

Bachelor's Programme in Economics and Business Administration

Reduced value-added tax: its efficiency and distributional effects

How the system should be organized?

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Abstract

This thesis is a literature review on the income distribution effects of reduced value-added taxes, which are commonly used in many countries to achieve distributional, social, cultural and other objectives. I review what the literature says on optimal indirect taxation, and it turns out that uniformity should be targeted even though also reduced levels have some positive effects. After that, I research the income distribution effects of reduced VATs on theoretical and empirical levels. It turns out that the redistribute objectives are seldom achieved and reduced levels cause inefficiencies. In the end, I present data on redistributive effects in Finland and discuss the findings and potential VAT reform in the Finnish context.

Keywords value-added tax, reduced VAT, optimal indirect taxation, income distribution

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1. Introduction

1.1. Motivation

The value-added tax (later in the thesis as VAT) is an essential part of the taxation system in many countries, and its popularity has been growing over the years (OECD/KIPF, 2014). In 2022, VAT existed in 174 countries and only one of 38 OECD countries did not use VAT (Alastair, 2024). In Finland, value-added taxes comprehended approximately 30 % of the total accrual of taxes in 2023 (Statistics of Finland, 2024a) and likewise in the European Union VATs comprehend approximately 30 % of total tax accrual in 2022 (Benzarti et al., 2020). One of the main elements of the VAT system in many countries is the usage of reduced VAT levels, which are commonly based on the idea of subsidising low-income households (Borselli et al., 2012). Still, simultaneously literature and empirical data find no redistributive role for reduced VAT when it is possible to use more efficient tools to achieve such goals (Alastair, 2024).

In Finland, the weak condition of the public economy has been under a heated political debate recently. Petteri Orpo's government has announced additional economic adjustment actions of three billion euros to enhance the public economy (Finnish Government, 2024). Before negotiations on the General Government Fiscal Plan, Riikka Purra, the Finance Minister of Finland, suggested raising the reduced VAT on food as an alternative to strengthen the state's income side (Talouselämä, 2023a). Such a suggestion caused large-scale opposition and irritation among many groups who criticized that such an action would weaken even more the difficult economic situation of many households and cause drastic consequences for the grocery sector (Iltalehti, 2023; Talouselämä, 2023b). In the end, the reduced levels of VAT remain unchanged for now, but the government decided to increase the main level of VAT from 24 % to 25,5 % (Finnish Government, 2024). Moreover, in the program of Orpo's government, one objective is to transfer commodities that are affected by 10 % VAT under 14 % VAT (excluding newspapers and periodicals) and this is estimated to increase tax profit by 205 million euros (Finnish Government, 2023). Nonetheless, raising the reduced VAT levels has got wide academic support, even though it is politically difficult to raise VAT levels, that have existed as reduced for a long time (Crawford et al., 2010). Simultaneously, reduced VAT levels have positive and negative effects and divide households into winners and losers (Borselli et al., 2012).

Groceries are just one example of all the commodities that are affected by the reduced VAT level (Verohallinto, 2020). In Finland, the main VAT level is 24 %, but simultaneously there are reduced VAT levels of 10 % and 14 % (The Ministry of Finance, n.d.). More generally, reduced VAT levels are commonly targeted to commodities that are consumed relatively much by poorer households to reach distributional goals and enhance the purchasing power of such consumers and reduced VAT levels are also used to support cultural objectives, such as culture, sports and newspapers (Borselli et al., 2012). According to Rauhanen (2015), separated VAT levels are criticized for causing inefficiencies, since the distributional goals are rarely achieved in the light of literature since the richer households tend to benefit the most from VAT reductions and simultaneously the reduction of VAT is a costly action for the government. In addition, reduced VAT levels are considered to add bureaucracy and costs for companies and tax administration, enhance the incentives for political logrolling and cause unfair competition between market parties (Agha & Haughton, 1996; Rauhanen, 2015). As an alternative to the multi-rate VAT system, a single-rate VAT combined with direct subsidies or income-tax reductions to poorer households has been suggested (Copenhagen Economics, 2008). The Ministry of Finance (2023a) argues that VAT should not be used to redistributive objectives and instead, moving towards a more uniform VAT system should be targeted. In this thesis, the main points of interest are the optimal indirect taxation and the distributional effects of reduced VAT levels.

1.2. Research objectives and research questions

This thesis focuses on answering the following questions:

1. What would be the most efficient way to organize indirect taxation and more specifically the VAT system?
2. What are the income distribution effects of the reduced VAT at theoretical and empirical levels?

To answer these questions above, I conduct a literature review, which is structured into two sections and various subsections according to the research questions.

1.3. Material overview and structure

This thesis focuses on discussing the efficient VAT system and its consequences both on theoretical and empirical levels and the idea is to seek similarities and differences between literature and reality. The used literature focuses on economic journals, especially to distinguish ones, but working papers and other academic resources are also used. In addition,

data, which will be explained specifically later, will be used to determine e.g. the distributional effects of VAT. Used literature presents information mostly from developed countries and the main point of interest in the discussion section is the Finnish context of reduced VAT levels.

The rest of the thesis is structured as follows. In Chapter 2 the institutional background of VAT will be explained. Chapter 3 consists of the literature review, and it is separated into two sections. Chapter 4 reflects the findings from the literature review especially in the Finnish context and then Chapter 5 concludes. In the end, references and appendixes are presented.

2. Institutional background

In this part of the thesis, I am going to explain the legislation and regulations that direct the decision-making of VAT. After that, I am going to introduce the main elements of the VAT system in Finland and provide a graph with descriptive data on VAT in Finland.

2.1. Legislative and institutional background for VAT in Finland

VAT is a consumption tax, i.e. indirect tax, and the basis for the VAT framework in Finland, like in other EU countries, comes from EU regulation, more specifically from the Council Directive on the common system of value-added tax, and approving the regulation requires unanimity of the member countries (The European Union, 2022). According to the Ministry of Finance (n.d.), applying VAT is a requirement for EU membership. However, EU regulation leaves some leeway for exceptions for the member countries. Every member country has the right to decide the main level and reduced levels of VAT themselves if it remains within certain limits as discussed below. As an exception, zero-level VAT is applied in some EU countries to some specific products; in such cases, the tax is not charged from the customer, but the company still can deduct the VAT from purchases that directly relate to sales (The Ministry of Finance, n.d.). In Finland, zero-level VAT is applied for instance for export outside the EU region, selling products to other EU countries for value-added taxed buyers and to the association's member magazines (Verohallinto, 2020). According to the European Union (2022), the EU's VAT directive also enables EU countries to apply super-reduced VAT rates and intermediary rates. Super-reduced rates can be less than 5 % and they are accepted for use in the sales of specific commodities only in certain EU countries. The latter relates to the transition period in the country's accession to the European Union and in such cases, a country can apply a VAT level of a minimum of 12 % until a pre-determined date, if the commodity does not belong to the list of Annex III of the VAT directive (The European Union, 2022).

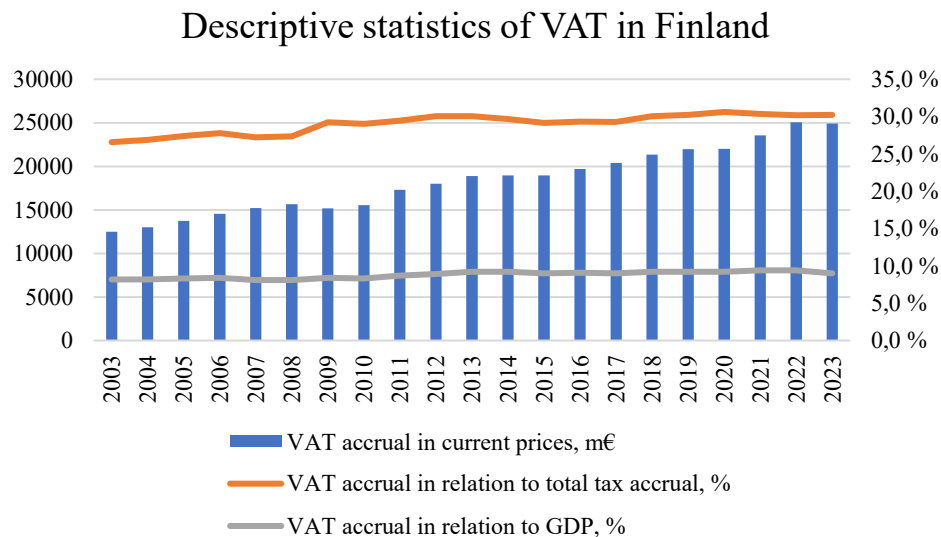
According to the Ministry of Finance (n.d.), with some exceptions, VAT is paid for all the products and services in every phase of the production process. However, to avoid the accumulation of VAT, every participant in the production or distribution chain pays tax only from that added value that has been born in that specific part of the chain. Then in the consumer price, the amount of VAT equals the sum of all the previously paid taxes. The accumulation of tax is in practice avoided with a tax reduction right since companies can reduce the tax of input purchases from the tax of sales (The Ministry of Finance, n.d.). Furthermore, companies falling below certain VAT registration thresholds, which vary distinctly across countries, are released from paying VAT since compliance and administrative costs are considered to be extortionate compared to the VAT revenue (Alastair, 2024). In Finland, the threshold for VAT obligation is a revenue of 15,000 euros in an accounting period (Verohallinto, 2020).

According to Rauhanen (2015), EU regulation is based on the target country principle, meaning that VAT is paid to the country in which the product or service is consumed with the VAT level of that specific country. Likewise, if the product is exported to a country outside of the EU, then the VAT is also paid to the target country. Regardless of the leeway in the country-specific VAT decision-making, after 1992 there has been a minimum level of 15 % for the main level of VAT in the EU. Simultaneously, the EU hasn't set any maximum level for the main VAT, but it is aimed to keep the difference between the lowest and highest levels at most 10 % (Rauhanen, 2015). EU regulation also determines the lowered VAT levels, since there can be at most two reduced VAT levels and they must be at least 5 % and can concern commodities that are listed in Annex III of the directive even though also this rule allows some specific exceptions (Borselli et al., 2012; The European Union, 2022). EU's VAT directive also strictly forces the member countries to release some commodities, such as health care, education, public media and banking, under VAT and this is motivated by social, taxational and bureaucratic reasons (Rauhanen, 2015).

2.2. Value-added taxation in Finland

In Finland, the general VAT level is 24 %, which is the fifth highest main level of VAT in European countries, and in addition, two reduced levels, 14 % and 10 %, are used (The European Union, 2022; Verohallinto, 2020). From the year 2025 forward, the main level of VAT in Finland will be the second highest in the EU as a result of the Finnish government's decision to raise the main level of VAT to 25,5 % (Finnish Government, 2024). VAT consists

of approximately 68 % of all the consumption taxes in Finland (Veronmaksajat, 2023). The division of the commodities into three different VAT levels, zero-rate VAT and exempted commodities from VAT can be found in Appendix A (Verohallinto, 2020). A common reason for reduced VAT is the role of the commodity as a necessity and on the other hand exemptions often apply to merit goods, such as education and like in other countries, also in Finland, the reduced VAT is considered to advance the distributional, cultural and social objectives (Borselli et al., 2012).



Graph 1¹: *Descriptive statistics of VAT in Finland*

The graph above represents some relevant descriptive information from the VAT in Finland conducted from the years 2003-2023 (Statistics of Finland, 2024a). Firstly, the blue columns describe the total VAT accrual in current prices. As one can see, VAT accrual has risen quite constantly over the years and in 21 years the accrual has increased by approximately 100 %. The grey line illustrates the percentage of VAT accrual compared to the GDP. We can notice that also the proportional share of VAT has increased from 2003 years by approximately 10 %. Lastly, the orange line depicts the development of the VAT portion from all the tax accruals in Finland over the past 20 years. This observation also supports the fact that the importance of VAT has been growing over the years since there has been approximately 14 % growth in the VAT portion share of all taxes during the past 20 years. VAT is considered to affect less negatively on economic growth than income taxation (Arnold et al., 2011), which might be one explanation for the growing role of VAT in tax accrual. In addition, considering the growing economic interdependence between countries, countries might want to lower their income taxes and shift focus on VAT (Gordon & Bo Nielsen, 1997). Moreover, E. M. R. A. Engel et al.

¹ Graph 1 above is conducted from the data of Statistics of Finland (Statistics of Finland, 2023a) and the data is presented in Appendix B.

(1999) argue that indirect taxes are much easier to administer than other taxes and cause fewer distortions.

Actual VAT accrual does not equal the potential accrual since the policy² and compliance³ gaps exist. According to The Ministry of Finance (2023b), the amount of policy gap in Finland is estimated regularly, however, estimations are static, meaning that the effects of the taxation changes on behaviour and price incidence and other factors are not considered. The precise determination of the policy gap is difficult since some of the tax subsidies also overlap and affect each other meaning that removing the policy gap does not necessarily increase tax revenue by the amount of the gap. The Ministry of Finance (2023b) estimates policy gaps, which however do not tell about the effectiveness of the subsidy itself, for some relevant commodities under the reduced VAT for 2024 in a million euros as follows (existing VAT rate): 1603 m€ on groceries and feed (14 %), 624 m€ for restaurant and catering services (14 %) and 99m€ on entrance fees to cultural and entertainment events (10 %). On the other hand, the amount of compliance gap in Finland in 2021 was the second smallest in the EU, only 0,4 % (European Commission, 2023). Moreover, rejecting the reduced rates of VAT and moving to one uniform VAT rate in a budget-neutral way would yield a tax of approximately 21 %, however, it is remarkable that also this estimation is static (Rauhanen, 2015).

3. Literature review

In this part of the thesis, I provide a thorough review of literature both on theoretical and empirical levels separated into two main sections. In the first section, I review the characteristics of an optimal indirect taxation system in general. This part focuses mainly on the objectives of indirect taxation, efficiency, the relationship between consumption and leisure and externalities. In the latter section, I review the income distribution effects of the reduced VAT levels. In this part, subsections consist of regressivity, behavioural and incidence effects, VAT reform scenarios and other instruments for subsidising poorer households.

3.1. Optimal indirect taxation

3.1.1. Objectives of the indirect taxation

² Policy gap is the difference between theoretical and actual VAT accrual caused by rate differentiation and tax exemptions (Keen, 2013).

³ Compliance gap is the difference in VAT accrual caused by the effect of imperfect implementation, such as delinquency, insolvency and imperfections in the governance (Keen, 2013).

First, it is essential to determine the difference between indirect and direct taxation and understand that indirect taxation must be set to the framework of the optimal taxation system as a whole. Atkinson and Stiglitz (1976) aim to consider the relationship of different kinds of taxation in a broader framework and argue that indirect taxes do have an essential role in the optimal tax policy since income tax will not suffice alone. Also, Atkinson (1977) studies the choice between indirect and direct taxation and finds that direct taxation seems to be superior on both equity and efficiency grounds. According to Atkinson (1977), direct taxes can be modified by individual characteristics, whereas indirect taxes do not take individual characteristics into account. According to Atkinson and Stiglitz (1976), the general challenge of determining the optimal tax policy is that there are many individuals with different characteristics, especially when it comes to endowments and tastes. If all the individual characteristics and abilities could be observed without costs and imperfections, then imposing a lump sum tax based on the characteristics would yield the optimal taxation policy, but in the absence of that information, taxes must be imposed on income and consumption. However, Atkinson and Stiglitz (1976) assume individuals to differ only in the light of their ability to earn income.

The main targets of an optimal indirect taxation system can be described in many ways but simultaneously some common objectives can be found. Balancing between equity, both horizontal and vertical, and efficiency goals within the same framework when determining the optimal taxation has been quite a typical approach (Atkinson & Stiglitz, 1976). Horizontal equity includes the idea of equal treatment of equal ones, whereas vertical equity calls for appropriate differentiation among unequal ones and usually the latter has been considered the primary objective (Musgrave, 1990; Atkinson, 1977). The problem caused by individual characteristics affects also vertical and horizontal equity and therefore Musgrave (1990) uses net income in determining equal individuals. Musgrave (1990) reconsiders the proposition of vertical equity being the primary equity goal and finds out that usually there exists a trade-off between vertical and horizontal equity. Moreover, Musgrave (1990) argues that under imperfections, differences in horizontal equity might be the primary factor. However, in the thorough paper analysing the elements of VAT in the EU, the diversified VAT is criticized for decreasing horizontal equity, since some households will be awarded and some penalized because of their consumption choices and preferences compared to other similar households, who have different preferences (Labeaga et al., 2011).

3.1.2. Efficiency considerations of indirect taxation and VAT

Efficiency is often considered as one of the main objectives of VAT but especially in more recent research also other objectives have enhanced their role. An early efficiency theorem of indirect taxation known as Ramsey's inverse elasticity rule was proposed decades ago by Ramsey (1927), who tries to optimize the dilemma of adjusting different tax rates on some or all uses of income in a way that minimizes the decrement of utility in a world where no income taxes exist. Ramsey's optimization is focused purely on efficiency, neglecting e.g. distributional considerations and the marginal utility of the money for different people. Ramsey (1927) states that if the commodities are independent of demand and there exist no cross-price effects, the highest tax should be targeted to the commodity, whose elasticity of the demand is the lowest and vice versa if cross-price effects are found, then the taxation carried out should reduce the demand for all the commodities in the same proportion.

Ramsey's rule is reconsidered by Diamond and Mirrlees (1971) and Diamond (1975), who optimize the taxation under cross-price effects and in the context of many consumers to also determine the distributional effects. Diamond (1975) uses social marginal utilities of income instead of social marginal utilities of consumption, meaning that instead of considering just an increase in welfare due to increased consumption, the additional income, which is composed of the consumption and from the marginal propensity to pay income taxes, should be considered. Both papers propose that for commodities that are consumed proportionally more by poorer consumers, the proportional reduction in demand should be smaller since such conduct would yield more equal distributional outcomes. In addition, Diamond and Mirrlees (1971) argue on behalf of differentiated taxation of all production inputs and outputs and commodity taxation should not falsify the production decisions.

In more recent research, determining the efficiency of VAT with different models has been executed quite widely and a common way to do this is the C-efficiency, which is explained below. According to Keen (2013), who focuses on the factors and anatomies of VAT, a reduction in the efficiency of the VAT is caused by a policy and compliance cap, which are the determinants of C-efficiency. Policy cap, which is conducted to usually cause a larger efficiency reduction than the latter one, includes rate differentiation and tax exemptions and in turn, the latter one reflects the effect of imperfect implementation, such as delinquency, insolvency and imperfections in the governance, of the VAT (Keen, 2013). In 2021, the compliance cap in EU countries was on average only 5,3 %, whereas the policy gap was on

average 44,9 % of the notional ideal revenue (European Commission, 2023). In addition, changes in the VAT standard rate have had less impact on the VAT revenue than changes in the C-efficiency (Keen, 2013). The efficiency of the VAT system is also affected by the larger societal phenomenon; the structural change, which directs consumption increasingly towards the service sector, reduces the C-efficiency of the VAT and this causes the need to revise the VAT system (Cevik et al., 2019).

C-efficiency, which indicates the difference from a perfectly implemented uniform tax on all consumption, is derived from the VAT revenue, which can be written as follows: $\frac{V}{Y} = \tau_s E^c * \left(\frac{C}{Y}\right)$, in which τ_s = standard rate of VAT, E^c = efficiency rate, V = VAT revenue, Y = GDP, and C = consumption. From that we get the formula for the C-efficiency, $E^c = V / (\tau_s * C)$. The model of the C-efficiency is developed by Bodin et al. (2001) and a simplifying assumption behind the formula is that broadening the tax base does not have any effects on the structure and level of consumption. Another way to determine the efficiency of the VAT is presented by Borselli et al. (2012), who discuss the VAT structures and their impacts on tax revenue in the European Union. They weigh the existing rates with the baskets of different commodities, the same ones that are used to calculate HICP⁴, including the consumption that faces tax exemption or is outside the VAT, and then separate total household consumption into six categories. Such an analysis yields the difference between the current main level of the VAT and the effective level, i.e. the weighted average, of the VAT (Borselli et al., 2012).

3.1.3. The relationship between consumption and leisure

Besides various efficiency considerations, much of the indirect taxation theorem focuses on the relationship between leisure and consumption. Corlett and Hague (1953) set for their theorem a framework, in which perfect competition and constant marginal costs exist and consumers can decide about the fraction of work, which taxation will slightly reduce, and leisure in one's life. They introduce a selection situation between two commodities taxed with indirect tax and leisure and conclude that one will reach a higher indifference curve when working more and this yields the conclusion, regardless of the income effects, that complementary commodities with leisure⁵ should be taxed heavier. Christiansen (1984) studies the relationship between

⁴ Means the harmonized index of consumer prices and it is used to measure consumer price inflation. The Eurostat, which cooperates with national statistics institutions, oversees calculating the HICP (European Central Bank, 2024).

⁵ Complementary commodities with leisure, i.e. substitute for labour, are commodities that are consumed in leisure, or their consumption increases the desirability of leisure and thereby weakens the labour supply. Often for instance entertainment, food and beverages and books and magazines are found to be complements with leisure. (Crawford et al., 2010)

income and commodity taxes and analyses to which commodities a small excise tax should be directed. Based on the analysis, Christiansen (1984) holds with the theory of Corlett and Hague and argues that taxing more heavily complementary commodities with leisure is an efficient manner due to labour incentives. Also, Gauthier and Henriet (2018), who study the optimality of commodity taxes when individuals differ in skills and preferences and non-linear income taxes exist, find similar results. They develop the theory of Corlett and Hague further and argue that when tastes derive from the ability of the individual, not from the income, then a proportionally larger tax should be imposed on the commodities, that meet the tastes of the higher-ability individuals better. Moreover, Boadway and Gahvari (2006) study the optimality of commodity taxation when either labour or leisure is a perfect substitute⁶ for the time taken in consumption and Crawford et al. (2010) discuss the allocation between consumption and leisure in the light of the favourability of consumption. Both papers find that the favourability of consumption should direct the taxation in a way that less pleasurable and more time-consuming goods should be taxed more since these factors reduce the working incentives.

The literature on indirect taxation has aimed to find out whether there exists a weak separability between leisure and consumption. A weak separability is defined as a situation in which all commodities are equally complementary with leisure yielding no effects on labour supply (Atkinson & Stiglitz, 1976; Christiansen, 1984). Atkinson and Stiglitz (1976) conclude counter to Corlett and Hague (1953) that if goods consumed are not complementary with leisure and consumer characteristics are individual and do not depend on the ability to earn income, then the optimal solution, if also indirect taxation is used, despite the incentive problem, is to apply a tax on all commodities with a uniform rate and this is supported by Christiansen (1984). Swofford and Whitney (1987) focus on analysing weak separability and utility maximization from the perspective of demand theory and use as variables per capita expenditure data on consumption, monetary assets and leisure. They conclude that there is a weakly separable utility function between consumption and leisure, but also nonseparability⁷ between consumption and leisure should be considered. Moreover, Atkinson and Stiglitz (1976) argue that if there exists a weak separability between consumption and leisure, then due to individual utility functions, indirect taxation is only a suboptimal way to achieve redistributive objectives. However, Cremer et al. (2001) research the optimal mix of indirect and direct taxation in a setting, where individuals also differ in many characteristics in the light of abilities and

⁶ A perfect substitute can replace the product used completely (Goolsbee et al., 2016).

⁷ Decisions on leisure depend on the outcomes or options available in consumption and vice versa (Goolsbee et al., 2016).

endowments. Contrary to Atkinson and Stiglitz (1976), they consider more than just one dimension of heterogeneity of individuals and state that even under the separability of leisure and consumption, a differential commodity has an important role. In turn, Golosov et al. (2003) focus on considering the optimality of indirect and capital taxation in a setting in which individual skills are unobservable and weak separability between consumption and leisure exists. They state that equating the marginal rate of substitution⁸ between commodities to the marginal rate of transformation⁹ of those commodities would yield a Pareto improvement¹⁰ meaning that all commodities should be taxed uniformly.

However, also other studies on weak separability have concluded that weak separability does not hold, even though the separability is quite scarcely researched on an empirical level. Crawford et al. (2010) reject the weak separability in their wide VAT reform analysis in the UK and deem indirect taxation to be rational since based on empirical data, e.g. most groceries, tobacco and public transport are complementary with leisure and vice versa alcohol, food eaten out and leisure items are complementary with work. Moreover, Pirttilä and Suoniemi (2014) approach the dilemma of optimal taxation under unobservable characteristics by examining empirically the relationship between consumption demand, working hours and the use of public daycare services in Finland. As a result of their study, the weak separability is rejected since the use of childcare correlates positively with working hours. However, both Pirttilä and Suoniemi (2014) and Crawford et al. (2010) argue that the economic gain and distributive effects from differentiated taxation are small and that combined with the heavy administrative burden of diversified indirect taxation they end up suggesting uniform indirect taxation.

3.1.4. Effect of VAT on employment and working incentives

Moreover, reduced VAT levels are also motivated by the idea of promoting employment and working incentives for low-skilled workers, but the effectiveness of such actions seems to be questionable based on the literature. In their thorough study on reduced VAT rates in the EU countries, Copenhagen Economics (2008) finds that reduced VAT levels might reduce structural unemployment, especially in service-oriented sectors. However, the impact of such measures is likely low and instead for instance direct subsidies could be a more efficient and transparent way to support low-skilled workers (Copenhagen Economics, 2008). Support for

⁸ The rate at which an individual is willing to trade off one good for another good and remain equally well off (Goolsbee et al., 2016).

⁹ The trade-off between the production of any goods on the market (Goolsbee et al., 2016).

¹⁰ Pareto-improvement is a situation in which someone becomes better off without anyone else suffering from it (Goolsbee et al., 2016).

the employment argument of the reduced VAT is presented by Naito (1999) who presents that the uniformity argument of Atkinson and Stiglitz (1976) is not valid if also the production side is considered. Naito (1999) argues that even besides nonlinear income taxation, deviated commodity taxes might yield Pareto-improvements if the lower levels of tax are targeted to sectors, in which the amount of unskilled workers is high since such an action could support employment and income development.

Much of the studies on working incentives of reduced VAT focus on empirical level and simulations. Kosonen (2015) presents an empirical study on the VAT cut for hairdressers from 22 % to 8 % in Finland, whereas the control group does not face any VAT reform. Kosonen's (2015) focus is on the efficiency of consumption taxes in the service sector and as a result, the reduction of VAT was found not to increase the number of sales and instead, the profits of the companies rose. Pestel and Sommer (2017) study a partial shift in taxation in Germany from income to consumption based on a microsimulation of behavioural incidences and empirical data on household budgets. Based on reform scenarios, in which the balance is shifted from income taxation or social security contributions towards VAT, they confirm the positive effect on working incentives. Vice versa, in their simulation study of different VAT reform scenarios combined with direct subsidies in the UK, Crawford et al. (2010) conclude that shifting the balance towards indirect taxation would likely not affect greatly working incentives. Also, the effect of reduced VAT on employment is even harder to determine beyond the medium run, since unions might be able to keep wages high (Pestel & Sommer, 2017).

3.1.5. Consideration of externalities

Reduced VAT levels are also motivated by the idea that they enhance the consumption of commodities that generate positive externalities. Usually, cultural factors besides redistributive objectives are lifted in the centre (Labeaga et al., 2011) and this is also the case in Finland since VAT is reduced e.g. for film screening and newspapers and periodicals (The Ministry of Finance, 2023a). Vice versa, commodities with negative externalities, might be targeted with higher VATs to reduce demand towards them (Warwick et al., 2017). However, in their wide analysis of the elements of VAT in the EU, Labeaga et al. (2011) argue that regardless of encouraging or discouraging objectives, reduced VATs to support such objectives seem to be an inefficient and poorly targeted mechanism and this is also supported by Warwick et al. (2017). Warwick et al. (2017) aim to summarize the pros and cons of the diversified VAT and present that a reduced VAT enables a lower price to the higher-priced version of the

commodity¹¹ to which the reduced level is targeted and secondly, the possibility for registered firms to reclaim VAT enables them to not be affected by the VAT rate change due to externalities. In addition, reduced VATs due to externalities have other challenges since they are available to consumers only and increase immediately when the price of the production rises and, in such cases, reduced rates might not be the reasonable way to deal with externalities (Warwick et al., 2017).

3.2. Income distribution effects of the reduced VAT levels

Achieving an equal income distribution has been one of the main arguments on behalf of the reduced VAT levels. However, in their wide analysis of VAT, Bodin et al. (2001) consider reduced VAT to be an expensive way to subsidize poorer households and have only a limited redistributive effect since often middle and high-income consumers benefit the most from the policy gap of the reduced VAT rate and this finding is supported for instance by Warwick et al. (2022) and Crawford et al. (2010). However, determining the actual distributional effect of the reduced VAT is complex, but according to Banks et al. (1997), who deliver a model of consumer demand with the obtained patterns of expenditure and argue that to analyse the distributional effects of commodity tax policy, both income and price effects should be considered. Saez (2004) reconsiders the theories of optimal taxation, especially the theories of Atkinson and Stiglitz (1976) and Diamond and Mirrlees (1971) and states that in the long run, raising revenue and achieving distributional goals with direct taxation is more efficient than with indirect taxation. Hence, there exist also differences in country-specific characteristics, especially in the political factors, and they are affecting to distributional outcomes of tax reforms, as Gupta and Jalles (2022) point out in their paper, which indeed focuses on developing countries, but still offers an angle to consider also in developed countries.

3.2.1. Regressivity of the VAT

One essential branch of literature has been, whether VAT is regressive, meaning that low-income consumers pay VAT proportionally the most, progressive, meaning the opposite, or proportional in the end. Usually, VAT is considered to be a regressive one (O'Donoghue et al., 2004; Riihelä, 2010). Bodin et al. (2001) consider the equity and distributional aspects of VAT and argue that since the proportion of income consumed decreases when the income increases, then the proportion of income that is directed to VAT payments will decrease, making VAT a

¹¹ For instance, many countries use lower VAT for public transport, but this mechanism provides a bigger subsidy for luxurious alternatives of transportation, e.g. for taxis (Warwick et al., 2017).

regressive tax. Decoster et al. (2010) compose a microsimulation for five European countries to analyse the effects of shifting the balance in the taxation system from labour to consumption and get a clearer understanding of the distributive effects of shifting the balance. As a result of the simulation, they find that in the light of disposable income, indirect taxes are regressive but in the light of total expenditures indirect taxes are progressive or proportional. Moreover, indirect taxes are however less progressive than other parts of the whole taxation system and therefore one possible measure would be to enhance the progressivity of the income tax to decrease the regressive effect (Decoster et al., 2010). Additionally, O'Donoghue et al., (2004) argue that indirect taxation almost tends to widen income distribution due to its regressive nature based on the microsimulation model of expenditures and indirect taxes in 12 EU countries. Also, Labeaga et al. (2011), who study the distributional impact of VAT based on various studies in different EU countries, deem that the nature of VAT depends on the setting made. Often the consideration of VAT being a regressive tax is based on analysis which considers VAT payments as a proportion of income, but this does not take adequately into account borrowing, saving money and consumption smoothing opportunities over life and therefore the separation into income and expenditure considerations is more reasonable, since the outcomes may vary a lot (Labeaga et al., 2011). Usually, measuring the impact of VAT in the light of expenditures exceeds the savings patterns, and might therefore be a more reasonable way to determine impacts (Alastair, 2022).

However, also opposite findings from the regressive nature of VAT can be found. Alastair (2022) presents a microsimulation analysis of the nature of VAT made in 27 OECD countries and ends up opposing the previous ones. Alastair (2022) finds VAT to be proportional or progressive, and the latter can be explained by the existence of tax exemptions and reduced rates. Moreover, Gastaldi et al. (2016) analyse the distributional impacts of different VAT systems by using static microsimulation of expenditures and incomes in Italy. They find the regressive nature of VAT to be often overestimated because many individuals smooth their consumption over time and additionally, in terms of disposable income VAT is regressive for only the very poorest and richest quantiles while simultaneously only slightly decreasing in the middle of the quantiles. Da Costa and Santos (2023) evaluate replacing the existing taxation system in the US with a system in which income taxes are linear and vice versa consumption taxes are progressive. Adding progressivity to consumption taxes yields a 9,4 % increase in welfare due to a better redistribution of income and simultaneously it would eliminate

inefficiencies in the light of capital accumulation and effort discouragement and therefore the existing regressive indirect taxation system should be reconsidered (da Costa & Santos, 2023).

3.2.2. Incidence and behavioural effects of the VAT reforms

When a VAT reform is made, the actual impact of the reform depends a lot on the price incidence and economic behaviour. However, they are usually ignored in academic research, as Joumard et al. (2012) find in their paper focusing on the redistributive role of taxes and cash transfers in OECD countries by using cluster analysis and empirical data. They argue that ignorance might lead to overestimating the redistributive effect since taxes and subsidies affect working and saving incentives. Also, Benzarti et al. (2020) highlight the role of the price elasticities of the commodities and asymmetric incidences when measuring the actual distributional impact of VAT reform, as they provide thorough empirical data from the asymmetric incidence of VAT examining all VAT reforms in the EU from 1996 to 2015 using Eurostat's HICP data and specifically a VAT reduction for hairdressers in Finland. However, in the theoretical models, the incidence of the VAT reform is often expected to be fully reflected in consumer prices (Benzarti et al., 2020; Crawford et al., 2010). Nevertheless, Benzarti et al. (2020) find that commodity prices increased twice as much as they decreased persistently over time as a result of VAT reforms and therefore raising VAT might strengthen the adverse income distribution. Moreover, the nature of the commodity also affects the price incidence, since necessities such as energy, groceries and goods spent proportionally more by poorer households have lower elasticities and vice versa luxury goods have higher elasticities (O'Donoghue et al., 2004).

Usually, in empirical studies, the pass-through of a VAT reform is found not to be complete. Kosonen (2015) aims to fill the gap of scarce literature on VAT reduction's incidence and efficiency and studies the price and incidence effects of VAT reduction for hairdressers in Finland from 22 % to 8 % and uses a control group, in which the original level of VAT remains, selected from a wider European pool. As a result, the reduction in consumer prices is only half of what could have been expected as a result of complete pass-through leading to a larger producer surplus. Moreover, Benzarti and Carloni (2019) focus on the incidence of a VAT reduction from 19.6 % to 5.5 % in French sit-down restaurants in 2009 using a difference-in-difference model and broaden the study to estimate the consequences on four groups: consumers, workers, suppliers of material goods and firm owners. They find firm owners to gain 55 % of the VAT cut while the consumers benefitted the least, only 13.6 %, from the

remaining windfall and therefore they find the pass-through of tax cut being weak. Also Harju et al. (2018) study price responses to VAT reductions in the restaurant sector in Finland (from 22 % to 13 % in 2010) and Sweden (from 25 % to 12 % in 2012) based on microdata which reflects price changes over time for heterogeneous firms and they also assess the data together with identical data from different countries. As a result, they find that independent restaurants ignored the tax reductions whereas restaurant chains executed mostly a full pass-through in consumer prices.

Also, opposite findings implicating more effective pass-through can be found. Mooij et al. (2015) compose an empirical study of VAT price incidences using disaggregated monthly panel data on VAT rates and prices for 17 Eurozone countries from 1999 to 2013 consisting of 1231 VAT changes. They criticize the general assumption in distributional analysis that indirect taxes have a full pass-through to consumer prices and compared to the previous VAT incidence studies, they find that there are no systematic differences in price incidences between VAT increases and decreases and these results are robust in the light of measurement error and endogeneity. Mooij et al. (2015) find out also that the incidence effect depends on the nature of the VAT that is reformed; changes in the main level appear to pass through almost fully, whereas the pass-through in reduced rates is approximately 30 % or even smaller. Moreover, pass-through seems to be larger for durable goods than for non-durable. More strikingly, Gaarder (2019) focuses on analysing the distributional and incidence effects of reducing VAT on food from 24 % to 12 % in Norway in 2001 using a regression discontinuity design which studies the consumer prices just before and after the reform and full pass-through in consumer prices can be found to alleviate the welfare differences between richer and poorer households since poorer ones have a larger proportional food expenditure.

The distributional effects do not depend only on the incidence effect on the producer side, but also on the behavioural effects of the consumers. One appropriate way to express consumer behaviour on price changes is known as the Engel curve, which expresses the relationship between income and commodity expenditure (Banks et al., 1997). Engel's law, developed over 150 years ago, states that the poorer the household is, the bigger proportion of income it spends on groceries, and this generalization has turned out to be a robust one (Chai & Moneta, 2010). Moreover, Engel curves are often used to separate commodities into inferior goods, necessities and luxuries and are an essential tool in forecasting changes in demand (J. Engel & Kneip, 1996). Moreover, income elasticities can be derived from Engel curves; goods with elasticity

below zero are inferior, between zero and unity are necessities and above unity are luxurious and goods with a positive Engel curve are normal whereas goods with a negative slope are inferior at a given level of income (Goolsbee et al., 2016; Lades, 2013). In addition, Lades (2013) compares Engel curves between matching, in which individuals allocate their income to different consumption categories based on their needs, and utility maximization models and argues that for higher income levels the curves remain quite similar regardless of the model but for poorer income levels the models lead to very different allocations of income. Therefore, when decision-makers assume individuals to be rational, the positive effects of redistributive tools might be overestimated (Lades, 2013).

3.2.3. Income distribution effects on an empirical level

Many studies find higher benefits for richer households from the reduced VAT. In their comprehensive paper, Crawford et al. (2010) set a suggestion for reforming taxation in the UK as a main idea to broaden the VAT base. They study the distributional impacts of potential VAT reforms in the UK and set the existing 17.5 % main level of VAT for a uniform rate for all commodities and they simultaneously increase the subsidies for only poorer households by 15 %. As a result of the simulation, the amount of the increased subsidies was only half of the increased tax revenues and the reform turned out to be adverse for the richer households and the three poorest deciles benefitted the most. They find that the reform to uniform VAT of 17,5 % without any compensating measures yields 8 % average tax losses of disposable income for the poorest decile whereas the richest decile faces only 2 % tax loss. However, when compensating measures are adopted, then the situation is inverse, since the poorest decile gains a 3 % tax benefit, and the richest decile still faces a 2 % tax loss (Crawford et al., 2010). Also, in their paper, which estimates the redistribution of taxes and subsidies in OECD countries, Joumard et al. (2012) conclude that top income decile benefits 2,5 times as much as bottom income decile from the preferential VAT levels. Higher benefit for richer households from the reduced VAT levels is found also in the study of OECD/KIPF (2014), which analyses comprehensively consumption taxes' distributional effects in 20 OECD countries using households' expenditure data in micro-simulation models. Based on the study, OECD/KIPF (2014) highlights the effect of the type of the commodity since reduced rates on necessities, such as energy and food, are weakly targeted to poorer households but have a small progressive effect, whereas reduced rates on e.g. cultural objectives, such as books and restaurants, have even regressive effect since the richer households benefit from such reductions the most.

In many studies, the wide use of preferential rates seems not to be an optimal solution to achieve distributional goals. Tol et al. (2011) study the distributional effects of VAT, which they consider a regressive tax, in Ireland and argue based on a simulation that a uniform VAT would disproportionately cause worse effects for the poorest households. Moving from many VAT levels to a uniform rate of 10.9 % would have approximately the same distributive effects as the existing system, in which the main level is 21 % and there exist zero rates, exemptions and reduced rates of 4.8 % and 13.5 %, but it would simultaneously lower administrative costs and reduce economic distortions (Tol et al., 2011). Moreover, Bye et al. (2012) conduct a general equilibrium model based on empirics for Norway, which is classified as an open and small economy, and compare three VAT systems: current and former multi-rate systems and a uniform VAT system. They conclude that broadening the multi-rate system to more but not all services will reduce welfare but a uniform VAT including all commodities would increase welfare. Additionally, Boeters et al. (2010) study the distributional effects of four different VAT reform scenarios in Germany, in which the reduced levels are abandoned, and taxation is simultaneously relieved in other ways. They first merge various databases to get empirical data on income composition and consumption and then use the applied general equilibrium model, which assumes the economy consisting of various agents to be in equilibrium and then studies the impact of changes in the economy, to research the effects of VAT reforms. As a result, abandoning the reduced levels and moving towards a uniform VAT rate does not have almost any income distribution effects as long as simultaneously adjusting income taxation and social security contributions in a way that all households would benefit equally from the reform.

VAT is also sometimes found to have some redistributive role but usually, the impact is weak. Copenhagen Economics (2008) simulates a general equilibrium model capturing linkages between various sectors of the economy, which can be used to study the effect of changes in the VAT system. They study the distributional effect of five different VAT reform scenarios in European Union member countries so that one alternative is a uniform rate, two scenarios include extending the preferential rates and two scenarios consist of simplifying reduced rates. As a result, the income distribution can be improved if the VAT reduction is targeted at groceries in countries in which the income distribution has been initially relatively skewed. Regardless of that, due to compliance costs, which can be even sizeable, other policy tools to achieve distributional goals should be considered first, especially if the social security system functions well (Copenhagen Economics, 2008). On the other hand, E. M. R. A. Engel et al. (1999) reflect income distribution effects of the tax system in Chile in 1996 and find out that

effects were very similar before and after the redistribution. Comprehensive VAT, which was levied in almost all transactions at the uniform rate of 18 % and accounted for more than 70 % of the whole tax revenue, is assumed to be entirely paid by consumers. They find out that the Gini coefficient falls slightly from 0,4883 to 0,4300 and notably 56 % of the improvement in distribution is caused by VAT, however, this is mostly explained by the VAT's high proportion in tax accrual. Moreover, they notice that even major reforms to the taxation system, e.g. raising VAT from 18 % to 25 %, do not affect hardly at all income distribution.

The distributional effect of VAT reforms in Finland is also analysed in the literature, although quite scarcely. Riihelä (2010) studies various alternative VAT reforms in Finland and argues that changing VAT levels does not have almost any distributional effects if the reform is conducted in a budget-neutral way. Moreover, Rauhanen (2015) estimates the distributional effects of potential VAT reform towards one uniform VAT rate in Finland as a part of his paper on behalf of a more uniform VAT and concludes that rate harmonization affects only a little income distribution leading low-income consumers to pay a little more tax from their disposable income, which is also supported by Riihelä (2010). Distributional effects are minor because low-income consumers spend proportionately more on commodities under 14 % VAT, but simultaneously the consumption structures between different consumers have approached each other (Rauhanen, 2015). In addition, Riihelä (2010) studies six different potential VAT reforms in Finland from the perspective of income distribution effects using data over a couple of decades and notices a reduction in the distributional effects since half of the 1990s. However, shifting the balance in taxation from labour to consumption would enlarge differences in income. Riihelä (2010) also points out that due connection of most public subsidies with price-index, the regressivity of VAT decreases, which also alleviates the distributional differences.

3.2.4. Reduced VAT rates versus other instruments to support poorer households

Whether the possibility to use preferential VAT rates should be used, depends on the other instruments available in the society but usually under many instruments available differentiated VAT is not the most efficient way to achieve redistributive goals. Bodin et al. (2001) find that preferential VAT rates have a distributive role in developing countries, in which the social security system does not function well, but in developed countries, non-linear income taxation and direct subsidies yield more efficient outcomes. In their microsimulation-based study, Warwick et al. (2022) focus on comparing the redistributive effects of reduced VAT versus cash transfers to poorer households and find that preferential VAT levels are an inefficient way

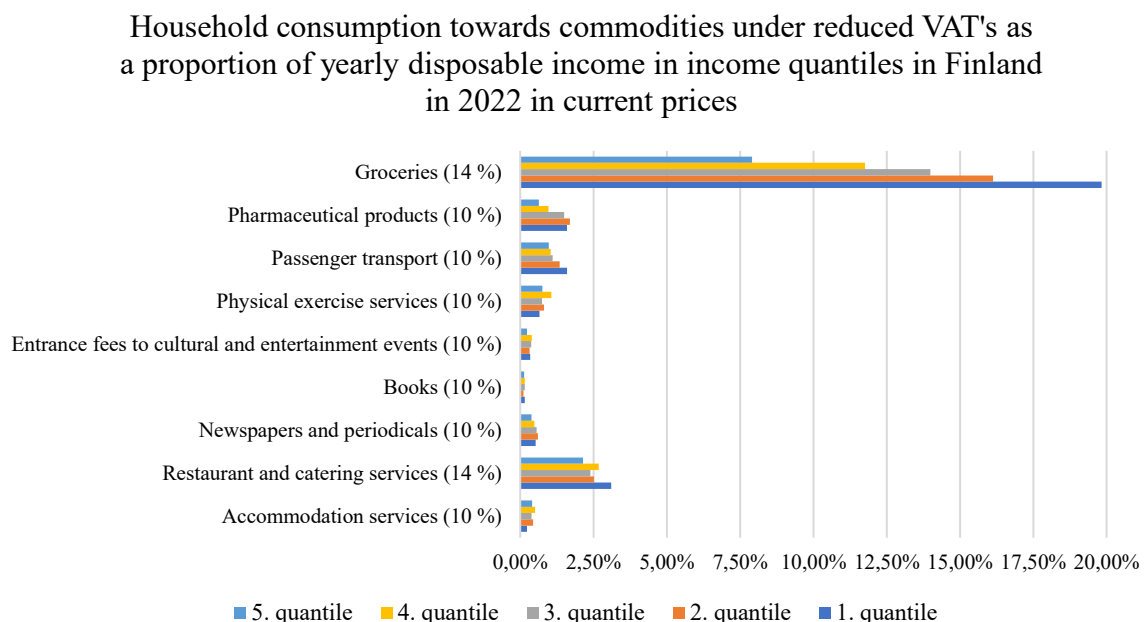
to support poorer households and much of the benefit flows to high-income households even though both regressive and progressive aspects from the VAT reductions are found. Simultaneously, even the existing untargeted cash transfers in the six countries, which are under interest in the study, would enable better achievement of the distributional goals. Although the study focuses only on six low- and middle-income countries, it is reasonable to assume that the results somehow mirror the effects of similar actions also more generally in OECD and EU countries (Warwick et al., 2022).

More efficient instruments to achieve redistributive objectives can be found also in developed countries. O'Donoghue et al. (2004) study the distributional effects of indirect taxation in 12 EU countries and find out that pensions and benefits followed by direct taxation have the largest effect on redistribution meanwhile the effect of indirect taxation is relatively low. According to Rauhanen (2015), as one good example of functioning broad-based and uniform indirect taxation, the GST (Goods and Services Tax) in New Zealand is often mentioned. In New Zealand, almost all commodities are taxed at the level of 15 % and the rising income differences due to the reform were tackled efficiently with well-targeted subsidies and income tax reductions for poorer households. No clear adverse impacts on the redistribution are found and the GST itself is regressive but compared to the life cycle it is proportional (Rauhanen, 2015). A somewhat similar GST system is also applied in Australia and Canada and some similar results from these three countries can be found (Bolton & Dollery, 2005). They find that besides the price incidence of GST reform being minor and temporary, compliance costs have been reduced and shifting the balance in the taxation towards consumption is a profitable way.

4. Discussion

In my literature review, I aimed to consider the characteristics of optimal indirect taxation and the distributional effects of the reduced VAT levels. As noticed, theory and empirical evidence support each other quite well in both dimensions. Based on the literature review, there seem to be more efficient ways to support poorer households than applying the reduced rates and various efficiency considerations of indirect taxation support the transformation towards uniform indirect taxation. However, now I discuss the reduced VAT levels, especially in the Finnish context and aim to find some advantages and challenges in possible VAT reforms. I also include data from Finland relating to household consumption and redistributive effects to gain an understanding of the empirical results of the current VAT system.

Graph 2 below is based on the data source of Statistics of Finland and is conducted by combining data from two bases. First, I collected households' consumption expenses by income quantiles from 2022, which is the latest collection year of the data, in current prices for nine common commodity groups separately that are affected by the reduced VAT (Statistics of Finland, 2024b). When looking at the consumption expenses from 2022, it is worth noticing that the COVID-19 pandemic affected demand widely still in that year. In addition, I collected data on the number of households and households' average disposable income in each income decile in 2022 in current prices (Statistics of Finland, 2023). Moreover, I transformed the income decile's average disposable income to the income quantile's average disposable income by using an arithmetic weighted average to get the data into a uniform form. In the end, I calculated the proportion of expenditures on nine different commodity groups of income quantiles compared to the household's disposable yearly income.



Graph 2¹²: Household consumption towards commodities under reduced VATs as a proportion of disposable income in income quantiles in Finland in 2022 in current prices

From the graph, one can notice that the first quantile exceeds other quantiles in proportional consumption towards many of the commodity groups; only in accommodation services and physical exercise services, the first quantile consumes the smallest proportion of their disposable income whereas in groceries, restaurant and catering services and passenger transport the first quantile exceeds other quantiles. Notably, in groceries the proportional

¹² Graph 2 is conducted by merging two data sets of Statistics of Finland and the data is presented in Appendix C.

consumption of the first quantile is over double the amount of the proportional consumption of the fifth quantile and this finding is consistent with Engel's law discussed previously. The Finnish empirical data supports the findings of the literature review quite well. Firstly, despite the existence of reduced VAT levels, VAT still seems to remain a regressive tax, since the poorer households pay the tax proportionally significantly more and the share of taxes decreases as households' income increases. Secondly, in the literature review, poorer households were concluded to have a higher proportional consumption towards necessity commodities, which demand and price elasticities are lower than the elasticities of luxurious goods, and in the light of the data, all the commodity groups that the first quantile consumes proportionally the most are considered more or less as necessities. Conversely, accommodation services and cultural events are often seen as luxurious commodities and these are consumed the most by the fifth quantile, which adds up to the findings of the literature. Thus, social and cultural objectives and positive externalities can be also considered to have some foothold in the Finnish VAT system. However, positive externalities are often opposite to the theorem of Corlett and Hague, in which complementary commodities with leisure should be taxed heavier. This trade-off depicts the challenge in determining the VAT since different objectives are contradictory to each other.

One crucial field of discussion in Finland should be, what is wanted to achieve with the reduced VAT levels since taxation can have various objectives, but all of those cannot be targeted simultaneously. As concluded, usually more equal income distribution is the main reason for VAT reductions (Crawford et al., 2010). On the other hand, one might also want to e.g. maximize efficiency of the taxation, enhance economic growth or employment or raise more tax revenue. The Ministry of Finance (2023a) has argued that the goal of the VAT is fiscal, and it should be not used for incidence and distributive objectives. The selection of the main objectives of the optimal VAT system is a dilemma for politicians and decisions are not based only on science, but rather on political preferences and values and this might lead to differences between theoretically optimal and existing outcomes. One might also ask, is aiming for more equal income distribution via reduced VAT levels reasonable and efficient in Finland, where the Gini-coefficient was only 27,7 in 2021, which is close to the lowest income difference worldwide (The World Bank, 2023). The income differences have not been a severe challenge in Finland and simultaneously the consumption patterns of poorer and richer households are approaching each other (Riihelä, 2010), which might make the targeting of the reduced rates to poorer households even more difficult and inefficient. However, more careful consideration

of the aimed objectives of the VAT system should be done so that the most important ones can be more effectively achieved. In addition, also the VAT system in Finland is born in stages and therefore the VAT system as a large entity might not be considered carefully enough.

For instance, Rauhanen (2015) has proposed that moving towards a uniform VAT system in Finland should be targeted. However, moving to a uniform VAT at one time might be too challenging and yield undesired outcomes on redistribution and therefore it might be wise to shift the balance of the VAT partially towards a more uniform rate, like the current government of Finland is doing, as they aim to shift products from 10 % base to 14 %, regardless of newspapers and periodicals (Finnish Government, 2023). However, politically it is very difficult to raise or abandon the reduced levels since they have existed for a long time and all the parties that would be negatively affected by the reform would criticize it strongly and this might cause logrolling between politicians and other parties to avoid raising the reduced VAT. Also, enabling reduced VATs for some sectors might increase the pressure from other sectors, since they also might want to benefit from similar tax benefits, but under these challenging circumstances of the public economy, additional VAT reductions seem to be very difficult.

As concluded, the poorer households would suffer more from raising the reduced VAT levels since they consume proportionally more commodities which face a reduced VAT. Therefore, if one uniform VAT rate were applied in Finland, then alternative, and possibly more effective, ways to subsidize poorer households should be considered. In Finland, like in many other developed countries, the functioning of the social security system is at a good level when the targeting of subsidies based on individual characteristics is considered. Therefore, one might argue that reaching distributional objectives could be more efficient with subsidies or reductions in progressive income tax both of which targeted poorer households. Moreover, if one could choose between increasing social security benefits to poorer households or decreasing their income tax, the latter might increase working incentives more and therefore be the primary action. Also, it is important to note that raising the reduced VAT would most probably raise consumer prices which would increase the social security benefits since most of them are tied to the price index by using the National Pensions Index (Kela, 2024). Already this index-connection would alleviate the effects of moving towards a uniform VAT level on income distribution. From a broader angle, the possible VAT reform in Finland should be linked with the consideration of the whole taxation system since all tax policy effects also have cross-effects with each other.

Unfortunately, the dynamic behavioural reactions of individuals to increasing the VAT have not been researched that much and therefore the actual outcomes of the effects are even harder to determine. As concluded, for instance, estimates on policy gaps for different commodities in Finland are based only on static calculations meaning that they do not consider any behavioural consequences. In the future, developing estimation models towards dynamic direction would be important since nowadays the decisions and evaluations must be done under stronger asymmetric information circumstances. Likewise, gathering more data also on price incidences of VAT rate changes would be essential, since thereby the welfare effects of the reforms could be obtained better. As found out in the literature review, it seems like prices react much more to VAT increases than to VAT decreases. If for instance in Finland a transformation to the budget-neutral uniform VAT of approximately 21 % would be executed, it might be that prices of the commodities that currently face 24 % VAT fall even a little and the prices of the commodities facing reduced levels might rise even more than the tax-raise would assume. A more precise understanding of the real effects of VAT reforms is needed to make more reasonable decisions on optimal taxation and therefore focusing on dynamic effects and price incidences in future research would be reasonable.

5. Conclusion

In this thesis, my objective was to provide theoretical and empirical evidence to answer whether the reduced VAT levels have an impact on income distribution and simultaneously I aimed to determine the characteristics of an optimal indirect taxation, from which VAT is the most general. In this work, I conducted a literature review separated into two larger sections and based on that I derived observations and discussion to analyse the reduced VAT levels in the Finnish context. At the beginning of my thesis, I presented the legislative background for VAT in Finland and its basic characteristics. One can notice that much of the VAT regulation comes from the European Union although there are also country-specific differences. In Finland, the role of VAT from the total tax accrual has been increasing over the years.

In the first part of my literature review, I focused on optimal indirect taxation, which has been quite a widely studied topic in economic research. The main challenge in indirect taxation is that individual characteristics cannot be observed, and it decreases the optimality of such taxation. An early theory in indirect taxation says that the commodities with the lowest elasticity of demand should be taxed the most. However, this theory has been rejected various

times in the later literature. Much of the later indirect taxation theory has focused on the relationship between consumption and leisure; commodities complementary to leisure should be taxed heavier. However, also this argument is neglected in the later research since the weak separability between leisure and consumption is usually rejected and the main conclusion turns out to be that applying a uniform rate on all commodities yields the most optimal outcome. However, reduced rates are motivated besides income distribution objectives for instance with positive externalities and enhancing the working of low-skilled workers. Still, also these objectives are found to be poorly achieved via separate VAT systems.

In the second part of the literature review, I focused on the income distribution effects of the reduced VAT rates. It turns out that the tax subsidy is poorly targeted to poorer households and more direct-targeted instruments should be used if possible. In addition, VAT is often found to be regressive, meaning that poorer households pay it proportionally more, which weakens the redistributive effect. Quite many simulations with various alternative VAT reforms towards a more uniform VAT system have been carried out and it turns out that the various reforms do not weaken income distribution almost at all. Moreover, also price incidences and elasticities have a crucial role in the outcomes of income distribution and usually, the reduction in VAT does not reflect as a pass-through in consumer prices.

At the end of my thesis, I focused on the analysis of the reduced rates in Finland. Finnish data reveals that the findings of the literature add up with the empirical results in Finland. Simultaneously, a lack of dynamic behaviour and incidence data increases the asymmetric information causing inefficiencies. However, there are various alternatives for VAT reform in Finland. Of course, tax reforms always have winners and losers, but the theoretical and empirical evidence both seem to support moving towards a uniform and wide VAT system.

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Appendixes

A: VAT levels, zero rate and VAT exemptions in Finland

VAT of 24 %:

- The main level of VAT in Finland

VAT of 14 %:

- Groceries
- Feed
- Restaurant and catering services (excluding alcohol and tobacco products)

VAT of 10 %:

- Books
- Newspapers and periodicals
- Pharmaceutical products
- Physical exercise services
- Film screenings
- Entrance fees to cultural and entertainment events
- Passenger transport
- Accommodation services
- Royalties for television and public radio activities

Zero rate (purchases still deductible):

- The sale, rental and chartering of VAT-exempt vessels and work performed on such vessels
- Tax-exempt sales of editions of membership bulletins to non-profit organisations
- Tax-exempt sales relating to warehousing procedures (tax warehouse in VAT)
- Exports outside the EU
- Sales of goods within the EU to VAT-liable buyers
- Other tax-exempt sales of goods and services relating to international trade, such as tax-exempt sales to diplomats and international organisations

Exempted categories from VAT (purchases still deductible):

- Health and medical services
- Social services
- General education, vocational training, university-level teaching and basic artistic teaching
- Financial services and insurance services

- Certain performing artists' fees
- Copyrights
- Sales and rental of real estate and apartments
- General postal services
- Certain other goods and services (e.g. organisation of lotteries)

B: The data for Graph 1

Original data from the data source (Statistics of Finland, 2024a):

Verot ja veronhuonteiset maksut, vuosittain muuttujina Sektori, Verolaji, Vuosi ja Tiedot											
		2003		2004		2005		2006		2007	
		Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %
S1311 Valtionhallinto	Yhteensä	33473	22,1	34639	21,8	35893	21,8	37035	21,4	38407	21,1
	S111 Arvonlisäverot	12487	8,2	13010	8,2	13748	8,3	14537	8,4	15207	8,1
	S1313 Paikallishallinto	15176	8,9	15756	8,7	15658	8,7	15276	8,8	15207	8,8
	S111 Arvonlisäverot	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
		2008		2009		2010		2011		2012	
		Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %
S1311 Valtionhallinto	Yhteensä	37035	21,4	34997	18,6	34997	18,6	39635	20,0	40480	20,1
	S111 Arvonlisäverot	14537	8,4	15176	8,4	15533	8,3	17315	8,7	17987	8,9
	S1313 Paikallishallinto	15276	8,8	15276	8,8	15276	8,8	15276	8,8	15276	8,8
	S111 Arvonlisäverot	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
		2013		2014		2015		2016		2017	
		Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %
S1311 Valtionhallinto	Yhteensä	40480	20,1	42179	20,6	42179	20,6	42688	20,6	42688	20,6
	S111 Arvonlisäverot	17987	8,9	18888	9,2	18888	9,2	18948	9,2	18948	9,2
	S1313 Paikallishallinto	19343	9,6	20710	10,1	20710	10,1	21159	10,2	21159	10,2
	S111 Arvonlisäverot	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
		2018		2019		2020		2021		2022	
		Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %
S1311 Valtionhallinto	Yhteensä	48617	20,8	49575	20,7	47291	19,9	47291	19,9	47291	19,9
	S111 Arvonlisäverot	21264	9,2	21974	9,2	22005	9,2	22005	9,2	22005	9,2
	S1313 Paikallishallinto	23464	9,6	23186	9,7	24584	10,3	24584	10,3	24584	10,3
	S111 Arvonlisäverot	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
		2023		2024		2025		2026		2027	
		Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %	Käyvin hinnoin, miljoonaa euroa	Suhde BKT:hen, %
S1311 Valtionhallinto	Yhteensä	51817	20,7	56419	21,1	56419	21,1	69396	25,0	69396	25,0
	S111 Arvonlisäverot	23251	9,4	23961	9,4	23961	9,4	24918	9,0	24918	9,0
	S1313 Paikallishallinto	25896	10,3	26385	9,9	26385	9,9	13064	4,7	13064	4,7
	S111 Arvonlisäverot	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0

The data for Graph 1, which is derived from the original data:

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
VAT accrual in current prices, m€	12487	13010	13748	14537	15207	15658	15176	15533	17315	17987	18888
VAT accrual in relation to total tax accrual, %	26,6 %	26,9 %	27,4 %	27,8 %	27,2 %	27,3 %	29,2 %	29,0 %	29,5 %	30,1 %	30,0 %
VAT accrual in relation to GDP, %	8,2 %	8,2 %	8,3 %	8,4 %	8,1 %	8,1 %	8,4 %	8,3 %	8,7 %	8,9 %	9,2 %
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
VAT accrual in current prices, m€	18948	18974	19694	20404	21364	21974	22005	23551	25061	24918	
VAT accrual in relation to total tax accrual, %	29,7 %	29,1 %	29,3 %	29,3 %	30,1 %	30,2 %	30,6 %	30,3 %	30,2 %	30,2 %	
VAT accrual in relation to GDP, %	9,2 %	9,0 %	9,1 %	9,0 %	9,2 %	9,2 %	9,2 %	9,4 %	9,4 %	9,0 %	

C: The data for Graph 2

Original data from the data source for households' disposable income in income quantiles (Statistics of Finland, 2023):

Asuntokuntien tulot ja tulojen rakenne muuttujina Tiedot, Vuosi ja Tulokymmenys											
		2022									
		I (pienituloisin 10 %)	II	III	IV	V	VI	VII	VIII	IX	X (suurituloisin 10 %)
Asuntokuntien lukumäärä		390906	348146	301061	273963	264385	255063	247407	245684	243976	245615
8. KÄYTETTÄVISSÄ OLEVA RAHATULO, keskiarvo		13986	21493	27737	33819	39012	44574	50967	58236	69106	121961

Original data from the data source for households' yearly consumption towards commodities under reduced VAT levels in income quantiles (Statistics of Finland, 2024b):

Kotitalouksien kulutusmenot tuloviidenneksittäin muuttujina Vuosi, Kulutusmenot, Tuloviidenne ja Tiedot

			Kotitalouden kulutusmenot vuodessa käyvin hinnoin, euroa
2022	01 Elintarvikkeet ja alkoholittomat juomat	I (pienituloisimmat 20 %)	3475
		II	4942
		III	5839
		IV	6419
		V (suurituloisimmat 20 %)	7559
	06.1.1 Lääkkeet (LI)	I (pienituloisimmat 20 %)	280
		II	518
		III	626
		IV	526
		V (suurituloisimmat 20 %)	608
	07.3 Matkustajien kuljetuspalvelut	I (pienituloisimmat 20 %)	281
		II	415
		III	465
		IV	570
		V (suurituloisimmat 20 %)	925
	09.4.6 Vapaa-aikaan ja urheiluun liittyvät palvelut (P)	I (pienituloisimmat 20 %)	115
		II	248
		III	313
		IV	577
		V (suurituloisimmat 20 %)	723
	09.6 Kulttuuripalvelut	I (pienituloisimmat 20 %)	59
		II	98
		III	153
		IV	221
		V (suurituloisimmat 20 %)	220
	09.7.1 Kirjat (PKS)	I (pienituloisimmat 20 %)	26
		II	35
		III	66
		IV	86
		V (suurituloisimmat 20 %)	122
	09.7.2 Sanomalehdet ja aikakauslehdet (LI)	I (pienituloisimmat 20 %)	92
		II	183
		III	232
		IV	262
		V (suurituloisimmat 20 %)	364
	11.1.1 Ravintolat, kahvilat ja muut vastaavat (P)	I (pienituloisimmat 20 %)	544
		II	770
		III	999
		IV	1463
		V (suurituloisimmat 20 %)	2048
	11.2 Majoituspalvelut	I (pienituloisimmat 20 %)	40
		II	135
		III	158
		IV	273
		V (suurituloisimmat 20 %)	394

The data for Graph 2, which is derived from the original data sources:

	1. quantile	2. quantile	3. quantile	4. quantile	5. quantile
Accommodation services (10 %)	0,23 %	0,44 %	0,38 %	0,50 %	0,41 %
Restaurant and catering services (14 %)	3,10 %	2,51 %	2,39 %	2,68 %	2,14 %
Newspapers and periodicals (10 %)	0,53 %	0,60 %	0,56 %	0,48 %	0,38 %
Books (10 %)	0,15 %	0,11 %	0,16 %	0,16 %	0,13 %
Entrance fees to cultural and entertainment events (10 %)	0,34 %	0,32 %	0,37 %	0,40 %	0,23 %
Physical exercise services (10 %)	0,66 %	0,81 %	0,75 %	1,06 %	0,76 %
Passenger transport (10 %)	1,60 %	1,35 %	1,11 %	1,04 %	0,97 %
Pharmaceutical products (10 %)	1,60 %	1,69 %	1,50 %	0,96 %	0,64 %
Groceries (14 %)	19,83 %	16,13 %	13,99 %	11,76 %	7,91 %