016). Therefore, improving and expanding current legislation is relevant. Increasing repair initiatives would be more in line with the EU moving toward a CE than focusing on recyclability. Furthermore, it is not inconceivable that the EU can externalize legislation by way of the Brussels effect (Bradford, 2015). Externalization of laws and regulations outside EU borders through the use of markets is a phenomenon that already affects other areas, such as the chemical sector. EU chemical legislation is more stringent than in, for example, North America or China. The EU remains an extensive part of the global market, resulting in the indirect compliance of other nations to EU standards (Bradford, 2015). The potential impact that the EU could have for a CE on the world stage is of huge significance. For example, if the EU were to implement a similar law to the French planned obsolescence directive, this may result in an indirect change to the global market.

As mentioned above, there are many initiatives from Member States that are beginning to implement CE strategies and encouraging consumers to choose repair, where Flanders can be considered to be the frontrunner. With implemented policies that simplify the repair processes and supports repair centres, collaborations between municipalities waste management and reuse centres and the adoption of a quality label on repaired electrical products, Flanders has a well-developed system when it comes to reparability, and has successfully reduced barriers for repair. However, in other Member States there are many propositions and intentions without details on how to attain or implement them. It is clear that guidance on how to reach the set goals are vital for the work to continue. As it appears that implementation of policies to promote repairs is still new, it would be interesting to conduct a similar study in a number of years, to evaluate the progress and to see if the goals have been reached or planned policies have been implemented. If a demand for a more comprehensive EU legislation were to emerge, by

advancement of repair policies among the Member States, the EU would sooner or later be forced to act upon it. A demand can also arise from an uneven playing field on the EU market, triggered by non-regulatory initiatives amidst the Member States (Dalhammar, 2017).

Swedish policy is lacking when it comes to product repair. Although the VAT deduction is a positive initiative, more can be done on a policy level to improve prerequisites for reparation (SOU 2017:22). Difficulties regarding reparation subsist; many products are not encompassed by the reduction, such as non-IT electrical appliances or furniture; IT and white goods have to be repaired inside the home; and finally, the deduction is arguably not low enough to significantly alter consumer choice (SOU 2017:22). The Swedish Environmental Agency (Naturvårdsverket) performed a consumer survey during 2019 regarding the attitude toward repairing of textiles. The survey showed that 93% of the participants were positive to the idea of repairing their clothes and textiles, if they knew that it would have a positive effect on the environment (Naturvårdsverket, 2019). Even though this survey focused on the textile sector only, it could be interpreted that the Swedish inhabitants have a will to repair products.

Sweden, unlike Finland and the Netherlands, has focused on the climate in a broader view. For instance, the initiative "Fossilfritt Sverige", aims towards a fossil free state, in which repairs may very well be a relevant aspect to consider. The Netherlands and Finland, however, have a more targeted view, where the focus of the CE efforts is on the economic part. Instead of implementing broad programmes meant to reduce overall emissions, it may be more efficient to enforce a targeted action, such as implementing policies in line with the principles of CE.

It should also be mentioned that the analysis carried out in this chapter is limited to published documents. There may be repair cultures present in less economically developed parts of Europe, with undocumented repair activities and initiatives on local or regional levels. It would be interesting to investigate repair that occurs outside the scope of CE strategies and roadmaps. Member States that have a majority of their generated waste ending up in landfills, could potentially bypass the stage of increasing recycling, and directly implement strategies to prioritize repair, reuse and manufacturing.

Suggested policy improvements for Sweden

There are a number of improvement measures conceivable for Sweden regarding promotion of repair. Firstly, it appears that Sweden lacks an overall plan, or steering document concerning repair, with clear instructions on how to achieve the set goals. A roadmap should be seen as an essential part towards a more CE, to enable a more comprehensive understanding of how a CE permeates all of society. Second, although Sweden has implemented a VAT reduction regarding repair, there are no other policies that explicitly promote repair. However, as explained above, this seems to be the trend among the rest of the Member States that are investigated in this study. Below, we have categorised suggestions for Sweden concerning promotion for repair.

Suggestions for legislative initiatives:

- Sweden could establish a proposition similar to the Scottish Circular Economy Bill, making the importance of a CE a legally supported issue, permeating the entire Swedish government. Sweden has a delegation for CE that recently presented a communication on a national strategy for a CE, directed towards the Swedish government

(Delegationen för circular ekonomi, 2019). This is a step forward, but it needs further attention and legal support.

- Different design strategies that hinders repair and promote obsolescence could be criminalized, as in France, where deliberately designing for planned obsolescence is against the law.
- Warranties should be enhanced and be specific similarly to, for example Finland, in order to promote a more long lasting product that is easy to repair.
- The Swedish government should follow the initiatives made in Flanders and make it mandatory for municipalities to collect bulky household waste from inhabitants. This, in collaboration with regional changes in waste management, would encourage repair and reuse. Also, policies that make it easier for reuse centres to open and operate due to subsidies should be implemented.
- Implement certifications that prioritise job markets within the repair sector as it has been done in France.

Suggestions for government funded initiatives:

- The Swedish government could fund schemes or programmes that promote repair, such as the "Zero Waste Scotland" and the UK resource efficiency schemes. Another example from the UK government is the support towards municipalities to take actions that innovate repair, which is government funded.
- Umbrella organisations such as RReuse and KOMOSIE should be introduced within Sweden, so that the market is structurally outlined and communicated by the Swedish government or appropriate authorities.

Suggestions for regional initiatives:

- Municipalities should promote remanufacturing by providing cities with developed infrastructure that enable inhabitants to easily and accessible sort their reusable waste, similar to what has been done in Flanders.

Conclusions

The findings of this chapter clearly show that the EU needs to expand legislation covering repair, to further encourage the choice of repair. The benefits of overall EU legislations are many, such as a unified EU moving toward a more sustainable future or the potential externalization of legislation according to the Brussels effect. The results also show that the journey towards a CE has begun throughout much of the EU, and the Member States are developing strategies that promote repair. The number of Swedish policies that concern repair are few, and further development is essential if a CE perspective is to be adopted.

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Chapter 3 - Drivers and barriers to promote repairs in Sweden: Which national policies should be used to move forward?

A study based on interviews with Swedish stakeholders

A consumer's choice and option to repair a product is influenced by barriers and drivers which could be technical, economic and cultural. Technical barriers could be product design or choice of material. Economic barriers could include access to spare parts and profitability of the repair business (Deloitte, 2016). Barriers for repair could also include total cost of repair, time and convenience of repair, obsolescence, risk of poor quality and lack of awareness and knowledge among consumers as well as cultural aspects such as a preference of novel products (Svensson et al., 2018). National policies to promote repair could include eco-design requirements and extended legal guarantees (Svensson et al., 2018). Policies could also include VAT reductions and tax deductions on products or services (Skatteverket, 2019; Skatteverket n.d.).

The aim of this chapter is to investigate drivers and barriers for repair and what national policies should be used to promote repairs in Sweden. The study focuses on policies, e.g. on economic incentives such as taxes and rebates, information campaigns and repair cafés for private consumers.

Methods and approach

The interviews were limited to the Swedish context with questions regarding drivers and barriers for repairs and what national policies could be used in Sweden to promote repairs. The study did not focus on issues such eco-design laws, intellectual property law, labelling requirements or public procurement. However, a number of interviewees specifically brought up these factors as barriers, drivers or possible policy interventions, and these are therefore discussed.

The choice of method was partly based on the limitation in time of the study.

Interview study

Interview method and approach

Interviews were conducted with relevant Swedish organisations and stakeholders with leading positions in investigations and committees. A qualitative method was applied in which the emphasis is mainly on words rather than quantification in connection with data collection and analysis (Bryman, 2011). Therefore, semi-structured interviews were chosen as method since in-depth answers were desirable (Bryman, 2011). Additionally, the method allows flexibility, i.e. by being able to follow the direction of the interviewee and being able to emphasize the interviewee's own perceptions (Bryman, 2011). The study took an inductive approach, aiming to investigate theories through the analysis of collected information in order to be able to draw conclusions later.

An interview guide with standard open questions was used as a basis for all interviews (the interview guide can be found in the Appendix). The questions were slightly adjusted depending on the interviewee (Bryman, 2011). Open questions were used for the purpose of not restricting the interviewees and to provide opportunities to ask follow-up questions (Bryman, 2011). The

questions asked aimed at obtaining their perceptions on the drivers and barriers for repairs in Sweden as well as policies to move forward in promoting repairs in Sweden. Therefore, the questions asked included themes such as barriers, drivers, policies etc. All interviews were conducted via telephone as the interviewees were geographically dispersed. The conversations were audio recorded and notes were taken. Each interview lasted approximately 30 minutes and it is assumed that the interviewees mentioned their most important thoughts regarding the subject.

Choice of respondents

The choice of respondents was made through a targeted selection, i.e. not based on probability or a random sample. The snowball effect was used where initial contact was taken with 33 people, with the aim to interview 12-16 people, who have or have had positions in relevant investigations or committees and/or were assumed to have a lot to contribute within the area. The interviewees were also asked to further contribute with respondents relevant for the study (Bryman, 2011). This method was chosen to obtain a large spread in the group regarding different characteristics, knowledge, experiences and perspectives that the individuals might have and that are relevant to the research subject. The number of interviewees was low, a number of 10, mainly because of the project's limited time frame and the fact that the interviews didn't aim for statistical generalizability.

The interviews were conducted with the following respondents, listed in Table 1 below.

Table 1. Interviewees, their position, organization and date for the interview.

Organisation	Name	Position	Date
IVL	Hanna Ljungkvist	Project leader Consumption and Waste	2019-11-28
Naturskyddsföreningen	David Kihlberg	Head of section: Climate and Law	2019-11-29
Sveriges konsumenter	Maria Wiezell	Advisor and expert in consumer rights	2019-11-25
Konsumentverket	Daniel Karfs	Deputy Consumer commissioner	2019-11-26
Climate-KIC	Anders Wijkman	Chair Climate-KIC; Honorary President Club of Rome	2019-11-26
RISE	Karin Wilson	Researcher: Energy and Circular Economy	2019-11-26
Greenpeace	Rosanna Endre	Expert in consumer related issues	2019-11-26
Sveriges Radio	Daniel Öhman	Journalist	2019-11-28
Norsirk	Gurø Huseby	Director of Communications; CCO	2019-11-26
WEEE	Pascal Leroy	Manager at WEEE Forum for Europe	2019-11-26

Documents

Some of the respondents did not have the opportunity to participate in an interview, but chose to share documents with relevant information instead. These documents have also contributed to the result of the study, see Table 2.

Table 2. Documents received from relevant organisations.

Organisation	Document title	Published
OECD	Circular Economy in Cities requires a System Approach	2019
Avfall Sverige	Dela prylar, yta, bil och tid: En vägledning till delningsekonomi i kommunerna	2018
Swedish Environmental Protection Authority	Repavdrag: A minor economic analysis of the introduction of tax reductions on repair services	2012
Göteborgs Universitet	Konsumtionsrapporten 2014. Konsumtionsrapporten 2017	2014; 2017
Regeringen	SOU 2017:22: Från värdekedja till värdecykel – så får Sverige en mer cirkulär ekonomi	2017
Global Utmaning	Framtidens hållbara konsumtion: Förslag till näringsliv och politik för omställning till hållbar konsumtion	2015

Ethical aspects

All the interviewees were informed that the interview was recorded. They were all offered to be referred to anonymously. The choice of respondents and interview method did not consider age, gender, skin-color or race. The interviewees had the possibility to cancel the interview at any time.

Processing and analysis of data

Data obtained from the interviews was documented in an interview protocol. After collecting and categorizing the data, it was interpreted and analysed into results. When processing and analysing the data of the interviews, the result might become partly subjective since an interpretation have to be made (Bryman, 2011). The results of the interviews were thematically coded and divided into 9 different subcategories. Thereafter, the results were compiled and discussed in the light of previous knowledge.

Results

Access to repair services

Access to repair services as well as an increased demand for repairs are necessary to increase the number of repairs in Sweden. Economic incentives such as a reduction of the cost of repairs in combination with technical and legal incentives could be used to stimulate the growth of repair services, which in turn would lead to an increased availability[3].

Cities could promote CE activities, such as repair, by integrating it into the city infrastructure. Promoting repair activities through infrastructure could include access to space such as storage,

[3] David Kihlberg, Naturskyddsföreningen, personal communication, 29 November 2019.

markets, tool libraries, repair cafés and workshops (OECD, 2019*a*). Naturskyddsföreningen3 highlighted the complicated and time-consuming situations consumers need to go through to repair their products. Consumers are often hesitant to repair products due to the time consumption, e.g. searching for a repair shop, finding it on a weekday, get an assessment of price and the reparability of the product and thereafter retrieve the product (SOU 2017:22).

The availability of repair services is not sufficient at present, which is an obstacle for promoting repairs, according to Sveriges konsumenter (the Swedish Consumer Organization)4. This is partly due to a lacking number of repairers as well as qualified repairers, hence contributing to the long waiting times for customers to have their products repaired as well as the prices for repairs increasing. The availability of repair services are also small compared to the range of stores providing customers with new products[4].

RISE5 see the consumer demand for repairs as the main factor for further promotion. However, there is a need for attractive education and raised interest among young and unemployed people regarding jobs in the repair sector[5]. It should also be easier for repair companies to recruit and educate trainees, which today is hindered by lack of time and resources. According to RISE5, the Ecodesign Directive has contributed to making manuals available on company websites. Having access to manuals, tools and spare parts are seen as a major factor to not waste functioning products and for a long-term shift towards a CE[6]. However, Sveriges konsumenter4 has seen an irritation among consumers regarding the lack of spare parts interfering with their right to repair the customers' owned products. A contributing factor may be that stocks nowadays do not hold products being dispatched directly. Retailers generally do not have access to spare parts, nor do they have information to help consumers find spare parts.

Repair cafés have not had any particular breakthrough in Sweden compared to other European countries[7]. Furthermore, there is a belief that customers mostly visiting repair cafés are the same people who would repair their products by themselves. Therefore, repair cafés may not be an effective way to change behaviour among the majority of customers. However, repair cafés could contribute to a social context for people, which to some extent can contribute to a change in the social culture regarding consumption, repairs and reuse[8]. Maria Wiezell, expert in consumer rights at Sveriges konsumenter, also believes that a social community which does not revolve around consumption is important to encourage citizens[3]. To increase the number of repair cafés in Sweden, Greenpeace8 says there is a need for support from municipal politicians and legislation e.g. subsidizing premises in accessible areas. There is also a need to inform consumers how to repair low-quality products at home, and this could be done through repair cafés[5]. However, there is also a need to inform consumers regarding products which they cannot repair on their own, such as some electronic devices. Thus, repair cafés need to be supplemented by access to professional repairers[4].

[4] Maria Wiezell, Sveriges konsumenter, personal communication, 25 November 2019.

[5] Karin Wilson, RISE, personal communication, 26 November 2019.

[6] Gurø Huseby, Norsirk, personal communication, 26 November 2019.

[7] Daniel Öhman, Sveriges Radio, personal communication, 28 November 2019.

[8] Rosanna Endre, Greenpeace, personal communication, 26 November 2019.

The price on new products

New products are generally cheap due to the low price of resources as well as the low wages and taxes where products are produced (SOU 2017:22). The price on repairs are affected by high taxes on labour in the repair sector but also the time consumed to repair a product, which is often more in countries where repair is not standardized (SOU 2017:22). Stakeholders usually mention the higher prices on repairs as a major barrier for promoting repairs. Consumers have a hard time incentivizing the time and money spent on repairs compared to buying new products (SOU 2017:22).

The generally low price on new products could per se pose a barrier that hinders repairs. The low price does not apply to all product categories according to Wiezell[2]. For example, the price of housing and cars are rising, while products such as home electronics, computers and mobile phones have been at the same price or cheaper during the past years. RISE5 believes products must be seen as a major investment for customers to repair, which would explain the high amount of repairs done on cars and houses. Therefore, as the Norwegian producer responsibility organisation Norsirk6 says, policies are needed to promote purchases as investments worth maintaining.

Many of the respondents agreed that the price of new products does not correspond to the externalities that arise in the production chain. The consumer must pay for reasonable wages in the production chain and the environmental damage[2]. However, if a company were to use full cost pricing, the business would be at a loss. To remedy this, raising the tax on products that are not repairable is proposed, and possibly a lowered tax for the repair sector or subsidies to encourage consumers to rent goods and products. Another measure might be to introduce policies to activate the secondary market in order to reduce the consumption of new products. It is emphasized that one should investigate the most effective policies and the importance of combining different policies for a system change[9].

However, Norsirk6 is of the opinion that this is a utopian ideal and it is not possible to either increase the VAT on new products or raise the tax on resource use as it limits and controls the market and prevents competition.

Producer responsibility

Extended producer responsibility (EPR) is a policy approach where producers of products are given a significant responsibility for the treatment or disposal of the company's products (OECD, 2019*b*). This could pose a barrier that hinders repairs due to several reasons. It is legally complicated to repair products as when a product ends up in waste containers, it belongs to the EPR system. The EPR system can also pose a barrier in promotion of product ecodesign, since the incentives in EPR schemes are currently more for recycling than repair[10]. The WEEE-directive hinders countries from sending electronic waste to other countries due to the risk involved for people and the environment. The purpose of the Directive is not to hinder trade with used goods, however, companies experience it as a barrier because of vague exceptions from the Directive, stating that it is an administrative burden (SOU 2017:22). Producer

[9] Anders Wijkman, Climate-KIC, personal communication, 26 November 2019.

[10] Carl Dalhammar, IIIEE, personal communication, 26 November 2019..

responsibility could possibly also be transferred from producer to repairer which causes heavy administrative work for small repair companies (SOU 2017:22).

To solve the issues with EPR, one of the respondents[4] suggests introducing an individual producer responsibility (IPR), which is something larger companies could apply for. By collecting and using disposed products and old components produced by the company, it could be reused in their own production of new products. However, this alternative must be economically viable for implementation says Norsirk6. Another proposal would be to impose additional requirements on producers, e.g. modulate the fee producers pay to a producer responsibility organization depending on whether the producer provides, for example, spare parts[11].

Taxes

Labour in Europe is generally heavily taxed, and consumers find it more profitable to replace a broken product with a new one instead of repairing it[5]. In Sweden tax on labour accounts for 60 percent while environmental taxes account for 5 percent (SOU 2017:22). Tax on resources is relatively low consequently leading to an overuse of natural resources. An increased tax on resources would pay for the externalities not accounted for at the moment. By forcing companies to bear these costs it could adjust the balance between prices on the market[6]. There is a limited focus on the positive externalities of employment and the cost of unemployment, both to society as well as the social cost for an individual (OECD, 2019*a*).

Studies have shown benefits of a tax shift with a decreased tax on labour and increasing tax on e.g. resource use. The tax should be used in combination with further efficiency measures in material production (OECD, 2019*a*). A tax shift with a decreased tax on labour would also favour circular business models. However, green taxes are often criticized due to their administrative demands, the various effects on different stakeholders and insufficient environmental control (Avfall Sverige, 2018). According to the Swedish EPA, the impact of a tax credit repair service partly depends on how a tax reduction impacts the price and how a price reduction would impact the demand (SEPA, 2012). Additionally, they point out that the effect of a reduction in VAT on the purchase price of the service would probably be higher if a deduction from consumer income was made.

Policies already adopted in Sweden to promote repairs include reduced VAT for product repairs in 2017 on shoes, bikes, clothes etc. and a ROT (Repairs, Conversion, Extension) or RUT (Cleaning, Maintenance and Laundry) tax reduction of the working costs (Skatteverket, 2019; Skatteverket n.d.). Sweden has also proposed a policy called ‘hyber-deduction’ which would further stimulate consumers and households to repair, rent and sell used products via a tax deduction of 50% on the working cost (SOU 2017:22). However, the government is also seen as responsible for promoting consumption. The RUT- and ROT deductions in Sweden have been criticized as policies contributing to increased consumption (Konsumtionsrapporten, 2014).

Sveriges konsumenter4 believes measures to adjust the tax on repairs are effective. However, the majority of the respondents have not seen an effect of the VAT deduction from 2017, even

[11] Pascal Leroy, WEEE, personal communication, 26 November 2019.

though it could have an informational rather than an economical effect, contributing to discussion and awareness regarding repair.

Norsirk6 suggests to implement VAT-free repair services to further lower the cost. RISE points out a user-friendly RUT deduction is dependent on repairers and consumers having access to information regarding the deduction. The VAT and tax deductions are also dependent on the design of the product and affordable spare parts according to Naturskyddsföreningen3 and RISE5. Another obstacle for the usage of the RUT-deduction could be that the service must be performed at home[3]. Greenpeace8 believes the discussion should focus on lowered tax on labour rather than a raised tax on new products. They also reflected upon a raised tax on all new products versus those that do not meet reparability requirements or quality standards. Another respondent[7] instead believes that focus should shift towards a tax on resources use. According to environmental economics, taxes are to be carried out close to the source, therefore taxes are often put on emissions or land degradation rather than products. Problems arise in global economies when more than one company or country are responsible for the extraction of natural resources and production of one product (SOU 2017:22).

A couple of the respondents believe there will be no impact by only reducing the tax on labour and call for supplementing measures affecting the production of new products as well[1]. Products are manufactured by low-paid workers in developing countries. Repairing those products in a country with high taxes on labour simply does not make sense regardless of tax cuts or deductions[5].

Product quality

In order for it to be profitable to repair products, products must be of high quality as well as repairable[6]. A circular economy must start upstream with the design and quality of products. In his role as a chairman of the Association of Recycling Industries in Sweden, Anders Wijkman observed that Swedes are good at collecting products but that the majority of the products collected are of low quality. According to Wijkman, this a result of product design.

Sveriges konsumenter4 points out that consumers have no intention of retaining products for a long time and therefore rarely have quality requirements or demands for products to last long. To address this, policies that promote quality and reparability are needed. There is also a lack of quality standards for secondary materials (OECD, 2019*a*).

According to several respondents, such as RISE[3], a measure could be to introduce a standardization at EU level, similar to the Ecodesign directive where energy efficiency on electronics has had a major impact. Standardization could include simple markings where products are ranked according to how they meet the requirements or life expectancy. Another possibility that RISE5 highlights, is to introduce a certification on repaired products equivalent in terms of quality compared to new products. However, Greenpeace believes that a certification system is not necessarily needed but is more about creating incentives that make it perceived as easier to repair.

Another aspect that might have an influence on the quality of products is planned obsolescence, however, different types of planned obsolescence occur, says Daniel Öhman, journalist at Sveriges Radio. One type of planned obsolescence is driven by the cost reduction of the product, where parts of a product break due to low quality. These product parts can often be

repaired or replaced. Another type of planned obsolescence is when the product has been designed to avoid repair, for example when products are glued together which hinder product disassembly and repair. Most respondents believed that there should be legislation against planned obsolescence.

Wijkman believes that planned obsolescence is noticeable in several areas, as it is a logical result of a linear production model and companies' business models. It is simply a system error. A solution could be policies promoting extended warranties, or alternatively the right to exchange broken products to new products, provided that the broken product will be reconditioned. Konsumentverket13 is emphasizing the importance of consumer information regarding product expectations, such as life expectancy.

There is new legislation in progress within the EU, which might include product and labelling requirements on reparability and availability of spare parts7. EU-directives are of significance to make it viable for producers to profit from repairable products. A driving force against planned obsolescence is also consumers urging for their right to repair their own products[4].

Companies' business models

As citizens, we are encouraged to consume so that people can keep their jobs and so that we do not enter into a recession. Therefore, Wiezell believes that one must measure the success of countries in something other than GDP. They state a shift to a circular economy with an increased number of repairs could lead to an increased number of jobs, since there is a huge need for services.

Current business models are dominated by a linear economy. There is a market failure due to the negative externalities in the extraction, production and disposal of products which are not paid for by market prices (OECD, 2019*a*). Policies promoting an increased usage of secondary material in combination with less and more effective usage of virgin materials needs to be implemented. There is also a need to design products for disassembly, refurbishment and reuse (OECD, 2019*a*).

Due to the linear economy, companies are incentivized to produce products rather than services as well as produce products with limited lifetimes (SOU 2017:22). Today, there is a limited number of producers offering free repairs or lifetime guarantees on products, this is currently an exception to the standard[6]. Companies promoting repairs usually profile themselves in the area of sustainability e.g. Nudie[12], a company that produces sustainable jeans. At present, there are not many financial incentives for companies to operate repair services. IVL[10] have seen a varied approach to repair among companies, the business model is often the largest barrier for companies to promote repairs. According to them, a measure would be to promote business models where companies can earn a profit on long-term customer relationships without producing new goods, e.g. services, subscriptions and leasing. However, they believe a shift from business models selling services instead of products requires policy instruments promoting circular business models. Policies to promote circular business models could include subsidizing repair companies or service companies (SOU 2017:22).

[12] IVL, Hanna Ljungkvist, personal communication, 28 November 2019.

Nevertheless, policies that affect companies' business models should be decided based on markets that are large enough to not distort competition. Provisions and requirements on how products can be reused and recycled to a greater extent should be decided at EU level[7].

Cultural and social aspects

Sociological and economic mechanisms drive consumer preferences for new products with new functions. Consumers are affected both by the low price on new products but also the fact that more products are included in the fast fashion cycles and the rapid development of technology. Consumers do not have incentives to repair outdated products and a consequence is functional products being discarded by the consumer[5].

According to Greenpeace[6], cultural aspects contribute to consumer desire for new products. This desire is further influenced by new, easily accessible and cheap products that save both time and capital for the consumer (Konsumtionsrapporten, 2017). Demand among consumers is to spend less time consuming products and services, therefore city planning affects consumption patterns (SOU 2017:22; Konsumtionsrapporten, 2014). Consumer engagement also affects how much time and energy a consumer spends on a purchase (Konsumtionsrapporten, 2017).

Citizens in Sweden have preferences about quality regarding products from the second-hand market as well as regarding repair services. A product needs to be highly valuable for the consumer to repair it. If a product is old, the consumer could possibly see it as a risk to repair the product (SOU 2017:22). Consumers also tend to value a product more than a service since the performance of the product can be tested close in time from the purchase (Konsumtionsrapporten, 2017). Therefore, there is a need for education regarding the urgency to change behaviour, as well as nudging and regulation of certain behaviour (OECD, 2019*a*). Information regarding the benefits of repair could be targeted at consumers. Generally, behaviour change comes from a combination of economic, legal and information policies (SOU 2017:22). IVL12 points out that measures in terms of information, messages and education can have a significant effect if you find the right channels, e.g. through influencers[10].

Knowledge and awareness

Access to affordable repair services and availability of repaired products are key for behavioural change among customers (OECD, 2019*a*). Consumers are at the moment dependent on price being the main source of information when consuming new goods. To nudge consumers into buying quality or repaired products there is a need for clear regulations and reliable information such as quality, reparability and sustainability (SOU 2017:22).

According to IVL[10], the driving forces for today's repairs are primarily consumer pressure. Greenpeace8 also states that consumers choosing to repair are mostly environmentally conscious consumers as well as consumers buying high-quality products. There is a growing group of consumers who are ideologically convinced of environmentalism. For other consumers the driving force is financial incentives e.g. when it is cheaper to repair than to buy new. There is also a new group of consumers with a growing interest in understanding simple techniques in a complex world, with a distrust in large companies and their power over the consumer's possessions, leading to a growing interest in the repair of products[10].

According to some of the respondents, the lack of time and knowledge among consumers contributes to the limited number of repairs. Also, Konsumentverket13 believes that there is a lack of knowledge regarding consumer rights, where both companies and authorities have an obligation to inform. Therefore, some type of labelling or certification of products would benefit consumers with a wide range of products, both in terms of the product's life expectancy and quality of repaired products[13]. One measure to promote repairs in Sweden for most consumers could be to disseminate information regarding the VAT deduction introduced in 2017 in Sweden[6].

Legal guarantees and burden of proof on producers

Currently, the burden of proof is six months, the guarantee is two years and the complaint time span is three years in Sweden. Most of the respondents believe that these time spans should be extended, specifically for the burden of proof from six months to two years (SOU 2017:22). The burden of proof on consumers often leads to products being discarded due to the difficulty to prove the cause of the broken product. If the burden of proof would shift to the company during the guarantee period, it would incentivize companies to produce products which are repairable[2]. The environmental effect could be significant with a lowered demand for low quality products due to the high prices for returned products (SOU 2017:22).

According to the Consumer Purchasing Act, consumers' returned products should primarily be remedied, which may mean that the product is repaired rather than replaced, says Sveriges konsumenter4. However, the organisation Sveriges Konsumenter4 invest considerable resources on informing consumers about the Consumer Purchasing Act. This is because consumers mostly feel entitled to a new product instead of a repaired one if a new product does not work. It is an educational challenge to explain the unsustainability in discarding products instead of repairing products. Also, if products with repairable errors are discarded, the costs of these products are added to the cost of all products which increases the price of new products for the consumer according to Sveriges konsumenter4. IVL[10] says that even the companies often equate new products and repaired products, which leads to companies replacing a broken product with a newly produced product. Therefore, consumers are in most cases offered new products even though parts of the product are broken, which could be replaced by repair[10]. This is both due to convenience but also satisfaction among customers. Thus, Konsumentverket[11] says there is a need for policies facilitating the choice of repair of broken products in the first place.

Discussion

This section concludes the main drivers and barriers for repair that were identified in this study, followed by the national policies that, according to the majority of the respondents, should be used to promote repairs in Sweden. According to all the respondents, product repairs play a major role in the shift towards a circular economy and the usage of less resources.

[13] Konsumentverket, Daniel Karfs, personal communication, 26 November 2019.

- **The access to repair services** main barriers are the time invested by customers to repair products and lack of available repair services. Another barrier is the limited access to spare parts. Recommended policies are reducing the price of repairs such as implementing a VAT reduction, promoting education and jobs in the repair sector. There is a need for support from municipalities in terms of premises etc. to promote repair cafés.
- **The price on new products** are a main barrier for promoting repairs, since they usually come with a low price hence the products are not seen as investments. Policies could include a higher price on new products or a lower price on repairs, alternatively subsidizing leasing services or activating the secondary market.
- **Producer responsibility** is seen as a barrier due to the fact that the products are not designed for repair. The EPR and the WEEE-directive are barriers due to the products being classified as waste when entering the EPR-system. Policies could include a shift towards IPR and modulating fees paid by the producers depending e.g. on if companies provide spare parts.
- **Taxes** could be solutions for promoting repair services. Main barriers include high taxes on labour and limited access to information regarding implemented tax and VAT reductions. A tax shift with an increased tax on resource use and on new products are recommended policies.
- **The product quality** could be a major barrier. The low quality on a majority of products contributes to the small number of repairs. Standardizations on EU-level regarding life expectancy, reparability as well as certifications on the quality of repaired products could be part of the solution.
- **Companies' business models** are currently a major barriers since businesses generally apply a linear thinking. This is part of the explanation for why products are produced with a low life expectancy. Circular business models need to be promoted, where companies can earn a profit on long-term customer relationships without producing new goods.
- **Cultural and social aspects** act as a barriers due to the culture of desiring new, easily accessible and cheap products which save both time and capital for the consumer. Incentives such as spreading information and educating the public might have a significant effect.
- **Knowledge and awareness**, or in this case the lack of it, is a barrier. Consumers are mainly dependent on price as information when consuming new goods. Therefore, there is a need for more information about the product quality, reparability, life expectancy and sustainability. Additionally, communication, education and certifications are necessary to raise awareness and change behaviour.
- **Legal guarantees and burden of proof on producers** is a barrier because products are being discarded due to the difficulty for the consumer to prove the cause of the broken product. When a consumer wants to reclaim a broken product companies often equate new products with repaired products. Therefore, time spans for legal guarantees and burden of proof for companies should be extended, and it has to become easier to repair a product when it is reclaimed by a consumer.

Many of the respondents share the idea that a higher price on new products or resource use should be combined with other national policies such as lower tax on labour, VAT reductions on repairs, subsidizes for leasing and activation of the secondary market and information for the best effects. Policies at the EU-level could further promote repairs in Sweden such as promoting circular business models, standardization such a life expectancy and certifications regarding quality of secondary products.

It is important to acknowledge that the underlying reason for the lop-sided price relationship between new products and repaired products is due to externalities not accounted for in the price of new products. Therefore, the price of newly produced products ought to increase, rather than the cost of repairs decreasing. Nevertheless, most of the environmental pollution and resource depletion occurs outside of Europe, hence difficulties arise with internalizing these costs in the price (SEPA, 2012).

To be able to determine whether incentives have had the desired effect, it is of importance to not only account for the number of repairs carried out but also to look at the overall decrease in consumption and emissions. Konsumentverket13 state policies are to consider possible rebound effects such as customers saving money by using repair, hence spending the money on new consumption. According to the Swedish EPA report (2012), the extent of this effect is dependent on income and how consumption of other goods changes by the increased purchasing power. However, if the price on new products is to account for externalities, it would lead to customers paying a higher price for their products. This way, customers would more likely see their products as investments and the risk of a rebound effect might be avoided.

As Öhman7 stated, a minor part of the customers are susceptible to environmental arguments as opposed to the general public whom are susceptible to economic arguments. The majority of the public are not willing to pay for high quality products, and therefore buy what seems affordable and do not account for the risks associated with buying low quality products. Therefore, knowledge and awareness play an important role in changing the consumption behaviour. As mentioned before, repair cafés may have an impact by contributing to a changed social culture and education regarding repairs. However, it may not contribute to a behavioural change among the general public, thus the importance of other informational policies such as standards regarding life expectancy. Many of the respondents expect repair and care for products to become a trend in the near future.

Conclusions

According to respondents from leading investigations and committees, consumer demand is the main driver for promoting repair in Sweden. Companies using circular business models could also be a driver for the repair of products as well as repair cafés and initiatives on EU-level.

The low price on new products compared to repaired products are a major barrier increased usage of repairs. Policies to promote repairs could be a tax reduction on labour, VAT reductions on repair services and tax on new products or resource use. Policies could also focus on activating the secondary market and subsidizing leasing or renting. Other major barriers for promoting repair according to Swedish stakeholders are the lack of available repair services,

qualified repairers and the time consumed for customers using repair services. Therefore, there is a need for promotion of education and jobs in the repair sector. Lack of circular business models, affordable spare parts and information regarding life expectancy, product quality and reparability are also barriers for the promotion of repair. Policies on EU-level could be relevant to promote circular business models, provision of spare parts and standardization regarding life expectancy and quality of secondary products. Lastly information, education and awareness raising are important due to the urgency for changed consumption behaviour towards a circular economy.

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Chapter 4 - Swedish tax reduction on repairs: Have the tax changes had the desired effect on repairs in Sweden?

An interview study with Swedish companies

The government of Sweden aims for a transition to a circular and sustainable society (Regeringskansliet, 2018) and in order to achieve this, both consumption and production patterns need to be changed. Sweden has therefore adapted an economic initiative in the form of lower taxes for repair services and the purchase of such services.

In January 2017, Sweden introduced a tax reduction on repair of certain products. The Value Added Tax (VAT) on repair was reduced from 25 % to 12 % for products such as textiles, shoes, leather products and bicycles. The aim of the reduction was to encourage reuse and repairs (Skatteverket, n.d.*a*). Coinciding with this tax reduction, a proposed deduction of 50 % (RUT tax deduction) on the labour costs for home repairs and maintenance was first implemented in 2007 and updated for implementation in 2016(7) (Nationalencyklopedin, n.d). The updated version was implemented in 2017 together with the VAT reduction (Revision 2016:1055 in Inkomstskattelagen 1999:1229). Products that fall under the RUT tax deduction include white goods and IT-goods (Skatteverket, n.d.*a*).

The aim of the research presented in this chapter was to evaluate whether there has been a change in repair frequency since the implementation of the VAT reduction and RUT tax deduction in 2017, and if no changes have been noted, to investigate which further actions are needed. This chapter will focus exclusively on four different sectors: shoes, bicycles, white goods and IT-goods.

Methods and approach

The scope of this chapter focuses on four different repair sectors; shoes, bicycles, white goods and IT goods. The interview questions were written to focus solely on reduced VAT and RUT tax deduction and if interviewees noticed any effect as a result of their implementation. The result is based on the interviews. The number of interviews was limited by the timeframe of this study.

The definition of IT-goods in this paper refers to electronics including computers, tablets, TV-consoles, smartphones, printers, speakers, etc. (Skatteverket, n.d.*a*). The definition of white goods refers to washing machines, dryers, drying cabinets, refrigerators, freezers, dishwashers, ovens, microwaves and other products that are components of the white good, for example ice machines (Regeringskansliet, 2016; Skatteverket, n.d.*a*).

In order to apply for the RUT tax deduction the consumer needs to fulfil certain requirements. The repair should be in close relation to, or inside, the household. In other words, the product will not be included in the RUT tax deduction if the consumer brings the product to a repair shop. Furthermore, if the repair changes the function of the product it will no longer fulfil the requirements for the VAT reduction (Skatteverket, n.d.*a*).

For a customer to exploit the RUT tax deduction, the repairer needs to apply for the deduction and not the other way around (Skatteverket, n.d.*b*).

Interview study

A qualitative method was conducted with semi-structured interviews with companies that perform repairs. This method was chosen with the intention of receiving well-developed answers as well as the interviewees' own experiences and expectations regarding the VAT-, and RUT tax deduction. In addition, the method allows the interview to be flexible as follow-up questions during the interview are allowed. The interview study follows an inductive approach which aims to investigate and draw conclusions through analysis of the collected data (Bryman, 2011).

The interview guide included standard questions asked to all interviewees. However, some of the questions were different depending on if the interviewee was associated with the VAT reduction or the RUT tax deduction. The interview guide can be found in the Appendix of this paper. All of the interviews were executed in November 2019. The interviews were done in Swedish and the answers were later translated for this paper. After two interviews, the interview questions were moderately adjusted. Each interview lasted approximately 10 minutes.

Choice of interviewees

The targeted interviewees within the four sectors were chosen depending on whether they perform repairs or not. In total, 22 Swedish companies of different sizes were interviewed. The number of companies was chosen to be representative for the sectors investigated in this study. Since meeting with the companies in person added value to the interview, the majority of the chosen locations were selected close to Lund/Malmö. However, in order to acquire information from other parts of Sweden, some of the interviews were conducted via telephone. Regarding the IT and white goods sectors, all of the interviews were conducted via telephone or email as it was hard to find physical stores for those offering home-repairs and therefore affected by the RUT tax deduction. One of the interviewed companies within the IT sector chose to be anonymous. The companies who were interviewed are presented in Table 1 below.

Table 1. Companies who were interviewed within the four sectors; shoe, bicycle, white goods, IT goods.

Shoe sector	Bicycle sector	White goods sector	IT goods sector
Olles Skomakeri & Son AB	Ekmans cykel och service	Svesjö Kyl och Frys AB	FixarIT AB
Helsingborgs Skoservice Peter Svensson	Ågrens cykelaffär	EP Service Kyl och Maskin AB	Tomi Elektronik
Tages Skomakeri	Stålhästens cykel och cykelverkstad	Siemens	Min IT support
Sjöqvist Skomakeri	Haralds cykel och reparation	AA Hushållsservice	IT Service Syd AB

Slottsstadens skomakeri	Stadions cykelverkstad	Elektro-Emanuel	Datorhjälp
			Falk Data
			Anonymous company

Ethical aspects

All interviewed companies/persons were aware that the interview was going to be recorded and everyone had the opportunity to be anonymous. Age, gender, skin-color or race of the interviewees did not affect the choice of companies or the result. All interviewees had the possibility to cancel the interview at any time.

Processing and analysis of data

The collected data was compiled in order to highlight the parts of answers relevant for this study. Note that the result and the discussion may be subjective as the authors have selected certain parts of the interviews. As highlights were analysed and compiled into a result, the discussion follows the aim of the study as well as discussing the opportunities and barriers both companies and customers face regarding repairs.

Results

The compiled data from the semi-structured interviews will be presented in this section. Two questions were deemed to be more relevant than the other standard questions (of the interview guide). In order to answer the aim of this study, these questions will be presented in cursive. 3.1 Shoe sector and 3.2 Bicycle sector refers to the reduction in VAT from 25 % to 12 %. 3.3 White goods sector and 3.4 IT sector regards the RUT tax deduction.

Shoe sector

Five interviews were conducted with cobblers where the main occupation was reparations (Table 1). Two interviews were conducted via telephone as Helsingborgs Skoservice Peter Svensson is located in Helsingborg and Sjöqvist Skomakeri is located in Jönköping. The remaining three companies were located in either Malmö or Lund and the interviews were conducted in person.

Have you noticed any difference in the number of repairs performed since the VAT reduction was implemented in 2017? Have the number of repairs increased or decreased?

The majority of the interviewees (⅗) claimed that there has been no change regarding the number of repairs performed since the VAT reduction was implemented. The two other interviewees who did notice an increase, could not with certainty link it to the tax change. Instead, other reasons that were more likely, according to these two companies, are that their

competitors in the same area had moved away. According to Sjöqvist Skomakeri[14], a growing interest in sustainability may be another reason for why the repairs have increased.

What can be done in order to increase the number of repairs according to you?

Three of the interviewees felt that they already had enough customers and no further actions are needed. Two of these companies stressed that it is the market that decides the number of repairs performed because it is the customers that can afford to repair their shoes who are able to do it. Slottsstadens Skomakeri[15] described the VAT reduction as meaningless since it is the market that determines the prices. Helsingborgs Skoservice Peter Svensson[16] mentioned that he has enough customers, and explained that he has a reliable clientele that buy high quality shoes that are repairable and always come back to the store. However, he gave a suggestion on how to increase the number of repairs.

> "The ones [customers] to try to get hold of are the new ones [customers] that haven't been [to a workshop] and repaired before."
>
> - Helsingborgs Skoservice Peter Svensson, 2019

He stressed that more information is needed to reach new customers and more actions are needed to change the current "throwaway" culture. If more people would buy high quality shoes that are repairable, they would notice that it is economically beneficial for them. Helsingborgs Skoservice Peter Svensson is supported by two other interviewees regarding the lack of knowledge around the VAT reduction among the customers and therefore, stressed that more information is needed.

Generally, middle-aged and older people stand for most of the cobblers' customers. However, three companies have noticed that a younger age group has started to repair their shoes. Olles Skomakeri & Son AB[17] suggests that it may be because of the increased awareness of sustainability among the younger generation. This company also suggested to include tailors and their repair on clothes in the VAT reduction.

Bicycle sector

The interviews that were conducted focused on bicycle shops that perform repairs (Table 1). Three out of the five interviewed companies were conducted in person since their locations were in Lund or Malmö. Since Stålhästen Cyklar och Cykelverkstad were located in Stockholm and Haralds Cykel och Reparationer were located in Jönköping, the two interviews were conducted via telephone.

Have you noticed any difference in the number of repairs performed since the VAT reduction was implemented in 2017? Have the number of repairs increased or decreased?

[14] Sjöqvist Skomakeri, personal communication, 22 November 2019.

[15] Slottsstadens Skomakeri, personal communication, 26 November 2019.

[16] Helsingborgs Skoservice Peter Svensson, personal communication, 22 November 2019.

[17] Olles Skomakeri & Son AB, personal communication, 25 November 2019.

Out of five interviewed companies, only three companies had noticed any difference in number of repairs since 2017 when the VAT reduction was implemented. Among these three, only one company, Ekmans Cykel[18], claims that their increase in repair occasions is due to the VAT reduction, while the other two companies claim it is due to less competition in the nearby area. Ågren Cykelaffär[19] opine that they saw an increase in the number of repairs when the deduction took place in 2017, something that has levelled off and now they cannot see a difference compared to before the reduction.

Four of the five interviewed companies had repair as their main occupation. However, the fifth company, with sales as their main occupation, was one of the companies who had noticed an increase in repairs. One company said that the VAT reduction allowed them to keep prices low on repair, and in that way, keep and attract more customers.

What can be done in order to increase the number of repairs according to you?

Two companies think that the quality of the bike depends whether or not the customer chooses to repair it. If the customer has a higher quality bike, it is more likely for them to repair it. In the long term, it would also be cheaper for the customer to buy a high quality bike and repair it compared to buying new bikes with lower quality more frequently. Stålhästen Cyklar och Cykelverkstad[20] mentioned that a certification on repairs could be a solution to more repairs being done. With a certification, the quality of the repaired bike would have a high minimum level, which could lead to an increase in repair occasions. One company mentioned that they already had enough customers and therefore did not have an answer to what could be done in order to increase the number of repairs.

In two cases, the most representative age group was students. This was not the case in the three other stores, where the age group that was most representative was middle-aged people. One of the companies with an older clientele said that they had more female than male customers who wanted their bikes repaired.

White goods sector

Due to the locations of the companies, and in some cases lack of physical stores, all interviews were conducted via telephone. All five companies that were interviewed conduct home visits and repair white goods in the customer's home (Table 1). Three of the companies could also make the repair in their own store if needed. The main occupation for the interviewed companies was repair, except for one company who devotes most of their time with selling new products.

Have you noticed any difference in the number of repairs performed since RUT tax deduction were updated and implemented in 2017? Have the number of repairs increased or decreased?

All of the interviewed companies claim that there has not been any significant difference in repair occasions since the RUT tax deduction was updated and implemented. One company,

[18] Ekmans Cykel & service, personal communication, 25 November 2019.

[19] Ågrens Cykelaffär,, personal communication, 25 November 2019.

[20] Stålhästen cyklar och cykelverkstad, personal communication, 22 November 2019.

AA Hushållsmaskinservice[21], said that they might have had a decrease in the number of repairs since the implementation of the RUT tax deduction in 2017, something that could be due to higher competition in the market. This company did not perform RUT tax deduction with their customers. Another company thought that the willingness to repair did not depend on whether the taxes are low or not, but rather the high purchasing prices. The higher the purchasing price, the higher the willingness to repair. Three of the interviewees concluded that most customers think it is irrelevant if they use the RUT tax deduction or not since it is not going the difference to the final price is small compared to the time one has to spend to get the deduction.

What can be done in order to increase the number of repairs according to you?

To increase the number of repairs linked to the RUT tax deduction, the overall thinking among the interviewees is that knowledge regarding the deduction has to increase. It also has to be easily accessible. Svesjö kyl och frys AB[22] specifically claim that the RUT tax deduction should include spare parts and transport back and forth from the customer since these are the main expenditures. They believe that the RUT tax deduction should include repairs in the store as well. To improve the RUT tax deduction in the repair sector, AA Hushållsmaskinservice[8] believe that it would be easier for them if the customer could apply for the reduction and not, as it is today, only the company providing the service. One white goods company mentioned that there was no lack of customers for them and therefore, had no answer to the question.

The companies agree that main age group that repair white goods are middle-aged, since they are more likely to afford repair services. On the other hand, one company claims that the generation that is now starting to earn money are more into buying new things and not wanting to repair. Another company means that older people have a higher willingness to repair since they find it hard or complicated to learn new things.

IT sector

Seven interviews were conducted with companies who specialize in the repair of IT goods (Table 1). Five of the interviews were conducted via telephone. The interviews with FixarIT and Tomi Elektronik were conducted via email. One company wished to be anonymous and will not be mentioned by name in this study.

Have you seen any difference in the number of repairs performed since RUT tax deduction were updated and implemented in 2017? Have the number of repairs increased or decreased?

Three of the interviewees who offer RUT tax deduction in their services did not notice any difference in the number of repairs executed. However, what two of them did notice was that the number of installations of IT goods had increased since the implementation. The remaining four answered that their repair frequency had increased since the implementation of the deduction. Some of FixarIT's[23] customers have mentioned that they choose repairing at home because of the RUT tax deduction.

[21] AA Hushållsmaskinservice, personal communication, 22 November 2019.

[22] Svesjö kyl och frys AB, personal communication, 22 November 2019.

[23] FixarIT, personal communication, 28 November 2019.

"We have had some [customers] who have said that they have chosen home repairs because they get a RUT deduction on it"

- FixarIT, 2019

However, it is not a large share of their customers who mention this. According to interviewees, it is hard to link the increase of repairs to the implementation of the RUT tax deduction beyond the customers that have mentioned it. Min IT Support[24] answered in a similar way. Even though the number of repairs have increased it is hard to know if it is due to the implementation of the RUT tax deduction in 2017.

What can be done in order to increase the number of repairs according to you?

Four of the interviewees answered that more information is needed for the public regarding the RUT tax deduction, to inform them that it also applies on IT-services. They experienced that few of their customers know about it. One company stressed that we need a change in behaviour; introduce the public to repair as opposed to buying new products. Tomi Elektronik[25] and IT Service Syd AB[26] suggested that in order to increase the number of repairs, the repairs in the workshop should be included in the deduction as well. Another suggestion from Datorhjälp[27] was to put pressure on the producers of IT-goods to make the products easier to repair. Further, he mentions that it is harder to repair when there is glue or other materials that are hard to replace. In addition, one company also mentioned that the fact that current mobile phone subscriptions are modelled to sell new phones as substitution for broken ones, is a barrier to the repair business.

The majority of the companies answered that all age groups want repairs but a majority of customers are in the upper half of middle age (40+ years). Only one company said that they had a younger clientele as the newer mobile phones are designed with easily breakable materials such as glass. One of the companies who had an older clientele explained that it might have to do with habits; that repairs was more common before than it is now.

Discussion

9 out of the 22 interviewed companies have noticed an increase in the number of repairs executed since the implementation of the tax changes in 2017. Five companies out of 10 interviewed did observe an increase in repairs since the VAT tax reduction were implemented. 4 out of 12 interviewed companies noticed an increase since the RUT tax deduction were updated and implemented. However, the majority of the companies could not determine if the increase was caused by the tax deductions or not. In other words, the majority of the interviewees have not been considerably affected.

[24] Min IT Support, personal communication, 29 November 2019.

[25] Tomi Elektronik, personal communication, 26 November 2019.

[26] IT Service Syd AB, personal communication, 29 November 2019.

[27] Datorhjälp, personal communication, 29 November 2019.

The results differed from sector to sector. The majority of the interviewees of the bicycle and IT sector could see that an increase in the number of repairs had happened. On the other hand, the majority of companies in the other two sectors, white goods and shoes, did not observe any changes. The reason no changes were noticed in the white goods sector might be as one company explained it: it does not depend on whether the taxes are low or not, but rather the high purchasing prices. White goods are overall more expensive than shoes, bicycles and IT-goods. The difference in price between repairing and buying a new product is larger, which increases the willingness to repair. Regarding the shoe sector, the reason no changes were noticed may be due to a different market and view of shoes as replaceable compared to the other sectors and the view of their products. For people to bring their shoes to a cobbler, the shoes are often of high quality and possibly expensive, for making it worth the effort to repair them. The shoe market can be both expensive and cheap depending on brand and shop, just like the other sectors. However, many deals like buy 3, pay for 2, attracts people to buy cheaper, low quality shoes and these are not worth repairing compared to expensive high quality shoes. As one of the cobblers mentioned in the interview, low quality shoes "that will not last longer than a year," belong to the "throwaway" culture. This linear behaviour needs to change into a circular economy and in this regard, the implementation of the VAT reduction has not made a considerable impact on the interviewees businesses. This may imply that further policies and/or initiatives are needed. However, there has only been two years since the implementation of the VAT reduction, which may be a factor to why the majority of the interviewees have not observed any change. If a similar study is conducted in the future, for example, after informative initiatives have been applied, it may show a different result.

Barriers for repairs within the chosen sectors

By identifying the barriers for repair, we can propose solutions to them. Barriers that have been mentioned by the interviewees as an interference to the repair sector are; lack of knowledge regarding the tax changes, the slight difference in prices between repair and buying new products, product quality extra work to apply for RUT tax deduction and unrepairable product designs.

Interviewees from all sectors, except the bicycle sector, mentioned that there is a lack of knowledge regarding the tax change among their customers. Another interference was low purchasing prices for new products, which makes it unprofitable for the customers to repair their product instead of buying a new one. In addition, the quality of products plays a huge part for the decision if the product is worth repairing at all. Two of the interviewees in the bicycle sector stressed that high quality bicycles are worth repairing more compared to low quality bicycles, as they tend to become a part of the "throwaway" culture instead. This can be applied on products within all the sectors. If people start to buy more high quality products that have a higher price, the chance that they will repair the product increases as well as the repairer's ability to do the repair in an accomplished way.

Regarding the IT-sector and the repairs of mobile phones, one of the interviewees mentioned that a barrier could be the phone subscriptions that are modelled to substitute the broken phone with a new one as part of their marketing strategy. This leads to a trend where more products are being used over a limited timeframe. The consumer would rather substitute their mobile phone instead of repairing it to use it for a longer time. On the contrary, it might be a problem

if the customers choose to keep their old product for a long time since repairers may not have the spare parts needed due to the usage of a certain product/model might not be that common. This is a barrier especially seen with IT-products where the development of new products is progressing rapidly.

Suggested solutions

In order to increase the number of repairs more information should reach the public. As mentioned by one of the cobblers, people who choose to repair will continue to choose repair. The information should be aimed at the people who are not aware that there is a possibility to repair products at a cheaper price compared to before the VAT reduction were implemented. Another proposed solution that may increase the number of repairs is if both the VAT reduction and RUT tax deduction cover more areas. These could be repairs in workshops or transport to and from the customer's home or on spare parts or other sectors such as tailors. As products have become increasingly complex, the quality of repaired products might be higher when repaired at the workshop compared to at the customer's home due to the equipment available. In addition, more substantial renovations could be done at the workshop rather than at the customer's home. If RUT tax deduction is included in workshops, more repairs on smaller IT goods such as computers, mobile phones etc. might increase. Another suggestion would be to include the IT-goods in the VAT reduction in order to increase the repairs of computers and other smaller devices. By including the transport to and from the customer's home in the RUT tax deduction, people who live further away from the workshops would benefit from this since the total price for the repair could be reduced. This could also enable more companies to offer the RUT tax deduction. Another proposed solution mentioned by one of the bike repair companies was a certification among workshops. This could lead to an increase in the number of repairs since customers will know that the job is being well done and of high quality. To facilitate for all repairers, the products should be easier to take apart, e.g. more homogenous products should be on the market. This is particularly mentioned in the shoe sector, where the cobblers say that high quantities of plastic in the shoes make them harder to repair or not repairable at all. If there is a homogenous material that is easily replaced, then the repairs could be facilitated.

Which age groups choose repairs?

By identifying the clientele within the four sectors, we will know where to aim the initiatives in order to reach more people. For example, if there are already many middle-aged and older people who repair their shoes, the majority of the initiatives should be aimed at a younger age group.

It was generally noted by interviewees in this study that the people who choose repairs are middle aged. This could be due to the high prices of repairs and old habits. Although the general age is quite high for those who choose repair, some companies have seen an increasing trend among the younger generation. This may be because of the increase in awareness of sustainability among young people. Two companies that stand out from the rest are in the bicycle sector, where many of the customers are students. One of the companies is located in a student area in Lund and the other is located close to a university in Stockholm. This may imply that the geographical location matters regarding the age group.

Is there a demand for repairs?

Five of the interviewees within the shoe, bicycle, and white goods sectors mentioned that they had enough customers and therefore did not give an answer on how to increase the number of repairs. This may imply that there exists a demand for repairers within the three sectors. In addition, if initiatives from the authorities were to expand the market regarding companies who perform repairs, it will be one step further towards a circular economy as well as creating new work opportunities. Nonetheless, it is important to first work towards a change in behaviour before such initiatives are implemented. The demand for repairs within these four sectors should be proportional to the number of companies that perform repairs to be economically sustainable and realistic from a market perspective.

However, the proposed initiatives might lead to more competition for the current workshops, something that is not going to be beneficial in the short term. On the other hand, it might be a success in the long term since the market for repairs might increase. The companies who perform repairs are currently benefiting from the lack of competition. If the total number of workshops were to increase, it might be unfavourable for the repairers due to the insufficient demand from customers. Thus, the initiatives should follow the demand among the customers for repair.

Conclusion

In conclusion, the implementation of the VAT reduction and the RUT tax deduction in 2017 has not made a considerable impact according to the majority of the interviewees within this study. However, some companies in the bicycle-, and IT goods sectors have observed an increase in the number of repairs. Despite this, the majority of the interviewees could not link the increase in repair frequency to the respective tax change. The linear economy we have today needs to change into a circular economy and in this regard, the implementation of the tax changes has not had the desired effect so far. This may imply that further policies and/or initiatives are needed. Suggestions to increase the number of repairs within the four sectors are to communicate the information to the public in order to increase the awareness of the tax changes. Regarding the RUT tax deduction, to facilitate the work around the application for RUT as well as including more areas such as repairs in the workshop, spare parts, transportation to and from the customer's home are some mentioned proposals by the interviewees. The mention of having no need for further actions, as some repairers have more than enough work to do, might imply that there exists a demand among the public.

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Chapter 5: Concluding remarks

In conclusion, there are many aspects to consider regarding current and potential policies related to encouragement of consumer repair choice within the European Union, Member States, and more specifically, Sweden. Many EU directives have been devised over the last decades to promote more sustainable waste management, ecodesign and a general movement toward a more circular economy. However, current EU legislation is insufficient regarding Member State involvement in the transition toward a CE. Subsequently, the majority of Member States' initiatives toward a CE and increasing action for repair has to come from national, regional or local levels. Progress associated with movement toward more circular perspectives varies greatly among Member States, consequently diminishing the extent of the environmental benefits of a CE (Deloitte, 2016). Therefore, it is necessary that more detailed EU legislation is implemented to strive for more unified action toward a CE.

Despite lacking EU legislation, several Member States have taken huge steps toward a CE. Half of the Member States have circular economy strategies or roadmaps, where a majority include suggestions for repair promotion. Some have implemented legislation regarding product repair. Several initiatives exist on a regional or local level to encourage consumer repair choice. Although the Swedish Government is progressive concerning environmental issues, Sweden does not have a CE strategy or roadmap and lacks national initiatives relating to repair promotion. Therefore, there are many lessons to be learned for Sweden from other Member States relating to advancing initiatives for repair. The main policy for repair implemented in Sweden is the VAT reduction from 2017, but what significance has this strategy had on repair promotion in recent years?

According to Swedish stakeholders in leading investigations and committees, consumers are the main driver for promoting repair in Sweden. Companies using circular business models could also be a driver for the repair of products. The main barriers for promoting repair according to stakeholders are the lack of available repair services, affordable spare parts and lack of information regarding life expectancy, product quality and reparability. Barriers also include the time consumed for customers using repair services as well as the low price on new products compared to repaired products. Policies to promote repairs could be tax reduction on labour, VAT reductions on repair services and tax on new products or resource use. Policies could also focus on activating the secondary market and subsidizing leasing or renting. There is a need for promoting education and jobs in the repair sector as well as spreading information to customers regarding the urgency in changing consumption behaviour and the availability of repair services and its environmental potential. Policies which could be implemented on EU-level could promote circular business models and standardization regarding life expectancy, reparability but also certification on quality of repaired products.

In the interview study with Swedish companies, the interviewees own experiences and expectations were sought. The compiled results showed a difference between the four repair sectors; shoes, bicycles, white goods and IT-goods. The majority of the bicycle- and IT sector did observe an increase in the number of repairs. In contrast to this, the majority of companies in the other two sectors, white goods and shoes, did not observe any changes. Five out of the 10 interviewed companies that applies VAT reduction and four out of the 12 interviewed companies within the sectors that applies RUT tax deduction had noticed an increase in the

number of repairs. None of the interviewed companies in the white goods sector observed any differences.

The interviewees expressed their experiences of interferences to the repair business and mentioned several barriers. Multiple companies stressed that lack of knowledge regarding the tax changes were one of the main barriers. Other barriers mentioned were the slight difference in prices between repair and buying new products, product quality, extra work to apply for RUT tax deduction and unrepairable product designs. Their expectations of the tax changes and suggested solutions to the mentioned barriers are that more initiatives should be applied in order to increase the awareness among the customers. Other proposed solutions are certification of repair among the workshops in order to guarantee the quality of the product, facilitation of the work around the application for RUT and extending coverage of the tax, e.g. to repairs in the workshop, spare parts and transportation to and from the customer's home. Some of the companies opine that no further actions are needed to increase the repairs as they have enough customers, which might imply that there exists a demand for repairers within three of the sectors, shoes, bicycles and IT goods. If a similar study is conducted in the future, for example, after informative initiatives have been applied, it may show a different result.

Appendix chapter 2. Interview guide (Swedish)

1. Berätta lite om dig själv och vad du arbetar med?

2. Vilken anser du är reparationens roll i den cirkulära ekonomin?

3. Tror du att skattereduktionen på reparationer som infördes år 2017 och RUT-avdraget genererat önskad effekt? Vad är skälen till framgången/bristen på framgång tror du? Vet du om någon utvärdering gjorts?

4. Har du sett en förändrad inställning hos konsumenter/ tillverkande företag när det gäller reparationer senaste åren, sen år 2017?

5. Vilka skulle du säga är de nuvarande drivkrafterna som bidrar till att reparationer utförs på produkter?

6. Vilka skulle du säga är de nuvarande hindren för att öka omfattningen av reparationer som utförs på produkter? Utgå ifrån listan nedan.

    a. Tillgången till reparationstjänster är inte tillräcklig/tidskrävande
    b. Brist på insamlingsmöjligheter för återanvändning och reparationer
    c. Utökat producentansvar
    d. Reparationsprocessen är tidskrävande
    e. Skatten på arbete är hög i Sverige
    f. Priset på nytillverkade produkter är för lågt
    g. Produkter är av låg kvalitet
    h. Planerat åldrande av produkter
    i. Tillverkande företags affärsmodeller
    j. Manualer och verktyg saknas
    k. Konsumenter vill ha nytillverkade produkter (kulturell aspekt)
    l. Tron att reparerade produkter inte är lika bra som nytillverkade produkter
    m. Brist på kunskap hos gemene man
    n. Brist på tillgång till reparationscaféer/möjligheter till DIY
    o. Konsumentköplagstiftningen (Garanti, bevisbörda etc.).
    p. Att reparerad och nytillverkad produkt likställs vid reklamation
    q. Bristande genomslag för cirkulär design vid tillverkning av nya produkter.
    r. Ytterligare hinder

7. Vilken effekt tror du följande åtgärder skulle ha på andelen utförda reparationer i Sverige? Utgå ifrån listan nedan.

    a. Underlätta insamlingsmöjligheterna för återanvändning och reparationer
    b. Införa certifieringssystem på kvalitet för reparerade produkter
    c. Information och utbildning allmänhet
    d. Skattehöjning på icke-reparerbara produkter och/eller produkter av låg kvalitet
    e. Utökad skattesänkning för reparationssektorn och/eller för konsumenter som reparerar
    f. Hyberavdrag: skattesänkning för att hyra/laga/Sälja begagnade produkter

g. Skattesänkning på arbete inom reparationssektorn
h. Höjt pris på råmaterial för att öka priset på nytillverkade produkter
i. Mer ambitiösa nationella mål, vägledningen etc.
j. Lagstiftning mot planerat åldrande
k. Ecodesign av produkter
l. Lokala initiativ: Reparationscaféer, DIY, aktiviteter på lokal nivå för att öka medvetenheten
m. Konsumentköplagstiftningen: Utökad garanti, omvänd bevisbörda, reparation vid reklamation
n. Skyldighet att informera om förväntad livslängd och reparerbarhet till konsumenter
o. Skyldighet att producera/rätt till reservdelar, manualer och verktyg till konsumenter
p. Skyldighet att producera/rätt till reservdelar, manualer och verktyg till konsumenter till professionella reparatörer
q. Revidera lagstiftning som motverkar reparationer (t.ex. Copyright och patent)
r. Skyldighet att erbjuda reparationer och insamling i butik
s. Främja reparation över nytillverkad produkt vid reklamation
t. Inför Individuellt producentansvar/containrar för återbruk/modulerade avgifter
u. Ytterligare åtgärder

8. Hur tror du reparationsbranschen ser ut om 10 år? Vad baserar du det på?
9. Har du någonting annat som du vill tillägga?

Appendix chapter 3.

The conducted interviews followed the questions below in the interview guide. First, the questions for the cobblers and bicycle repair shops are listed followed by the questions for the white goods-, and IT-goods repair shops. The questions are written in Swedish.

Appendix II Interview questions for cobblers and bicycle repair shops:

- Berätta om er verksamhet - producerar ni egna varor eller reparerar ni?
- Hur länge har ni reparerat varor?
- Känner ni till skattesänkningen för reparationssektorn som infördes 2017?
  - Skattesänkning från 25 till 12 % för reparerade varor vilket gör det billigare för folk att reparera.
- Har ni sett någon skillnad i antalet reparationer sedan skattesänkningen genomfördes 2017? Blev det fler eller färre reparationer?
  - Om ja; hur har ni sett det?
  - Om inte: vad tror ni behövs för att det ska bli mer reparationer?
  - Är det mest yngre eller äldre som reparerar? Varför är det så tror ni?
- Har ni någon statistik angående hur mycket ni reparerar relativt hur mycket ni säljer? Något ni kan uppskatta?

- (De som producerar egna varor) Hur ser ni på att andra företag reparerar era saker?
    - Er logga på produkten även efter någon annan har reparerat produkten
    - Övriga frågor eller kommentarer?

Appendix III Interview questions for white goods-, and IT-goods repair shops:

- Berätta om er verksamhet - producerar ni egna varor eller reparerar ni?
- Hur länge har ni reparerat?
- Utför ni reparationer i hemmet?
- Känner ni till RUT-avdraget på 50 % för arbetskostnaden vid reparation och underhåll av vitvaror/IT-produkter som uppdaterades 2017?
- Har ni sett någon skillnad i antalet reparationer sedan RUT-avdraget uppdaterades 2017? Blev det fler eller färre reparationer?
    - Om ja; hur har ni sett det?
    - Om inte: vad tror ni behövs för att det ska bli mer reparationer?
    - Är det mest yngre eller äldre som reparerar?
- (För de som säljer nya produkter) Har ni någon statistik angående hur mycket ni reparerar relativt hur mycket ni säljer? Något ni kan uppskatta?
- För IT- reparatörer: Hur tror ni att ni kan få folk att göra reparationer hemma i hemmet för att få del av RUT-avdraget jämfört med att inte få någon rabatt om de kommer till er istället?
    - (De som producerar egna varor) Hur ser ni på att andra företag reparerar era saker?
        - Er logga på produkten även efter någon annan har reparerat produkten
        - Övriga frågor eller kommentarer?