



VAT gap, reduced VAT rates and their impact on compliance costs for businesses and on consumers

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Author: Eckhard Binder
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VAT gap, reduced VAT rates and their impact on compliance costs for businesses and on consumers

European implementation assessment

In November 2020, the European Parliament's Subcommittee on Tax Matters asked that it be authorised to draw up an implementation report on the implementation of the Sixth VAT Directive. Olivier Chastel (Renew Europe, Belgium) has been appointed as rapporteur for the report.

To further support the Subcommittee on Tax Matters in its scrutiny work on the subject, the Ex-Post Evaluation Unit within the European Parliamentary Research Service has drawn up the present European implementation assessment. It focuses on the causes underlying the huge gap between the VAT projected and de facto collected, by looking at factors such as the Member States' disparate VAT systems and at the effects of reduced VAT rates on businesses and consumers.

AUTHORS

1. The in-house opening analysis was written by Eckhard Binder from the Ex-Post Evaluation Unit, EPRS.
2. The briefing paper on the Value Added Tax (VAT gap, reduced VAT rates and their impact on compliance costs for businesses and on consumers), was written by Stefan Bach, Janik Evert, Stefan Gorgels, Jennifer Hönicke, Sara Holzmann, Felicitas Kuttler and Yannick Ruf of DIW Econ.

The briefing paper was written at the request of the Ex-post Evaluation Unit of the Directorate for Impact Assessment and European Added Value, within the Directorate-General for Parliamentary Research Services (EPRS) of the Secretariat of the European Parliament.

To contact the authors, please email: EPRS-ExPostEvaluation@ep.europa.eu

ADMINISTRATOR RESPONSIBLE

Eckhard Binder, Ex-Post Evaluation Unit, EPRS.

To contact the publisher, please e-mail EPRS-ExPostEvaluation@ep.europa.eu

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eprs@ep.europa.eu
<http://www.eprs.ep.parl.union.eu> (intranet)
<http://www.europarl.europa.eu/thinktank> (internet)
<http://epthinktank.eu> (blog)

Table of frequently used abbreviations and acronyms

Commission	European Commission
CoR	European Committee of the Regions
DG	directorate general
EESC	European Economic and Social Committee
EC	European Commission
ECA	European Court of Auditors
EIA	European implementation assessment
EP	European Parliament
EPRS	European Parliamentary Research Service
EU	European Union
EUR	euro
GNI	gross national income
MFF	multiannual financial framework
ppts	percentage points
SME	small and medium-sized enterprise
VAT	Value Added Tax

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Executive summary

The first part of this European implementation assessment (EIA) summarises the evolution of value added tax (VAT) legislation in the EU from its inception in the 1960s until today and briefly describes the main aspects that characterise it at present. The second part of the EIA looks at the economic importance of VAT and the related political context, in order to set the scene for the analysis presented in the annexed briefing paper.

Since the 1960s, the EU has introduced legislation with the aim of harmonising the application of rules and procedures related to VAT. At the time of the creation of the EU single market in 1993, a transitional EU VAT system was put in place for intra-EU trade in goods. In this transitional system for goods, each EU Member State became responsible for the administration, control and collection of its own VAT. Despite multiple subsequent efforts to move to a definitive EU VAT system, this transitional system for goods is still in place today, whereas most supplies of services are taxed according to the destination principle.

In the 1990s, the EU institutions planned to move intra-EU trade in goods from the transitional system to a definitive one, in which VAT would be paid at the origin of the goods, but this principle was abandoned by the Council in 2012. Since then, the EU Member States have been trying to find agreement on a definitive EU VAT system based on the destination principle.

In the 1990s, the Member States adopted a directive to harmonise the application of standard and reduced VAT rates, on the one hand, and that of certain exceptions for pre-existing reduced VAT rates, on the other. While the application of these rates was meant to last temporarily, it was made permanent in 2018. This has led to a situation with large differences in VAT rates between Member States, and in some cases even different VAT rates within Member States. The purpose of this EIA – and in particular of the annexed briefing paper – is to assess the impact of the current VAT system on businesses and consumers, and the social and environmental consequences of reduced VAT rates.

VAT is an important revenue source for the Member States, representing between 13 % (in Italy) and 28 % (in Croatia) of general government revenues in 2019. At the same time, the VAT gap – that is, the difference between the amount of VAT that is theoretically collectable and the amount that is actually collected – is estimated at €117 billion in the EU-27 for 2018.¹ Bridging this VAT gap will play a role in addressing the consequence of the coronavirus pandemic, as the Member States and the EU will need additional resources to reimburse the large amounts of public debt accumulated for countering the impact of the pandemic.

The annexed briefing paper analyses the functioning and impact of the current system of different VAT rates and the reasons behind the size of and trends in the VAT gap among the Member States. The briefing paper examines the great heterogeneity in VAT systems, VAT gaps and compliance costs across the Member States. The distributional effects of reduced VAT rates for socially disadvantaged groups are often rather small, while the costs are often larger than for direct fiscal instruments. Due to the lack of sufficient empirical evidence, it is still difficult to assess the costs and benefits of the reduced VAT rates on intra-EU and international trade as well as on the EU's environmental objectives.

¹ Center for Social and Economic Research, [Study and Reports on the VAT Gap in the EU-28 Member States 2020 - Final Report](#), European Commission, September 2020.

Part I. In-house introductory analysis

1. Introduction

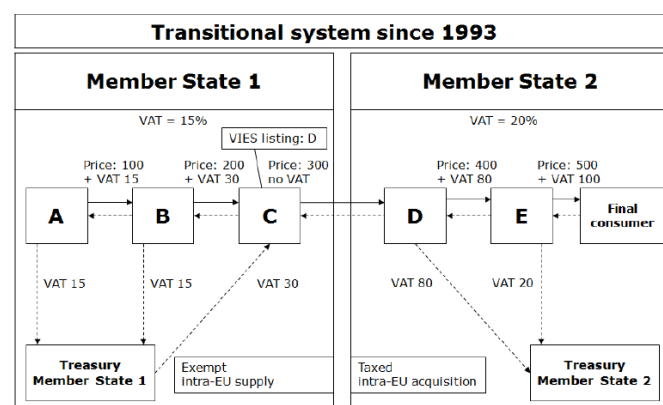
1.1. Background information on VAT in the EU

From its inception in the 1960s to the 2010s

A first step towards the harmonisation of value added tax (VAT) in the EU was taken in 1967, when the EU Member States adopted two directives aimed at harmonising their national legislations on turnover taxes.² To overcome the multi-stage tax systems in force in the majority of the Member States, in which turnover taxes were levied on the output at each stage of the production processes, the Member States wanted to guarantee a neutral and transparent turnover tax system in a common market, without however harmonising their tax rates and exemptions. The 1967 directives allowed the Member States to apply an unlimited number of reduced and increased VAT rates, without setting any lower or upper rate limits.

In 1977, the adoption of the sixth VAT Directive sought to remove restrictions on the movement of persons, goods, services and capital to achieve an internal market through detailed definitions of a number of terms, including *taxable transaction*, and through the introduction of provisions on possible VAT exemptions.³ With the creation of the single market in 1993,

Figure 1 – Transitional system since 1993



Source: European Commission, SWD(2017) 325 final, 2017.

fiscal controls at the EU internal borders were abolished by another Council directive, which also set up a (temporary) transitional VAT system for intra-EU movement of goods.⁴ In this transitional system, as in the previously existing one, each Member State is responsible for the administration, control and collection of its own VAT (see Figure 1). This transitional system still exists today, as the Member States insist on retaining their sovereignty in tax matters and have not been able to agree on the features of a definitive system.

In 1992, the Council adopted a directive providing temporarily for an EU-wide minimum standard VAT rate of 15 % as well as for one or two reduced rates of at least 5 % on certain goods and services.⁵ In addition, the directive also allowed the Member States to continue to apply reduced rates

² [First Council Directive 67/227/EEC](#) of 11 April 1967 on the harmonisation of legislation of Member States concerning turnover taxes. [Second Council Directive 67/228/EEC](#) of 11 April 1967 on the harmonisation of legislation of Member States concerning turnover taxes - structure and procedures for application of the common system of value added tax.

³ [Sixth Council Directive 77/388/EEC](#) of 17 May 1977 on the harmonization of the laws of the Member States relating to turnover taxes – Common system of value added tax: uniform basis of assessment.

⁴ [Council Directive 91/680/EEC](#) of 16 December 1991 supplementing the common system of value added tax and amending Directive 77/388/EEC with a view to the abolition of fiscal frontiers.

⁵ [Council Directive 92/77/EEC](#) of 19 October 1992 supplementing the common system of value added tax and amending Directive 77/388/EEC (approximation of VAT rates).

(including zero rates) to certain supplies, provided that they were already being applied on 1 January 1991.

The centrepiece of the existing VAT legislation is the Directive on the common system of value added tax (the VAT Directive), which entered into force on 1 January 2007.⁶ The VAT Directive recast the sixth VAT Directive from 1977 and some provisions of the first VAT Directive from 1967, which was at the same time repealed.⁷

With the publication of a green paper on the future of VAT in 2010, the Commission intended to initiate a discussion on the simplification of the VAT system, while maximising revenue collection and tackling the issue of VAT fraud.⁸

The year 2012 brought an important change in the policy concerning the future VAT system, as the Council, based on a Commission communication from 2011, endorsed in its conclusions of 15 May 2012 the decision to move away from the origin-based principle to the destination principle for the definitive EU VAT system.

Since 2010, the place of taxation of services had already progressively changed to the country of destination, due to a provision in the amended VAT Directive that became applicable in 2010 (the provisions for business-to-consumer supplies of telecommunications, broadcasting and electronic services became applicable in 2015).⁹ Since then, most supplies of services have been taxed according to the destination principle.

The 2016 action plan

In 2016, the Commission presented an action plan to modernise the existing VAT system.¹⁰ The key elements of this action plan are:

- a future definitive EU VAT system for cross-border trade to reduce opportunities for fraud;
- measures to tackle VAT fraud under the current rules;
- more autonomy for the Member States to choose their own rates policy;
- support for e-commerce and small and medium-sized enterprises (SMEs).

The Commission plan was to establish the definitive EU VAT system based on the principle of taxing goods in the country of their destination. In such a system, contrary to the transitional system, goods suppliers would have to collect VAT from their customers in domestic and cross-border transactions. With this fundamental change to the VAT system, the Commission also expects a yearly yield of around €40 billion as a result of diminished cross-border VAT fraud.

Following the presentation of the action plan, the Council adopted a number of legislative acts that the Commission had proposed:

- a directive setting the permanent minimum standard VAT rate at 15 %;¹¹

⁶ [Council Directive 2006/112/EC](#) of 28 November 2006 on the common system of value added tax.

⁷ For a summary on the existing legislation, see [the EU's common system of value added tax \(VAT\)](#), EUR-Lex website.

⁸ Green Paper on the future of VAT Towards a simpler, more robust and efficient VAT system, [COM\(2010\) 695 final](#), European Commission, December 2010.

⁹ [Council Directive 2008/8/EC](#) of 12 February 2008 amending Directive 2006/112/EC as regards the place of supply of services.

¹⁰ Action plan on VAT Towards a single EU VAT area - Time to decide, [COM\(2016\) 148 final](#), European Commission, April 2016.

¹¹ [Council Directive \(EU\) 2018/912](#) of 22 June 2018 amending Directive 2006/112/EC on the common system of value added tax as regards the obligation to respect a minimum standard rate.

- a directive on a temporary generalised reverse charge mechanism;¹²
- a directive on the harmonisation and simplification of certain rules in the VAT system;¹³
- a regulation to strengthen administrative cooperation in the area of VAT.¹⁴

The 2018 package on fair taxation for the creation of a single EU VAT area

The latter two proposals mentioned above were part of a package from 2018, in which the Commission also presented a proposal amending the VAT Directive as regards the VAT rates.¹⁵ Today, more than three years after the Commission proposal of 2018, discussions are still ongoing in the Council (see Section 2. on the Context of the briefing paper).

In addition, discussions in the Council on the Commission proposal for a directive on the introduction of measures for the operation of the definitive VAT system, presented in May 2018, are also still ongoing.¹⁶ This proposal was the second sub-step towards agreeing on the intra-EU business-to-business supply of goods, which is a necessary condition for moving toward a single European VAT area. The proposal complemented a Commission proposal for an amendment to the VAT Directive that had been presented by the Commission in 2017 and on which discussions are also still ongoing in the Council.¹⁷

The 2020 package on fair and simple taxation

In July 2020, the Commission adopted another package on fair and simple taxation to ensure that EU tax policy supports the EU's economic recovery and long-term growth.¹⁸ One of the three pillars of this package is an action plan that contains a set of 25 initiatives the Commission plans to implement until 2024 to make taxation fairer, simpler and better-adapted to modern technologies.¹⁹ With respect to VAT, the action plan announces the following initiatives:

- an amendment to the VAT Directive to move towards a single EU VAT registration, with which companies would be able to provide services and goods anywhere in the EU;
- a legislative proposal with a view of adapting EU VAT rules to digitalisation. This proposal intends to promote the use of information technology as a tool for easier compliance and a more efficient fight against fraud, by modernising VAT reporting obligations and facilitating e-invoicing;
- actions to reinforce the tax dispute prevention and solution mechanism, and extend it to VAT;
- a legislative proposal to amend outdated VAT provisions on financial services, which will take into account the rise of the digital economy and the increase in the outsourcing of input services by financial and insurance operators;

¹² [Council Directive \(EU\) 2018/2057](#) of 20 December 2018 amending Directive 2006/112/EC on the common system of value added tax as regards the temporary application of a generalised reverse charge mechanism in relation to supplies of goods and services above a certain threshold.

¹³ [Council Directive \(EU\) 2018/1910](#) of 4 December 2018 amending Directive 2006/112/EC as regards the harmonisation and simplification of certain rules in the value added tax system for the taxation of trade between Member States

¹⁴ [Council Regulation \(EU\) 2020/283](#) of 18 February 2020 amending Regulation (EU) No 904/2010 as regards measures to strengthen administrative cooperation in order to combat VAT fraud.

¹⁵ Proposal for a Council Directive amending Directive 2006/112/EC as regards rates of value added tax, [COM/2018/020 final](#), European Commission, January 2018.

¹⁶ Proposal for a directive on the introduction of the detailed technical measures for the operation of the definitive VAT system for the taxation of trade between Member States, [COM/2018/329 final](#), European Commission, May 2018.

¹⁷ Proposal for a Council Directive amending Directive 2006/112/EC as regards the introduction of the detailed technical measures for the operation of the definitive VAT system for the taxation of trade between Member States, [COM/2017/569](#), European Commission, October 2017.

¹⁸ [Package for fair and simple taxation](#), European Commission website.

¹⁹ Action plan for fair and simple taxation supporting the recovery strategy, [COM\(2020\) 312 final](#), European Commission, July 2020.

- an amendment to the VAT Directive aimed at simplifying the special scheme for travel agents and at ensuring a level playing field with operators established outside the EU.

1.2. Content of the current EU VAT legislation

The fact that VAT legislation in the EU is adopted through a special legislative procedure means that the European Parliament is only consulted on the draft legislation that is adopted by the Council. Therefore, most legislation on VAT is adopted in the form of Council directives. Within the EU, VAT is a general consumption tax applicable to most goods and services bought and sold for use or consumption in the EU. It is an indirect tax, since buyers of goods and services pay VAT to the sellers, who then transfer the VAT receipts to their national revenue authorities. As already mentioned above, the main piece of VAT legislation in the EU is the VAT Directive, adopted in 2006 and amended several times since then.²⁰

The **VAT Directive** defines the following **key concepts**:

Taxable persons: these are, in general, businesses, sole traders or professionals that supply goods and services. Imports by any person are also subject to VAT. Taxable persons have the right to deduct the amount of VAT paid on acquired goods or services used for taxed transactions.

Taxable transactions are either the supply of goods and services within the EU, or acquisitions between businesses of goods between EU countries and imports of goods from outside the EU. In general, the VAT Directive distinguishes between four broad types of taxable transactions:

- goods supplied in an EU country by a business;
- intra-EU acquisition of goods in an EU country by a business or a non-taxable legal entity such as a public body, in certain specified circumstances;
- services supplied in an EU country by a business;
- goods import.

The **place of taxable transactions** depends on the type of transaction, the kind of product supplied and on whether transport is involved. For goods, the place of a taxable transaction can be:

- the place where the goods are supplied;
- the final destination of the goods after their transport from another country;
- the country of entry into the EU in the case of import.

For services, the place of transaction is usually the place of the customer.

As already explained above, the VAT Directive sets a **standard VAT rate** for goods and services of at least 15 %. In addition to the standard VAT rate, EU Member States are allowed to apply one or two **reduced VAT rates** of at least 5 % to specific goods or services. Exceptions to these two rates apply under certain conditions (lower rates on other goods or services, etc.).

Finally, some Member States still apply **special VAT rates**, which they were allowed to apply temporarily if these rates were already in place on 1 January 1991. These special VAT rates are:

- super-reduced rates at less than 5 %;
- zero rates;
- parking rates of at least 12 %, i.e. reduced rates on certain goods and services that are not included in Annex III to the VAT Directive.

²⁰ For general information on the VAT Directive and applicable rules, see also the European Commission's dedicated [website](#).

The following table provides an overview of the VAT rates applied in the Member States as of 1 January 2021, pointing to the large differences that exist among them.

Table 1 – VAT rates (in %) applied in the EU Member States as of 1 January 2021

Member State	Standard rate	Reduced rate	Super reduced rate	Parking rate
Austria	20	10 / 13	-	13
Belgium	21	6 / 12	-	12
Bulgaria	20	9	-	-
Cyprus	19	5 / 9	-	-
Czechia	21	10 / 15	-	-
Germany	19	7	-	-
Denmark	25	-	-	-
Estonia	20	9	-	-
Greece	24	6 / 13	-	-
Spain	21	10	4	-
Finland	24	10 / 14	-	-
France	20	5.5 / 10	2.1	-
Croatia	25	5 / 13	-	-
Hungary	27	5 / 18	-	-
Ireland	23	9 / 13.5	4.8	13.5
Italy	22	5 / 10	4	-
Lithuania	21	5 / 9	-	-
Luxembourg	17	8	3	14
Latvia	21	12 / 5	-	-
Malta	18	5 / 7	-	-
Netherlands	21	9	-	-
Poland	23	5 / 8	-	-
Portugal	23	6 / 13	-	13
Romania	19	5 / 9	-	-
Sweden	25	6 / 12	-	-
Slovenia	22	9.5	-	-
Slovakia	20	10	-	-

Source: [VAT rules and rates](#), European Commission website.

Aside from the initial VAT Directive, a series of other legislative acts apply in the area of VAT, some of which are amendments to the VAT Directive (in chronological order):

- [Directive 86/560/EEC](#) on VAT refund for non-EU businesses that do not have a business address or a permanent place of residence in a Member State and have not supplied any goods or services in that Member State, with the exception of transport services or those on which tax is payable by the customer alone;
- [Directive 2006/79/EC](#) on the exemption from taxes of imports of private small consignments of goods of a non-commercial character from third countries;
- [Directive 2007/74/EC](#) on the exemption from value added tax and excise duty of goods imported by persons travelling from third countries;
- [Directive 2008/8/EC](#) as regards the definition of the place of supply of services, amending the VAT Directive;
- [Directive 2008/9/EC](#) on the rules for the refund of VAT provided for in the VAT Directive to taxable persons not established in the EU country of refund but in another EU country;
- [Directive 2009/47/EC](#) concerning reduced rates of value added tax for certain labour-intensive local services, amending the VAT Directive;
- [Directive 2009/132/EC](#) on VAT-free importation of certain goods (e.g. personal property of natural persons moving to the EU, etc.);
- [Council Regulation \(EU\) No 904/2010](#) on administrative cooperation and combating fraud in the field of value added tax;
- [Council Implementing Regulation \(EU\) No 282/2011](#) and its subsequent amendments contain binding implementing measures to ensure uniform application of the VAT Directive by all Member States.

Finally, in response to the coronavirus pandemic, the European Union has taken a number of actions in the area of VAT. For instance, the Commission decided in April 2020 to temporarily waive customs and VAT charges for imports of masks and other protective equipment needed to fight the pandemic. This Commission decision has been extended three times and is currently due to expire on 31 December 2021.²¹ In December 2020, the Council adopted an amendment to the VAT Directive to allow Member States to temporarily (until end of 2022) apply zero (or reduced) VAT rates to vaccines and testing kits being sold to hospitals, doctors and individuals, as well as closely related services.²² In July 2021, the Council adopted another amendment to the VAT Directive, providing for a VAT exemption for goods and services that the EU makes available to Member States and citizens during the pandemic.²³

As seen above, VAT-related rules are getting increasingly complex, and this trend calls for simplification. The various reduced rates, exemptions and derogations negatively impact compliance costs for businesses and poses a problem equal treatment between older (pre-1992) and newer (post-1992) Member States, to which different rules apply.²⁴ A future definitive EU VAT

²¹ [Commission Decision \(EU\) 2020/491](#) of 3 April 2020 on relief from import duties and VAT exemption on importation granted for goods needed to combat the effects of the COVID-19 outbreak during 2020.

²² [Council Directive \(EU\) 2020/2020](#) of 7 December 2020 amending Directive 2006/112/EC as regards temporary measures in relation to value added tax applicable to COVID-19 vaccines and in vitro diagnostic medical devices in response to the COVID-19 pandemic.

²³ [Council Directive \(EU\) 2021/1159](#) of 13 July 2021 amending Directive 2006/112/EC as regards exemptions on importations and on certain supplies, in response to the COVID-19 pandemic.

²⁴ M. Tuominen, [Rates of value added tax](#), Initial Appraisal of a Commission Impact Assessment, EPRS, European Parliament, April 2018.

system should therefore address these issues, while also helping reduce the VAT gap by limiting the opportunities for VAT fraud.²⁵

1.3. VAT-related infringement proceedings

Over the past 20 years, the Commission has launched almost 200 VAT-related infringement procedures against the Member States, 12 of which are ongoing. Around one fourth of the procedures concerned reduced VAT rates or exemptions. Another one fifth constituted non-communication cases, in which the Member States subsequently notified the Commission of having transposed the relevant EU legislation into national legislation (one such case remains open, concerning Italy's transposition of Council Directive (EU) 2018/1910 amending the VAT Directive). In relation to the focus of the present European Implementation Assessment – reduced VAT rates and exemptions – the most relevant open infringement procedures concern:

- reduced VAT rates for baby diapers (cases open since 2006 against Malta, Poland and Portugal), on the grounds of their non-compliance with the sixth VAT Directive. Again in 2006, procedures were also launched against Czechia and Hungary (and in 2007 against Estonia), but were later closed. At the time of the launch of the procedures, the Commission also promised to create a legal basis for the application of reduced VAT rates to baby diapers to support social and family-friendly policies;
- the VAT exemption for 10 km-zone passenger transport (case open since 2016 against Germany). The Commission launched this procedure against Germany, as it treats short cross-border passenger transport services (less than 10 km) as a foreign service for tax purposes, meaning that these services are not taxable in Germany. The Commission insists that such passenger transport services must be taxed where the transport takes place, proportionate to the distances covered in each Member State.

²⁵ M. Karaboytcheva, [Addressing the VAT gap in the EU](#), Briefing, EPRS, European Parliament, December 2020.

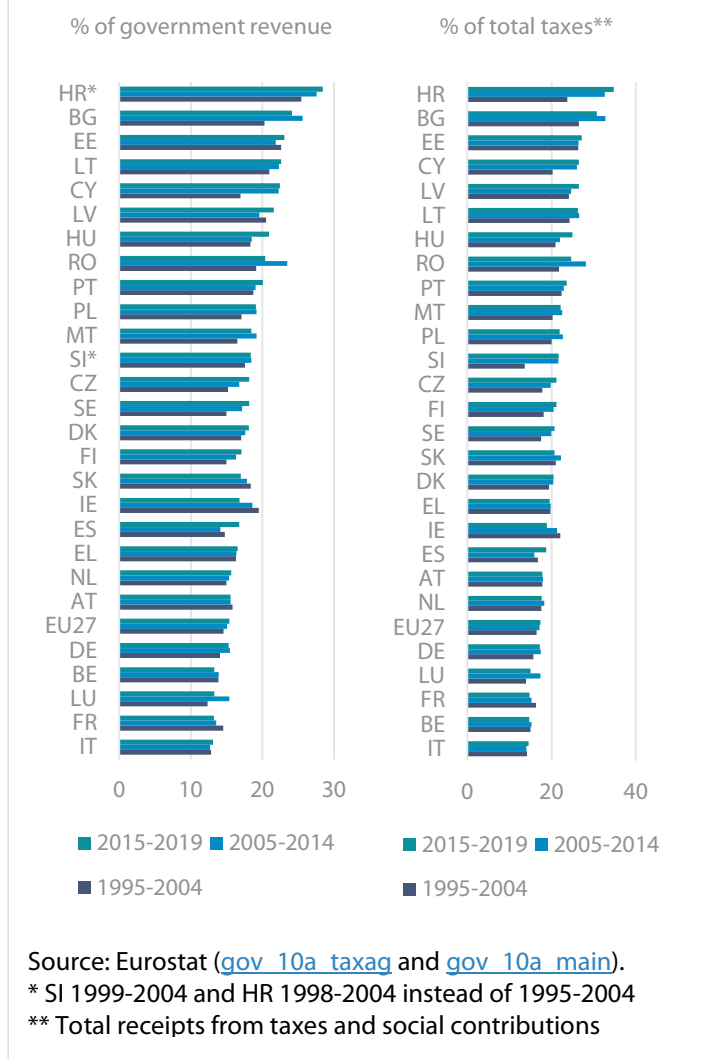
2. Context of the briefing paper

2.1. Economic importance of VAT at Member State and EU level

As VAT is an important revenue source, the effective functioning of VAT collection is crucial for the Member States. According to the latest Commission report on the VAT gap,²⁶ the total EU27 VAT gap amounted to €117 billion for the EU-27 in 2018, which constitutes 10.8 % of the €1 080 billion in VAT revenue that can theoretically be raised in the EU.²⁷ According to Commission estimates, the VAT gap narrowed in 2019, before widening relatively sharply in 2020. The factors influencing the VAT gap are described in detail in the annexed briefing paper. This section gives a more general overview of the economic importance of VAT for the Member States and the EU budget. It is in the interest of the Member States and the EU to narrow the VAT gap, especially now when additional resources are needed to cover the large public debt that has been accumulated for countering the impact of the pandemic.

Figure 2 on the right shows that the amounts of VAT collected in the Member States over the 2015-2019 period range between 13.1 % (in Italy) and 28.4 % (in Croatia) of government revenues. Compared to the 1995-2004 period, this share has increased in most Member States, with the exception of Austria (- 0.3 percentage points (ppts)), Belgium (- 0.6 ppts), France (- 1.3 ppts), Slovakia (- 1.4 ppts), and Ireland (- 2.7 ppts). The Member States that joined the EU from 2004 onwards are on average more dependent on VAT for their government revenues than the older ones. In addition, divergence between the Member States has increased over the years, as the VAT share in government revenues over the 2015-2019 period increased on average at a higher rate in those Member States whose shares had already been higher in the 1995-2004 period.

Figure 2 – Economic importance of VAT in the EU



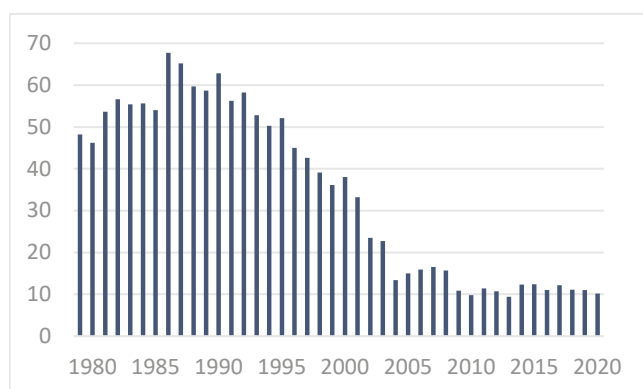
²⁶ Center for Social and Economic Research, [Study and Reports on the VAT Gap in the EU-28 Member States 2020 - Final Report](#), European Commission, September 2020.

²⁷ In the European Commission report, the VAT gap is defined as the difference between the VAT total tax liability (VTTL), i.e. the estimated amount of VAT that is theoretically collectable based on the VAT legislation and ancillary regulations, and the amount of VAT actually collected over the same period.

A similar picture emerges if one looks at the share of VAT receipts in total receipts from taxes and social contributions in the Member States, ranging from 14.5 % in Italy to 34.8 % in Croatia during the 2015-2019 period. Again compared to 1995-2004, the share increased in most Member States, the only exceptions being Greece (- 0.2 ppts), Belgium (- 0.3 ppts), Slovakia (- 0.3 ppts), France (- 1.6 ppts), and Ireland (- 3.2 ppts). Similar to the shares of VAT in total government revenues, the newer Member States register on average higher shares of VAT in government revenues and in total taxes and social contributions than the older Member States. As for the shares of VAT in government revenues, there is a notable divergence among the Member States in terms of the VAT shares in total taxes and social contributions. Those with higher shares in the 1995-2004 period registered on average stronger increases than those with lower shares.

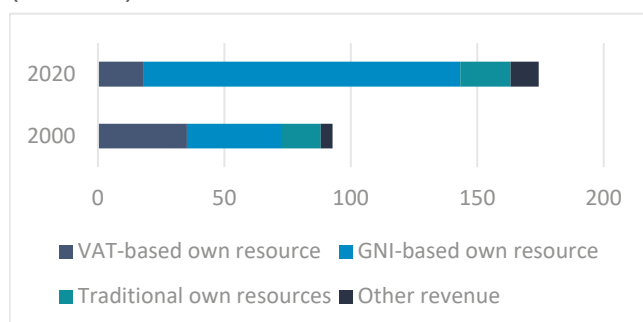
Apart from being an important source of revenue for the EU Member States, VAT is also one of the EU own resources, accounting for around 10-11 % of the EU budget in recent years.²⁸ This is however a significant change in the importance of the VAT-based own resource compared to the 1980s and 1990s. In 1986, the year with the highest share, the VAT-based own resources accounted for two thirds of the total EU revenues.

Figure 3 – VAT-based own resource as a % of EU total revenues



Source: European Commission, [EU spending and revenue data 2000-2020](#) and [Financial Report 2008](#)

Figure 4 – Types of revenue of the EU budget (€ billion)



Source: European Commission, [EU spending and revenue data 2000-2020](#).

Over the past 20 years, the VAT-based own resource has lost its role as the most important source for the EU budget, while other revenue types, especially the own resource based on gross national income (GNI), have gained importance. The share of the GNI-based own resource increased from 41 % in 2000 to 72 % in 2020. Over the same period, Figure 4 below shows that the total EU revenue almost doubled, whereas the total amount of the VAT-based own resource has halved.

Until 2020, the amount of the VAT-based own resource was calculated based on the VAT receipts (and corrections thereof) divided by a weighted average rate, which is based on a mix of supplies of goods and services, on the one hand, and the VAT rates applied in all of the Member States, on the other. For the current 2021-2027 multiannual financial framework (MFF), the calculation of the VAT-based own resource has been simplified. In particular, there are fewer corrections of the VAT base and the weighted average VAT rate of 2016 will be applied in each Member State for the entire 2021-2027 MFF.

²⁸ The other EU own resources are the gross national income-based contribution, customs duties, the new plastics own resource on non-recycled plastic packaging waste (as of 2021), and other revenue.

2.2. Political context

As already mentioned earlier, the introduction of the transitional VAT system in 1992 limited the Member States' discretion to set their own VAT rates. Since then, the Member States have had to apply a standard VAT rate of at least 15 % and two reduced rates not lower than 5 % for certain goods and services, as specified in Annex III to the VAT Directive. Nevertheless, the Member States have been allowed to apply lower rates, including zero rates and reduced rates, to any goods or services not included in Annex III, if these rates were already in place on 1 January 1991. These derogations were supposed to cease to exist with the introduction of the origin-based definitive VAT system. After the introduction of the transitional system, the application of VAT rates in the internal market became very complex for companies to manage and difficult for the national tax authorities to monitor. A first attempt by the Commission in 2003 to reduce the complexity of the existing system by abolishing the reduced rates applicable to goods and services outside of Annex III was, however, unsuccessful,²⁹ as the Member States failed to reach an agreement on the abolition of these reduced rates.

Due to the political deadlock on its 2003 proposal, the Commission decided to abandon its plan for an origin-based definitive VAT system in 2011³⁰ and instead to reconsider the destination-based principle, which had been discarded in 1992, as the basis for the definitive VAT system. As already explained in Section 1.1 above, discussions in the Council are still ongoing on the Commission proposal for a directive on the introduction of measures for the operation of a definitive VAT system.³¹

The Commission proposal with regard to reduced VAT rates

In 2018, the European Commission proposed to amend the VAT Directive with respect to the reduced VAT rates.³² According to this proposal, the amendments 'should coincide with the entry into force of the definitive VAT system so as to avoid that the expiry of derogations would prevent Member States to maintain around 250 existing reduced rates and exemptions with deductibility of the VAT paid at the preceding stage'.³³ The same rules would apply to all Member States, namely:

- the possibility to apply two reduced rates of a minimum of 5 %; another reduced rate between 5 % and 0 %; and an exemption with deductibility of the VAT paid at the preceding stage;
- the obligation to ensure that reduced rates are for the benefit of the final consumer and that the weighted average VAT rate applied to those transactions for which VAT cannot be deducted always exceeds 12%;
- the replacement of Annex III by a negative list to which reduced rates cannot be applied.

²⁹ Proposal for a Council Directive amending Directive 77/388/EEC as regards reduced rates of value added tax, [COM\(2003\)397](#), European Commission, July 2003.

³⁰ Communication on the future of VAT - Towards a simpler, more robust and efficient VAT system tailored to the single market, [COM\(2011\)851](#), European Commission, December 2011.

³¹ For more details on this proposal, see C. Remeur, [Detailed technical measures for the definitive VAT system for cross-border goods trade](#), Briefing, EPRS, European Parliament, June 2019.

³² For more details on this proposal, see L. Puccio, [More flexible VAT rates](#), Briefing, EPRS, European Parliament, October 2018.

³³ Proposal for a Council Directive amending Directive 2006/112/EC as regards rates of value added tax, [COM\(2018\)20](#), European Commission, January 2018.

In the **Council**, the latest discussion on the Commission proposal took place on 18 June 2021 in its Ecofin format.³⁴ According to media reports, the Member States are in favour of a positive list of products and services eligible for reduced rates, rather than a negative list as proposed by the Commission.³⁵ At the same meeting, the Member States did not reach an agreement on a proposal by the Portuguese Presidency for a standstill clause to allow Member States to continue to apply their existing reduced, super-reduced and zero VAT rates, excluding only those that are harmful to the environment.

Since the adoption of EU legislation in the area of taxation is accomplished through the consultation procedure, the **European Parliament** was only consulted on the Commission proposal. In October 2018, the Parliament adopted a resolution in which it generally approved the Commission proposal, but suggested a series of amendments.³⁶ In particular, the Parliament insisted on the inclusion of guarantees that the negative list would be revised every two years and that the maximum standard VAT rate would not exceed 25 %. For the sake of keeping businesses – especially small and medium-sized enterprises – informed about the different rules applicable in the EU Member States, the Parliament asked the Commission to set up a publicly accessible Union VAT online portal for businesses. At the time when the present document was drafted (July 2021), the Parliament was also working on the follow-up to the 2020 Commission action plan and its initiatives in the area of VAT. In this context, the European added value of different scenarios for a future EU VAT system and the respective effects on compliance costs for businesses are presented in a separate EPRS publication.³⁷

In an opinion on the 2018 fair taxation package, the **European Committee of the Regions** (CoR) endorsed the Commission proposal to tax goods and services on the basis of the destination principle and welcomed the proposal for a negative list of products for which the VAT rate may not be reduced.³⁸ The CoR welcomed the potential yearly reduction of compliance costs for businesses by up to 18 %, but, just like the Parliament, asked for the creation of an electronic portal to keep businesses informed about the different VAT systems across the EU.

The **European Economic and Social Committee** (EESC) adopted an opinion on the Commission proposal in May 2018.³⁹ The EESC approved the idea of creating a negative list of goods and services for which the VAT rate may not be reduced, but also asked that the existing derogations relating to reduced rates be kept. The EESC also asked that exemptions be introduced for organisations and associations providing assistance to disadvantaged people and for lawyers working on a *pro bono* or *pro deo* basis, if such activities generate little to no income.

³⁴ [Outcome of the 3803rd Council meeting](#), Economic and financial affairs, Council of the European Union, 18 June 2021.

³⁵ [VAT rates, no significant breakthrough in EU Council on existing derogations](#), Agence Europe, 18 June 2021.

³⁶ [Resolution](#) of 3 October 2018 on the proposal for a Council directive amending Directive 2006/112/EC as regards rates of value added tax, European Parliament.

³⁷ J. Saulnier and M. Garcia Munoz, [Fair and simpler taxation supporting the recovery strategy – Ways to improve exchange of information and compliance to reduce the VAT gap, European added value assessment](#), EPRS, European Parliament, September 2021.

³⁸ [Opinion](#) on the fair taxation package, European Committee of the Regions, October 2018.

³⁹ [Opinion](#) on the 'Proposal for a Council Directive amending Directive 2006/112/EC as regards rates of value added tax', European Economic and Social Committee, May 2018.

3. Scope and methodology of the briefing paper

The aim of the annexed briefing paper is to provide information on the functioning and impact of the current system of different VAT rates applied across the EU and explain the reasons determining the size and evolution of the VAT gap in the Member States.

From a methodological point of view, it was carried out as a mix of desk research and calculations based on available data. Using the key findings from both the desk-research analysis and the calculations based on available data, the briefing paper addresses the aspects of the research questions under all four areas as outlined below and draws conclusions in relation to each research question.

Area 1: The VAT bases and the structure of VAT rates in the EU

Research questions:

- What is the size of the tax base subject to non-standard VAT rates (i.e. exemptions and reduced rates) compared to the standard VAT rate in the Member States?
- To what extent putting an end to non-standard VAT rates will allow a reduction of the standard rate and the compliance costs in the Member States?

Area 2: The VAT gap in the Member States

Research question:

- Based on the literature reviewed, what conclusions could be made on the differences among the EU Member States in terms of the size and trends of the VAT gap?

Area 3: Impact of diversification of reduced VAT rates on firms

Research questions:

- What are the costs and impacts of the current diversification of reduced VAT rates on compliance for businesses (in particular for cross-border transactions and SMEs)?
- To what extent does this current diversification create distortion in the EU internal market and lead to tax competition among the Member States?
- To what extent can digitalisation reduce compliance costs?
- Is there an uneven playing field between EU and non-EU companies?

Area 4: Impact of reduced VAT rates on consumers and social/environmental goals

Research questions:

- To what extent does the use of non-standard VAT rates reduce permanently the price to the consumer?
- Do non-standard VAT rates help or not in achieving environmental and social objectives such as promoting circular economy activities that target final consumers, notably repair services?
- Are (non-standard) VAT rates an effective tool to achieve social or environmental objectives in terms of government costs and efficiency?
- Do the benefits of non-standard VAT rates outweigh the cost in terms of revenue losses for governments in comparison to other specific tools (such as direct transfers targeting specific households and other vulnerable groups)?

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Part II: Value added tax – VAT gap, reduced VAT rates and their impact on compliance costs for businesses and on consumers

Value added tax – VAT gap, reduced VAT rates and their impact on compliance costs for businesses and on consumers

Briefing Paper

AUTHOR(S)

This study has been written by Stefan Bach, Janik Evert, Stefan Gorgels, Jennifer Hönicke, Sara Holzmann, Felicitas Kuttler and Yannick Ruf of DIW Econ at the request of the Ex-Post Evaluation Unit of the Directorate for Impact Assessment and European Added Value, within the Directorate-General for Parliamentary Research Services (EPRS) of the Secretariat of the European Parliament.

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To contact the publisher, please e-mail EPRS-ExPostEvaluation@ep.europa.eu

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ep@ep.europa.eu

<http://www.ep.europa.eu> (intranet)

<http://www.europarl.europa.eu/thinktank> (internet)

<http://epthinktank.eu> (blog)

Executive summary

The purpose of this briefing paper is to provide an overview of VAT systems and their effects across the EU Member States. This summary presents the main findings on the variation of VAT rates, tax bases and VAT gaps, the impact of the diversification of reduced VAT rates on businesses and the impact of reduced VAT rates on consumers within the European Union.

VAT rates, tax bases and VAT gaps in the EU Member States

What is the size of the tax base subject to non-standard VAT rates, compared to the standard VAT rate in EU Member States?

The size of the tax base subject to non-standard VAT rates cannot be computed accurately based on publicly available databases. Publicly available databases on the different VAT rates and household consumption cannot be linked because they are coded using different classifications that are incompatible with each other. However, for the purpose of this study, the Directorate-General for Budget (DG BUDG) of the European Commission provided data on the various VAT rates and their respective tax bases for the EU Member States (with the exception of Denmark, which applies only a standard rate). The data were delivered by the Member States to DG BUDG as part of the collection of value added tax-based own resource.

On average, 71 % of the total tax base is taxed at the standard VAT rate in the EU-27. However, there is great variation across Member States: in 2019, for example, the share of the total tax base subject to the standard VAT base rate ranged from 47 % in Spain to 97 % in Bulgaria.

To what extent will putting an end to non-standard VAT rates allow a reduction of the standard rate and the compliance costs in EU Member States?

Based on the assumptions that the current system of diversified VAT rates is replaced by one standard rate which is applied uniformly across all goods and services and which generates the same VAT revenue as the current system, the standard rate could on average be reduced by 7 percentage points in the EU27. However, the degree to which the standard rate could be reduced varies significantly across the EU Member States, from 2 percentage points in Estonia to 13 percentage points in Greece.

Another potential advantage of a uniform tax rate is that it could lead to a reduction in compliance costs by simplifying the tax declaration process for enterprises. While it is difficult to obtain precise quantitative estimates of the effect of the diversification of the VAT system on compliance costs, it is clear that diversification contributes to the complexity and opacity of the tax system and thereby increases compliance costs.

Although empirical data on compliance costs is sparse, what does exist shows a positive correlation between the number of reduced VAT rates and compliance costs for stand-alone enterprises.

Based on the literature reviewed, what conclusions could be drawn on the differences in the size and trends of the VAT gap among EU Member States?

On average, the VAT gap, measured as the difference between the amount of VAT actually collected and the total VAT liability (VTTL), is 10 % across the EU-27.¹ However, the size of the VAT gap varies considerably across Member States, ranging from 33 % in Romania to 1 % in Sweden and Croatia. While there is some fluctuation in the VAT gap from year to year, the VAT gap has declined in most Member States over the last decade. On average, the VAT gap declined from 20 % in 2009 to 10 % in 2019 in the EU Member States.

The literature identifies various factors that affect tax compliance and the size of the VAT gap, which can be broadly categorised into macroeconomic, demographic and institutional factors.

Impact of diversification of reduced VAT rates on firms**What are the costs and impacts of the current diversification of reduced VAT rates on compliance for businesses (in particular for cross-border transactions and SMEs)?**

The total cost of taxation is not only determined by the amount of tax paid, but also by compliance costs incurred by firms. The literature suggests that differentiated VAT rates, exemptions and registration thresholds lead to higher compliance costs. As a large proportion of compliance costs are fixed and independent of firm size, SMEs are disproportionately burdened. The total costs of VAT compliance are substantial, ranging from 1 % to 4 % of company turnover within the EU Member States.²

To what extent can digitalisation reduce compliance costs?

Several studies show that digitalisation has already significantly reduced tax compliance costs over recent years as the use of digital technologies greatly facilitates record-keeping and the completion of forms. In Europe and Central Asia, the time necessary for tax compliance fell between 2006 and 2020 from 473 hours to 225 hours, mainly due to the adoption of electronic filing and payment systems.³ However, it is also argued that the positive effects of digitalisation on compliance costs are more likely to materialise in the long run; whereas, in the short run, the adoption of new technologies might even increase compliance costs for firms that are currently lacking the necessary digital knowledge. Digitalisation is also not always accompanied by simplification, thus greatly limiting its potential beneficial impact.

To what extent does this current diversification create distortion in the EU internal market and lead to tax competition among Member States?

The current diversification of VAT rates across the EU Member States distorts the functioning of the EU internal market in three ways. Firstly, differences in standard and reduced rates, exemptions and VAT registration thresholds lead to uneven competition in the EU internal market as they de facto subsidise products and industries that are subject to non-standard rates. Secondly, the current system of multiple VAT rates increases the compliance burden which distorts competition in the

¹ Center for Social and Economic Research, Study and Reports on the VAT Gap in the EU-28 Member States – Finale Report, DG TAXUD, European Commission, 2020, p.94.

² KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, p. 32.

³ PWC and World Bank, Paying Taxes 2020 The changing landscape of tax policy and administration across 190 economies, 2020, p.27.

internal market further.⁴ Thirdly, the diversification of VAT rates creates an incentive to exploit price differences across countries by shifting consumption to Member States with lower VAT rates. Finally, the diversified VAT systems distort revenue collection by governments and thus potentially lead to tax competition among Member States.

Is there an uneven playing field for EU and non-EU companies?

Diversified VAT systems may create an uneven playing field and thus distort international trade in several ways. Firstly, different VAT systems increase compliance costs for cross-border trade and thus discourage international trade. Secondly, exemptions create an uneven playing field since they act as an implicit subsidy of imports. Thirdly, deficient VAT refund systems may reduce international trade if exporters have difficulties obtaining VAT refunds on input purchases. Finally, VAT systems can distort international competitiveness through a macroeconomic channel. Despite these various theoretical channels, the empirical evidence on the effect of VAT systems on international trade is inconclusive.

Impact of reduced VAT rates on consumers and social/environmental goals

To what extent does the use of non-standard VAT rates permanently reduce the price to the consumer?

A necessary precondition for the functioning of reduced VAT rates as a policy instrument is that the reduced VAT rate is at least partially passed on to consumers. From a theoretical perspective, several factors can influence and limit the degree of pass-through, including market structure, the price elasticity of supply, and the size and time horizon of the VAT reduction. The empirical literature thus shows a high degree of heterogeneity between pass-through estimates even within the same product groups. In conclusion, reduced VAT rates are often not fully passed onto consumers, with pass-through rates of 50 % or less of the original VAT reduction frequently being observed.

Do non-standard VAT rates help or hinder the achievement of environmental and social objectives such as promoting circular economy activities that target final consumers, notably repair services?

The pass-through of lower VAT rates to consumer prices is a necessary, but not a sufficient condition, for achieving environmental and social objectives on the demand side. Other factors are decisive, particularly the price elasticity of demand, which measures by how much consumers change their consumption in response to price changes.

Several studies show that the distributional effects of reduced VAT rates are relatively small. Reduced VAT rates have only recently been used for environmental purposes, so there are only few empirical studies evaluating their effects so far. Therefore, it is too early to draw any conclusions on the effectiveness of VAT rates towards achieving environmental goals. In general, the effectiveness of reduced VAT rates in promoting social or environmental objectives depends on the pass-through and price elasticity of demand for the goods or services subject to the reduced VAT rate.

Are (non-standard) VAT rates an effective tool for achieving social or environmental objectives in terms of efficiency and costs for government?

While non-standard VAT rates can potentially help achieve social and environmental goals, the question remains as to whether the benefits achieved outweigh the costs. The costs of reduced VAT

⁴ Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011, pp. 267-269.

rates include revenue losses, higher administrative and enforcement costs, increased lobbying pressure, higher compliance costs for businesses, and efficiency and welfare losses.

As the costs of reduced VAT rates beyond revenue losses are difficult to quantify, there are few empirical studies comparing the costs and benefits of reduced VAT rates. However, simulation studies show that the revenue loss of a multi-rate VAT system compared to a single standard rate system can alone amount to 22 % of the total VAT revenue, indicating that reduced VAT rates are associated with significant costs for government.

Do the benefits of non-standard VAT rates outweigh the costs in terms of revenue losses for governments in comparison to other specific tools (like direct transfers targeted at specific households and other vulnerable groups)?

To fully assess the efficiency and effectiveness of non-standard VAT rates, it is necessary to compare them with alternative policy instruments. While non-standard VAT rates are indirect fiscal incentives, there are several alternative instruments that provide direct fiscal incentives, including direct subsidies for consumers and tax credits for consumers and producers. Overall, the evidence from the literature suggests that VAT rate differentiation is a rather blunt policy instrument. Direct fiscal incentives are often favoured because they allow specific consumers or producers to be targeted. In terms of distributional objectives, most studies conclude that a uniform VAT system, combined with direct instruments, would be more efficient. With regard to the promotion of merit goods, information campaigns are a cost-effective alternative to reduced VAT rates.

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List of abbreviations

B2B	business to business
B2C	business to consumers
CN	combined nomenclature
COICOP	classification of individual consumption by purpose
CON	consumption data
CPA	classification of products by activity
GDP	gross domestic product
VATREV	current VAT revenues
RNVAT	revenue-neutral VAT reduction
SCM	Standard Cost Model
VAT	Value-added tax
VRR	VAT Revenue Ratio
VTTL	total VAT liability

1. VAT rates, tax bases and VAT gaps in the EU Member States

Value-added tax (hereafter termed 'VAT') is an important source of government revenue, accounting for 17.5 % of total tax revenue in the EU27.⁵ VAT relies on fractional collection of the "value added" that is generated at every stage of production. Hence, the taxation includes transactions from business to business (B2B) and from business to consumers (B2C). Due to reimbursement for inputs in all B2B transactions, VAT is considered a highly efficient tool for raising government revenue. Capital goods are in most cases excluded from the tax, thus avoiding the creation of disincentives for investment decisions.⁶

VAT is also referred to as consumption taxation, since the tax burden hypothetically encompasses the entire consumption. For example, the VAT Revenue Ratio (VRR) as a measure of optimal VAT revenue, is defined as the ratio between actual VAT revenue and the revenue that would theoretically be collected if all consumption were subject to the same VAT rate.⁷ In practice, however, the tax base is affected by many concessions and exemptions. In pursuing distributional and social objectives, many governments impose reduced VAT rates on basic necessities (food, heating, public transport, etc.) or exemptions for merit goods such as health care and education.⁸

The European Commission's current VAT Directive provides a legally binding framework for national VAT rates, providing national governments with the freedom to set the number and level of rates, subject to only two basic rules:

- The standard rate shall not be lower than 15 %. (Article 97 VAT Directive)
- One or two reduced rates may be applied to goods and services listed in Annex III of the VAT Directive (Article 98(1) VAT Directive). The minimum for these reduced rates is 5 %.

Moreover, the landscape of existing VAT rates is shaped by multiple exceptions to these basic rules. For example, Member States are allowed to maintain exemptions and "super" reduced rates granted before 1 January 1991, even if they are lower than the existing minimum rate. This is subject to the condition that the rates are in conformity with Community law and have been adopted for clearly defined social reasons and the benefit of end consumers (Article 110 VAT Directive). Furthermore, the VAT Directive prescribes both supplies that EU countries must exempt and supplies that they may choose to exempt from VAT. Supplies that must be exempt include activities in the public interest such as medical and dental care (Article 131- 163 VAT Directive).⁹

This raises two important questions. Firstly, what is the relative size of the tax base subject to standard VAT rates compared to non-standard (reduced) VAT rates across the Member States?¹⁰ Secondly, to what extent would elimination of reduced rates allow for a reduction of the standard rate?

⁵ Eurostat, Main national accounts tax aggregates [GOV_10A_TAXAG_custom_1059521], 2021 (consulted on 01.06.2021).

⁶ Desai M. and Hines J., 'Value-added taxes and international trade: The evidence', University of Chicago Law School, 2003, p.1.

⁷ OECD, Consumption Tax Trends 2020: VAT/GST and Excise Rates, Trends and Policy Issues, OECD Publishing, p.52.

⁸ Borselli F., Chiri S., and Romagnano E., 'Patterns of reduced VAT rates in the European Union', *International VAT monitor*; Vol. 1; 2012; p.14.

⁹ Directive 2006/112/EC of 28 November 2006 on the common system of value added tax

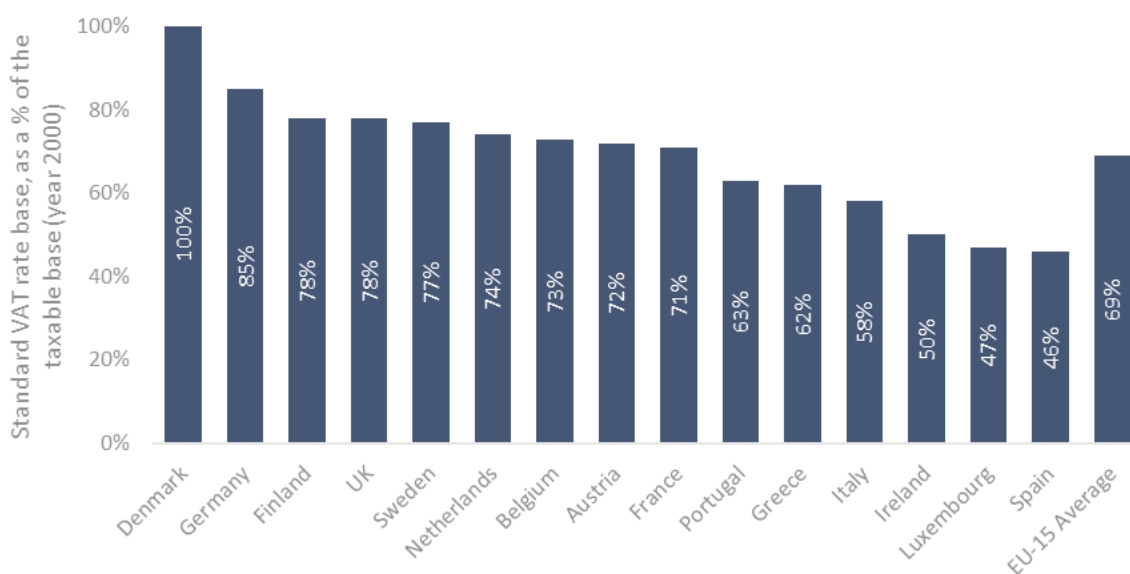
¹⁰ The terms "reduced" rate and "non-standard" rate are used interchangeably throughout the paper.

1.1. The VAT bases and the structure of VAT rates in the EU

What is the size of the tax base subject to non-standard VAT rates compared to the standard VAT rate in EU Member States?

Previous studies showed that the standard VAT rate is far from being applied to the entire tax base. In 2000, on average, only 69 % of the value of taxable transactions in the 15 pre-2004 EU Member States was taxed at the standard VAT rate.¹¹

Figure 1 Share of the standard VAT rate as a % of the whole VAT taxable base, year 2000



Source: DIW Econ, based on Mathis.¹²

Only Denmark applied the standard rate to 100 % of the transactions analysed. Eight Member States (DE, FI, UK, SE, NL, BE, AT and FR) taxed between 85 % - 69 % of the tax base at their standard rate. The remaining countries were below the EU average of 69 % and in Ireland, Luxembourg and Spain, the standard rate was applied to less than 50 % of the tax base.¹³

A follow-up study confirmed the heterogeneous picture within the European Union. In 2006, 23 countries applied reduced rates and four countries applied super reduced rates for certain product categories. The authors highlighted that the application of reduced VAT rates significantly decreases VAT revenue. According to national estimates, the revenue loss in the individual Member States in 2006 amounted to 0.1 % - 1.3 % of gross domestic product (GDP).¹⁴

¹¹ Mathis A., VAT indicators, *Working Paper No. 2. Directorate General Taxation and Customs Union, DG TAXUD, European Commission, 2004, p.8.*

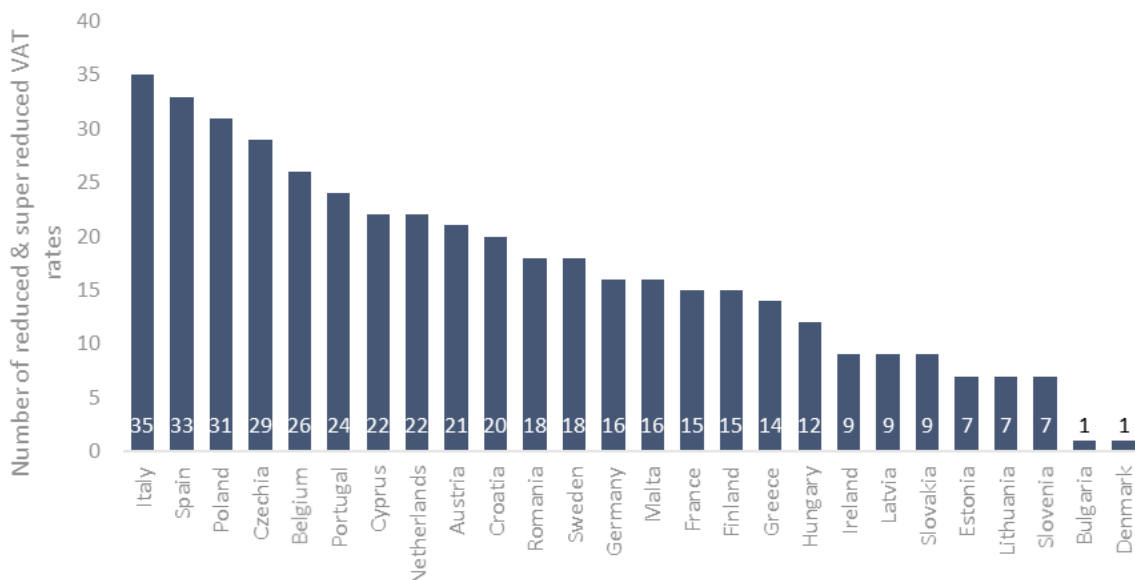
¹² Ibid.

¹³ Ibid.

¹⁴ Copenhagen. Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13, DG TAXUD, European Commission, 2008. p.39.*

A current overview of VAT rates in the EU Member States, based on data provided by the European Commission, indicates that differences in VAT rates still exist today.¹⁵ Figure 2 shows that Bulgaria and Denmark apply reduced VAT rates to only one category of products, while Italy and Spain still apply significantly more reduced or super reduced rates in their VAT systems.

Figure 2 Number of reduced and super reduced VAT rates in the EU Member States in 2020



Source: DIW Econ, based on European Commission.¹⁶

Most Member States tend to apply reduced rates to basic products (such as food) on which low-income households spend a larger share of their income; as well as to products with perceived positive social spillovers (such as newspapers, books and medicines).¹⁷ However, there are also major differences between Member States. Bulgaria, for example, only applies reduced rates to accommodation in hotels and similar establishments, whereas other Member States such as Greece, Spain and France apply specific VAT rules to certain regions.¹⁸ For this reason, granular data on consumption expenditure and the taxed product categories is needed to quantify to what extent Member States differ in terms of the tax base for standard and non-standard sources was reviewed to estimate the tax base subject to non-standard VAT.

¹⁵ VAT rates applied in the Member States of the European Union Situation at 1st of January 2020, https://ec.europa.eu/taxation_customs/business/vat/eu-vat-rules-topic/vat-rates_en, DG TAXUD, European Commission, 2020.

¹⁶ Ibid.

¹⁷ Ortiz-Ospina O. and Roser M, Taxation, <https://ourworldindata.org/taxation>, 2016.

¹⁸ VAT rates applied in the Member States of the European Union Situation at 1st of January 2020, https://ec.europa.eu/taxation_customs/business/vat/eu-vat-rules-topic/vat-rates_en, DG TAXUD, European Commission, 2020.

Table 1 Public databases on consumer expenditure and VAT systems in the European Union

Database	Provider	Available Data	Applicability
Data on reduced tax rates			
VAT rate consumption purpose ¹⁹	Eurostat-experimental statistics	VAT rate by COICOP consumption purpose (COICOP Code 3 digits)	<ul style="list-style-type: none"> Only estimated VAT rates for aggregated consumption groups
Taxes in Europe Database v3 ²⁰	European Commission	Overview of reduced VAT rates applicable in the EU by country (CPA and CN code)	<ul style="list-style-type: none"> Matching with consumption data not feasible
European Union VAT rates.	Marosa Ltd. ²¹	Overview of reduced VAT rates applicable in the EU by product category and country	<ul style="list-style-type: none"> Incomplete data Matching with consumption data not feasible
2021 European Union VAT rates	Avalara ²²	Overview of reduced VAT rates applicable in the EU by product category and country	<ul style="list-style-type: none"> Matching with consumption data not feasible
Data on consumption expenditure			
Final consumption expenditure of households ²³	Eurostat	Final consumption expenditure of households by consumption purpose (COICOP Code 3 digits)	<ul style="list-style-type: none"> Matching with data on reduced VAT rates not feasible

As shown in Table 1, no existing publicly available database provides a detailed disaggregation of the consumption categories that are subject to reduced VAT rates across the Member States. Moreover, publicly available databases on the different VAT rates and household consumption cannot be linked because they are coded using different classifications that are incompatible with each other. In particular, the European Commission database on tax rates is coded with combined nomenclature (CN) and classification of products by activity (CPA) codes, which cannot be merged with the classification of individual consumption by purpose (COICOP) coding of the consumption data, as the consumption data are provided at an aggregated level, whereas many reduced VAT rates are applied to very specific product categories.²⁴

However, for the purpose of this study, the Directorate-General for Budget (DG BUDG) of the European Commission provided data on the various VAT rates and their respective tax bases for the EU Member States (with the exception of Denmark, which applies only a standard rate). The data

¹⁹ Eurostat, VAT rate by COICOP consumption purpose - experimental statistics [icw_tax_10], 2016 (consulted on 01.06.2021).

²⁰ European Commission, Taxes in Europe Database v3 VAT Search, https://ec.europa.eu/taxation_customs/tedb/vatSearchForm.html, 2021 (consulted on 01.06.2021).

²¹ Marosa Ltd., VAT rates in Europe, <https://marosavat.com/vat-rates-in-europe/>, 2021 (consulted on 01.06.2021).

²² Avalara, Inc., 2021 European Union VAT rates, <https://www.avalara.com/vatlive/en/vat-rates/european-vat-rates.html>, 2021 (consulted on 01.06.2021).

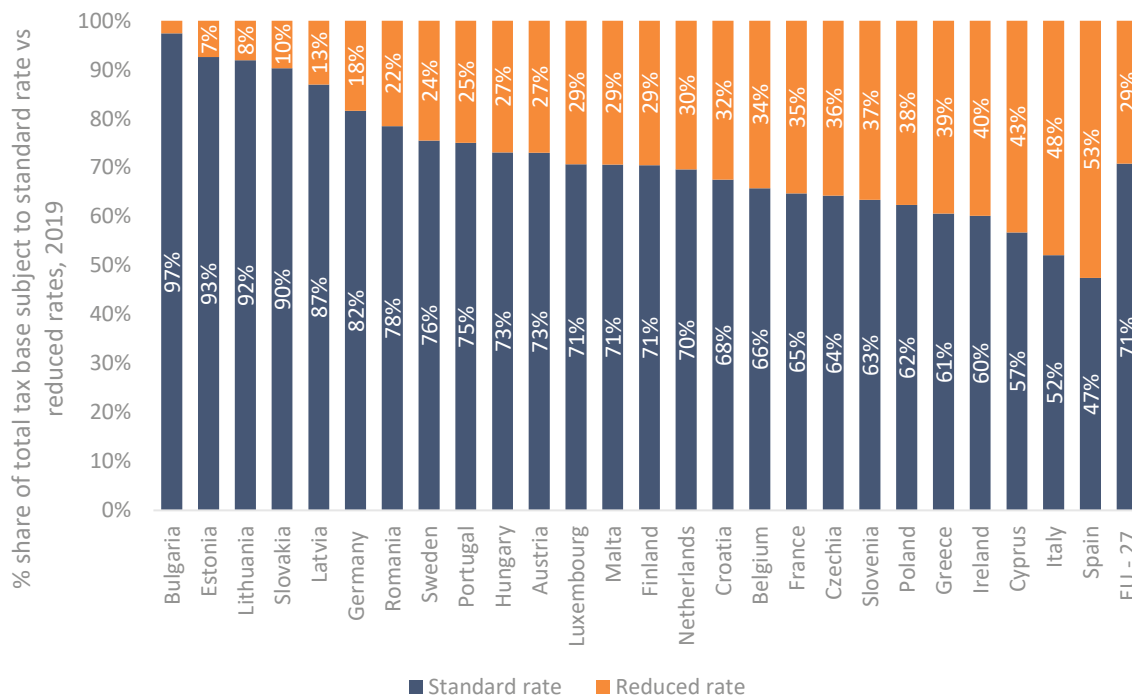
²³ Eurostat, Final consumption expenditure of households by consumption purpose (COICOP 3 digit) [nama_10_co3_p3], 2021 (consulted on 01.06.2021).

²⁴ European Commission, Taxes in Europe Database v3 VAT Search, https://ec.europa.eu/taxation_customs/tedb/vatSearchForm.html, 2021 (consulted on 01.06.2021).

were delivered by the Member States to DG BUDG as part of the collection of value added tax-based own resource.

Figure 3 shows the shares of the total tax base that were subject to the standard rate versus reduced rates in 2019.

Figure 3 Share of tax base subject to standard rate vs reduced rates in 2019



Source: DIW Econ based on data obtained from DG BUDG

There is substantial variation across the Member States in the share of the tax base subject to the respective standard rate. While in Bulgaria 97 % of the total tax base was taxed at the standard rate, the standard rate was only applied to 47 % of the total tax base in Spain. On average, the share of the tax base that was subject to the standard rate was 71 % across the Member States in 2019.

To what extent would putting an end to non-standard VAT rates allow a reduction of the standard rate and the compliance costs in EU Member States?

From a theoretical point of view, an ideal VAT consists of a single positive tax rate covering all consumption expenditure, without many exemptions.²⁵ A uniform tax rate avoids distorting consumption decisions and competition²⁶ and leads to a reduction of compliance costs by simplifying the tax return procedure for companies.²⁷ There are currently three main types of VAT models: the European model, the New Zealand model and the Japanese model. Out of these three VAT systems, the New Zealand and Japanese models are closest to the ideal of levying a single rate

²⁵ James K., 'Exploring the origins and global rise of VAT', *The VAT Reader (Tax Analysts)*, 2011, pp.15-22.

²⁶ Borselli F., Chiri S., and Romagnano E., 'Patterns of reduced VAT rates in the European Union', *International VAT monitor*; Vol.1; 2012; p.14.

²⁷ Tait A., *Value Added Tax International Practice and Problems*, International Monetary Fund, 1988, pp.42-44.

on a relatively broad tax base.²⁸ As illustrated above, the EU VAT system, on the other hand, is motivated by several socio-economic policy objectives, leading to multiple deviations from the uniform rate.²⁹

Against this background, it is an interesting thought experiment to consider how much the standard rate could be lowered if reduced rates were abolished and the standard rate was applied uniformly across all products while keeping total VAT revenue constant. To address this question, the following assumptions are made:

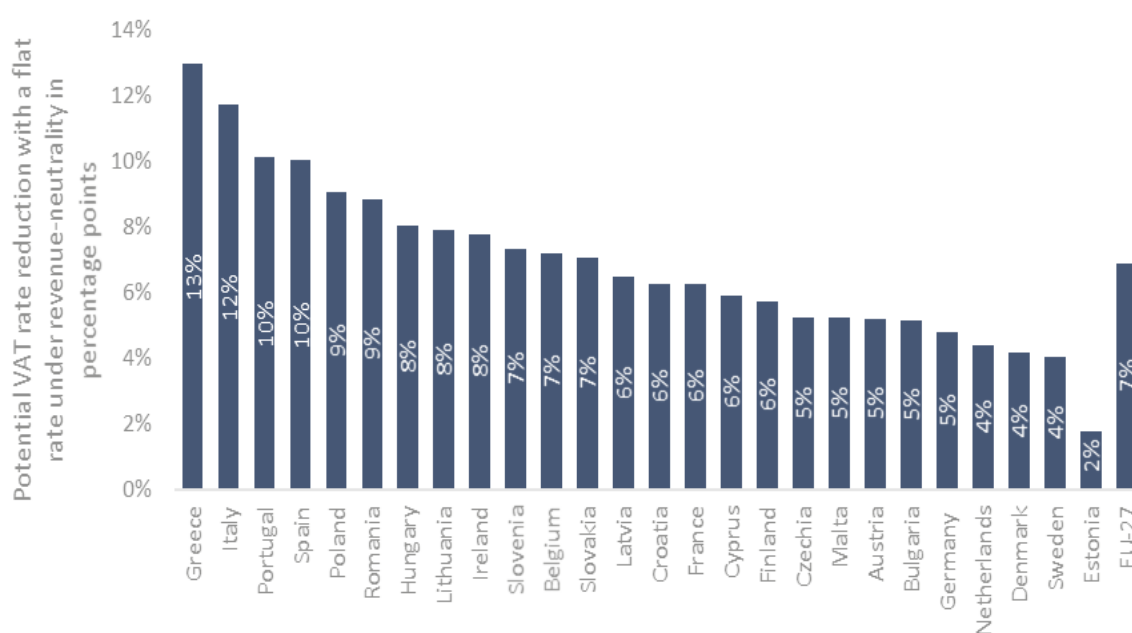
- 1 The potential tax base consists of the total consumption expenditure of households.
- 2 Policy makers pursue revenue-neutral tax adjustments: VAT revenue is held constant.
- 3 Households do not change their consumption behaviour when VAT is adjusted.

Under these assumptions, the revenue-neutral VAT reduction (RNVAT) can be calculated based on current VAT revenues (VATREV) and consumption data (CON) using the following formula:

$$RNVAT_{it} = \frac{VATREV_{it}}{CON_{it}}$$

By subtracting the hypothetical reduced VAT rate from the current standard VAT rate, the possible VAT reduction is shown in Figure 4.

Figure 4 Potential VAT rate reduction with a unique flat rate under revenue-neutrality, 2019



Source: DIW Econ, based on Eurostat.³⁰

²⁸ James K., 'Exploring the origins and global rise of VAT', *The VAT Reader (Tax Analysts)*, 2011, pp.15-22.

²⁹ Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011.

³⁰ Eurostat, Main national accounts tax aggregates [GOV_10A_TAXAG_custom_1059521], 2021 (consulted on 01.06.2021).

On average, a revenue-neutral tax reform could reduce the standard VAT rate in the EU-27 by 7 percentage points. However, the graph also shows that there are significant differences between the EU Member States. For example, eliminating reduced VAT rates in Greece could lead to a 13 percentage point reduction in the standard VAT rate, whereas in Estonia, it would be only 2 percentage points. For most Member States, the potential reduction varies between 5 and 9 percentage points. Although the figures are based on rough assumptions, they are consistent with the results of much more elaborate simulation studies. A microsimulation for Germany shows, for example, that if reduced tax rates were abolished for all goods, the standard VAT rate could be reduced to 15.5 %.³¹ This corresponds to a reduction of 3.5 percentage points compared to the current standard rate. According to the simplified estimate in Figure 4, a reduction of 5 percentage points would be possible.

One advantage of a single VAT rate is that it simplifies the tax return process, which theoretically leads to lower compliance costs.³² Here it should be noted that compliance costs comprise three core elements: taxpayers' and unpaid helpers' time, tax practitioners' fees and incidental costs (such as computer software packages).³³

A brief literature review shows that the various design aspects of VAT systems, such as multiple VAT rates, numerous exceptions and zero-rated items, have an impact on compliance costs.³⁴ The Paying Taxes 2020 report highlights that international differences in VAT compliance time may be a result of the complexities of VAT systems with multiple rates.³⁵ Another cross-country study indicates that more differentiated VAT rate systems are associated with higher compliance costs across the EU Member States.³⁶ A number of national studies and surveys (from Canada,³⁷ the United Kingdom³⁸ and Mauritius³⁹) confirm this result. A comparison of the average costs of Swedish companies shows that the additional costs of handling multiple VAT rates amount to SEK 500 million.⁴⁰

Furthermore, the literature highlights that SMEs face proportionally higher tax compliance costs than larger enterprises. At present, the ability of researchers to assess the probable impact of a potential VAT reform on compliance costs is limited by the lack of comparable estimates of

³¹ Ochmann R., Bach S., and Beznoska M., The Retrospective Evaluation of Elements of the VAT System: The Case of Germany, *DIW Berlin: Politikberatung kompakt*, No.63, DG TAXUD, European Commission, 2012.

³² Tait A., *Value Added Tax International Practice and Problems*, International Monetary Fund, 1988, pp.42-44.

³³ Smulders S. and Evans C., 'Mitigating VAT compliance costs-a developing country perspective', *Australian Tax Forum*, Vol. 32. No.2, 2017, (p.7).

³⁴ Bain K., Walpole E., Hansford A., Evans C., 'The internal costs of VAT compliance: Evidence from Australia and the United Kingdom and suggestions for mitigation', *eJournal of Tax Research*, Vol.13, No.1, 2015, p.158.

³⁵ PWC and World Bank, *Paying Taxes 2020 The changing landscape of tax policy and administration across 190 economies*, <https://www.pwc.de/de/steuerberatung/paying-taxes-2020.pdf>, 2020, p.124.

³⁶ Copenhagen. Economics, *Study on reduced VAT applied to goods and services in the Member States of the European Union*, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008. p.6.

³⁷ Vaillancourt F., Clemens J., and Palacios M., *Compliance and administrative costs of taxation in Canada, The impact and costs of taxation in Canada: The case for flat tax reform*, The Fraser Institute, 2008, 55-102, p.27.

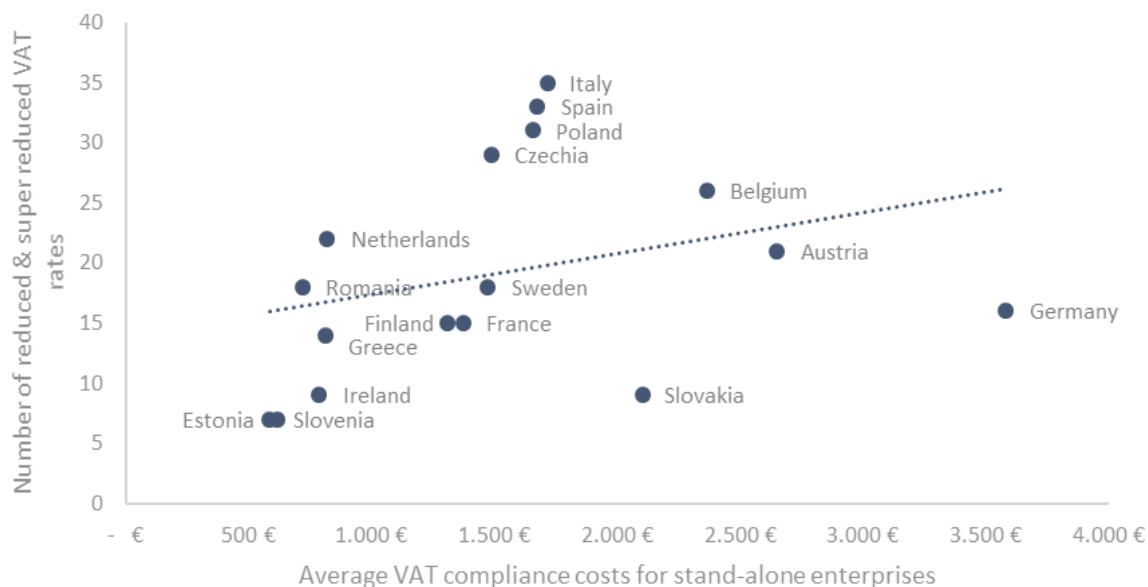
³⁸ Hansford A., Hasseldine J., and Howorth C., 'Factors affecting the costs of UK VAT compliance for small and medium-sized enterprises', *Environment and Planning C: Government and Policy*, Vol.21(4), 2003, pp.479-492.

³⁹ Pillai K., 'The compliance costs of VAT in the hotel industry in Mauritius', *Social Sciences & Humanities and Law & Management Research Journal*, Vol.3, 2000, p.54.

⁴⁰ Skatteverket, Report 2006/3b Compliance costs of value added tax in Sweden, <http://www.skatteverket.se/download/18.906b37c10bd295ff4880002550/rapport200603B>, 2006, p.11.

compliance costs.⁴¹ Nonetheless, the limited empirical data which is currently available supports the theoretical prediction of a positive correlation between the number of reduced VAT rates and compliance costs for stand-alone enterprises.

Figure 5 Correlation between the number of reduced VAT rates and compliance costs for stand-alone enterprises



Source: DIW Econ, based on KPMG⁴² & European Commission.⁴³

Compliance costs tend to be higher in countries with more reduced VAT rates. For example, while the costs in Estonia and Slovenia, which have comparatively few reduced rates with only seven exemptions, are comparatively low, at an average of EUR 600, the costs in Member States such as Italy, Spain, Poland and Czechia, which have a particularly high number of exemptions, are significantly higher, averaging more than EUR 1 500. Although the differences in compliance costs cannot be attributed to different VAT rates alone, the data reinforce the finding from the literature that multiple VAT rates tend to increase compliance costs.

⁴¹ Barrios S., d'Andria D., and Gesualdo M., 'Reducing tax compliance costs through corporate tax base harmonization in the European Union', *Journal of International Accounting, Auditing and Taxation*, Vol.41, 2020.

⁴² KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, pp.238-251.

⁴³ VAT rates applied in the Member States of the European Union Situation at 1st of January 2020, https://ec.europa.eu/taxation_customs/business/vat/eu-vat-rules-topic/vat-rates_en, DG TAXUD, European Commission, 2020.

Box 1 Key findings - Chapter 2.1

What is the size of the tax base subject to non-standard VAT rates compared to the standard VAT rate in EU Member States?

- Currently, there are no publicly available data that allow for an accurate estimation of the size of the tax base subject to standard/non-standard VAT rates in the EU Member States.
- Based on data provided by DG BUDG, the standard rate was, on average, applied to 71 % of the total tax base across EU Member States in 2019, ranging from 47 % in Spain to 97 % in Bulgaria.
- The literature confirms the intuition that reduced VAT rates significantly reduce government revenue.

To what extent would putting an end to non-standard VAT rates allow a reduction of the standard VAT rate and the compliance costs in EU Member States?

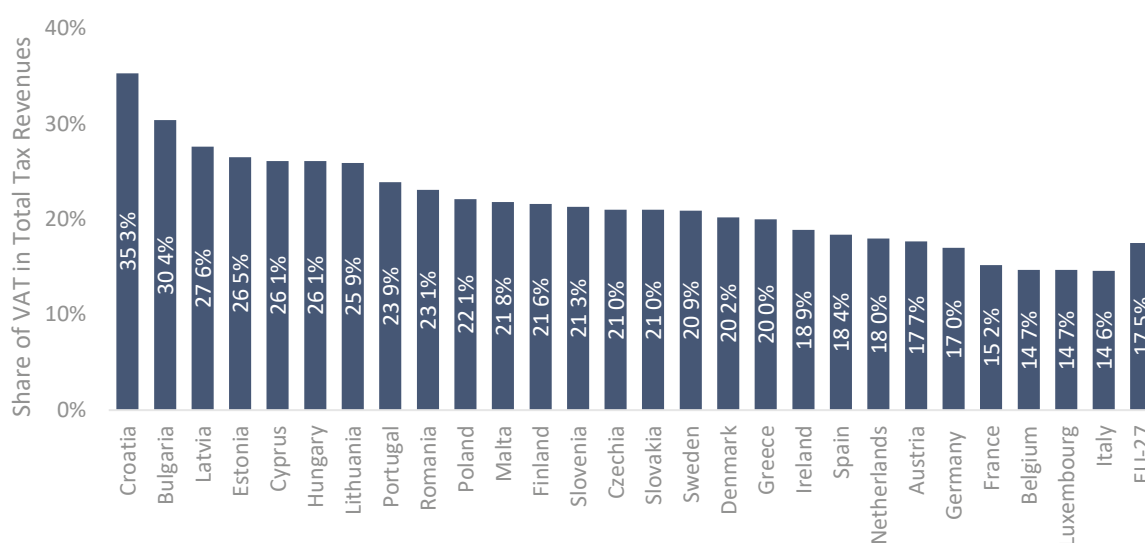
- The literature suggests that a uniform tax rate reduces compliance costs by simplifying the tax declaration process for businesses.
- Rough estimates show that a revenue-neutral tax reform could reduce the standard VAT rate on average by 7 percentage points in the EU-27. The size of the reduction varies between EU member states from 2 to 13 percentage points.
- Member States with more reduced rates tend to have higher compliance costs for stand-alone businesses.

1.2. The VAT gap in EU Member States

Based on the literature reviewed, what conclusions could be drawn regarding the differences in the size and trends of the VAT gap among EU Member States?

As Figure 6 shows, VAT revenues are one of the most important sources of government revenue. On average, they account for around 21 % of total tax revenue in the EU-27, with some countries, such as Croatia and Bulgaria, collecting almost one-third of their tax revenue through VAT.⁴⁴

Figure 6 Share of VAT in Total Tax Revenues in EU Member States in 2019



Source: DIW Econ, based on Eurostat.⁴⁵

In this context, the VAT gap (i.e. the total difference between the expected VAT revenue and the amount actually collected) becomes particularly interesting for policymakers. In the literature, the VAT gap is usually calculated as the absolute or percentage difference between the actual amount of VAT collected and the total VAT liability (VTTL). The VTTL is the estimated VAT amount that can theoretically be collected in total.⁴⁶ On average, the VAT gap in the EU-27 is 10 %. However, Figure 7 reveals that the VAT gap varies significantly across Member States, ranging from 33 % in Romania to 1 % in Sweden and Croatia.

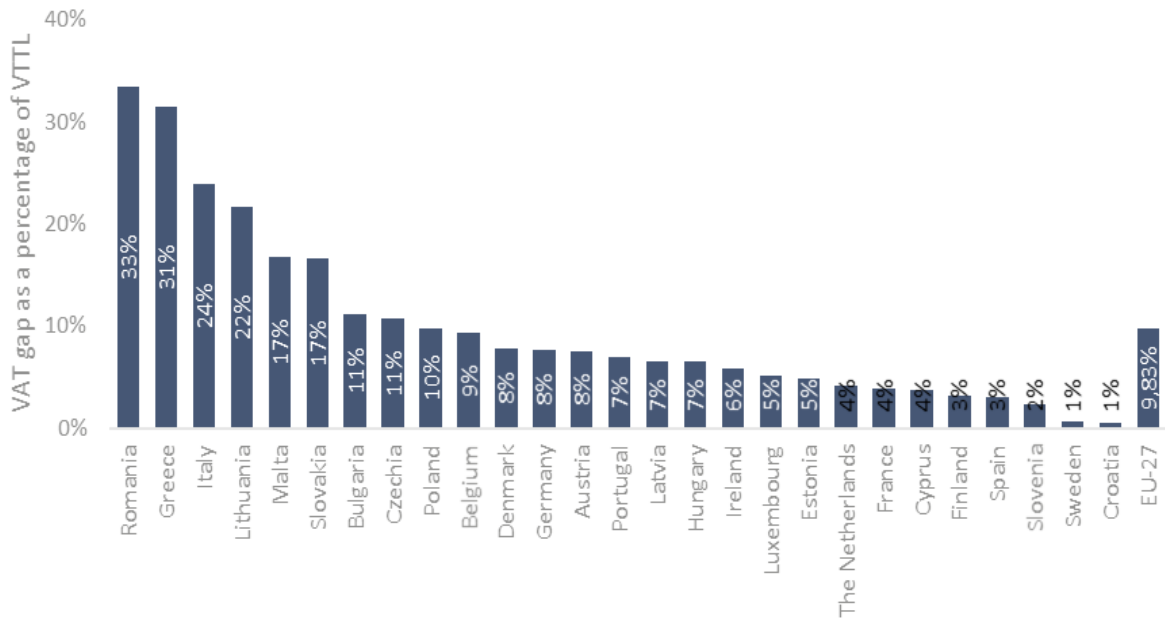
While the VAT gap fluctuates from year to year, the VAT gap has declined in most Member States over the last decade. On average, the VAT gap declined from 20 % in 2009 to 10 % in 2019 in the EU Member States.

⁴⁴ Fiscalis Tax Gap Project Group, The concept of tax gaps - Report on VAT Gap Estimations, DG TAXUD, European Commission, 2016.

⁴⁵ Eurostat, Main national accounts tax aggregates [GOV_10A_TAXAG_custom_1059521], 2021 (consulted on 01.06.2021).

⁴⁶ Center for Social and Economic Research, Study and Reports on the VAT Gap in the EU-28 Member States – Finale Report, DG TAXUD, European Commission, 2020.

Figure 7 VAT gap as a percentage of VTTL, 2019



Source: DIW Econ, based on Case.⁴⁷

⁴⁷ Center for Social and Economic Research, Study and Reports on the VAT Gap in the EU-28 Member States – Finale Report, DG TAXUD, European Commission, 2020.

In addition to the relative measurement as a share of VTTL, there are other methods and approaches for determining the VAT gap. Since the different calculations yield slightly different results, the most commonly used methods are summarised in Box 2.

Box 2 Calculation methods for determining the VAT gap

There are three predominant methodologies for the estimation of the VAT gap:

- The top-down approach estimates the difference between the potential and actual revenue accrued by using the theoretical total VAT liability (VTTL) as reference value.
- The VAT Revenue Ratio (VRR) is an indicator that measures (top-down) the difference between the VAT revenue actually collected and what would theoretically be raised if VAT was applied at the standard rate to the entire potential tax base.
- The bottom-up method obtains estimates of the VAT gap by extrapolating data from individual cases within different groups of taxpayers.⁴⁸

In the literature, top-down methods are more frequently employed as they ensure better comparability between countries.⁴⁹

To gain a better understanding of the drivers of the VAT gap, the gap can be divided into a Compliance gap and a policy gap.^{50, 51} While the compliance gap shows the effectiveness of revenue administration and taxpayer compliance, the policy gap captures the impact of tax policy choices, such as adoption of differentiated rates and exemptions.

$$\text{Compliance Gap} = \frac{\text{Potential VAT, current policy framework} - \text{Actual VAT, accrued collections}}{\text{Potential VAT, current policy framework}}$$

$$\text{Policy Gap} = \frac{\text{Potential VAT, reference policy framework} - \text{Potential VAT, current policy framework}}{\text{Potential VAT, reference policy framework}}$$

Many papers discuss the various factors that influence the size of the VAT gap or VAT revenues. Early studies focusing on tax compliance found that non-compliance was generally higher in Member States with higher standard VAT rates and in Member States with more deviations from uniform taxation.⁵² Subsequent papers confirm that the base-eroding effects of tax rate increases are strong⁵³. Further empirical evidence from the EU suggests that lower tax compliance is associated with lower judicial and legal effectiveness,⁵⁴ weaker legal institutions, higher perceived levels of

⁴⁸ OECD, Tax Administration 2017: Comparative Information on OECD and Other Advanced and Emerging Economies, OECD Publishing, 2017, p.182.

⁴⁹ Lešnik T., Jagrič T., Jagrič V., 'VAT gap dependence and fiscal administration measures', *Naše gospodarstvo/Our economy*, Vol.64, No.2, 2018, pp 43-51.

⁵⁰ Fiscalis Tax Gap Project Group, The concept of tax gaps - Report on VAT Gap Estimations, DG TAXUD, European Commission, 2016.

⁵¹ Hutton E. and Gaspar V., 'The Revenue Administration-Gap Analysis Program: Model and Methodology for Value-Added Tax Gap Estimation', *Technical Notes and Manuals*, Vol.14, No.1, International Monetary Fund, 2017.

⁵² Agha A. and Haughton J., 'Designing VAT systems: Some efficiency considerations', *The Review of Economics and Statistics*, 1996, pp.303-308; Zídková H., 'Determinants of VAT gap in EU', *Prague Economic Papers*, Vol.23(4), 2014, pp.514-530; Zídková H. and Pavel J., 'What Causes the VAT Gap?', *Ekonomický časopis*, Vol.64(9), 2016, pp.811-826.

⁵³ Mathews K., 'VAT Evasion and VAT Avoidance: Is there a European Laffer Curve for VAT?', *International Review of Applied Economics*, Vol.17, No.1, 2003, pp.105-114.

⁵⁴ Christie E. and Holzner M., 'What explains tax evasion? An empirical assessment based on European data', *WIIW Working Paper*, No.40, 2006.

corruption and share of the shadow economy.⁵⁵ On the other hand, other research papers indicate that the number of tax audits decreases the VAT gap, emphasising the important role of strong institutions and tax enforcement.⁵⁶ Furthermore, it was found that an unequal distribution of wealth and growing unemployment widen the VAT gap by increasing tax avoidance and evasion.⁵⁷

With regard to macroeconomic factors, a major finding from the literature is that a higher GDP, GDP per capita and GDP growth are associated with a reduction in the VAT gap.⁵⁸ This implies that the relative tax gap decreases with economic growth. Consequently, the VAT gap fluctuates with the business cycle. Empirical evidence from EU Member States and Japan suggests that the cyclicity of the VAT gap is mainly driven by changes in unemployment and government consumption.⁵⁹ While rising unemployment is an indicator of an economic recession, which increases tax avoidance and evasion, a growing share of government spending on total consumption is associated with a rising VAT gap, as government consumption represents uncollectible VAT revenue.⁶⁰ Other researchers have found that the general composition of the economy has a significant impact on the VAT gap. For example, compliance is positively correlated with the share of tourism in GDP⁶¹ and the trade openness of a country.⁶² Overall, the factors influencing the VAT gap can be divided into institutional, macroeconomics and demographic factors.

⁵⁵ Zídková H., Tepperová, J., and Helman K., 'How do opinions on tax evasion relate to shadow economy and VAT gap?', *Theoretical and Practical Aspects of Public Finance*, 2016, pp.119-252; Szczypińska A., 'What drives the VAT gap in the European Union?', *Collegium of Economic Analysis Annals* 55, Vol.55, 2019, pp. 69-82; Reckon LLP, Study to quantify and analyse the VAT gap in the EU-25 member states, DG TAXUD, European Commission, 2009.

⁵⁶ Eriotis N., Missiakoulis S., Papadakis S., and Vasiliou D, 'Greek tax reality and the VAT gap: Influential factors', *Journal of Accounting and Taxation*, Vol.13, No.1, 2021, pp. 28-44.; Lešnik T., Jagrič T., Jagrič V., 'VAT gap dependence and fiscal administration measures', *Naše gospodarstvo/Our economy*, Vol.64, No.2, 2018, pp 43-51.

⁵⁷ Bird R, Martinez-Vazquez J, and Torgler B, 'Societal Institutions and Tax Effort in Developing Countries', *Annals of Economics and Finance*, Vol.15, No.1, 2014, pp.185-230; Kozuharov S, Petkovski V, and Ristovska, N., 'The impact of taxes measured by gini index in Macedonia', *UMTS Journal of Economics*, Vol.6, No.1, 2015, pp.41-52.

⁵⁸ Reckon LLP, Study to quantify and analyse the VAT gap in the EU-25 member states, DG TAXUD, European Commission, 2009.

⁵⁹ Ueda J., 'The Evolution of Potential VAT Revenues and C-Efficiency in Advanced Economies', *IMF Working Paper*, 2017; Eriotis N., Missiakoulis S., Papadakis S., and Vasiliou D, 'Greek tax reality and the VAT gap: Influential factors', *Journal of Accounting and Taxation*, Vol.13, No.1, 2021, pp.28-44.

⁶⁰ Center for Social and Economic Research, Study and Reports on the VAT Gap in the EU-28 Member States – Finale Report, DG TAXUD, European Commission, 2020.

⁶¹ Edward C. and Holzner M., 'What explains tax evasion? An empirical assessment based on European data', *WIIW Working Paper*, No.40., 2006.

⁶² Aizenman J. and Jinjarak Y., 'The collection efficiency of the Value Added Tax: Theory and international evidence', *Journal of International Trade and Development*, Vol.17, 2008, pp.391-410.

Figure 8 Classification of factors influencing the VAT gap

Institutional factors	Macroeconomic factors	Demographic factors
<ul style="list-style-type: none"> • Level of the standard VAT rate • Number of reduced VAT rates • Judicial and legal effectiveness 	<ul style="list-style-type: none"> • Share of the shadow economy • Wealth distribution • Unemployment rate • GDP & composition of GDP • Share of government spending 	<ul style="list-style-type: none"> • Perceived level of corruption • Government trust

Source: DIW Econ

However, it should be noted that many studies fail to confirm the causal relationships that were identified in previous studies, which points to a methodological problem in identifying causal effects. The methods used in most studies do not allow the estimation of robust causal effects.⁶³

Box 3 Key findings - Chapter 2.2

Based on the literature reviewed, what conclusions could be drawn regarding the differences in the size and trends of the VAT gap among EU Member States?

- VAT gaps within the EU vary significantly, from 1 % to 33 %, between Member States.
- On average, the VAT gap declined from 20 % in 2009 to 10 % in 2019 in the Member States.
- The factors influencing the VAT gap can be divided into institutional, macroeconomic, and demographic factors.
- From an institutional point of view, lower tax compliance is associated with higher standard VAT rates, multiple VAT rates, and lower judicial and legal effectiveness.
- Macroeconomic conditions that affect the VAT gap are unequal wealth distribution, increasing unemployment and the business cycle in general.
- Demographic factors include the perceived level of corruption and trust in government.
- Overall, the literature shows that it is difficult to identify general factors influencing the VAT gap, which underlines the specificities of each Member State.

2. Impact of diversification of reduced VAT rates

2.1. Impact on compliance costs

What are the costs and impacts of the current diversification of reduced VAT rates on compliance for businesses (in particular for cross-border transactions and SMEs)?

The overall costs of taxation are not only determined by the amount of taxes paid. Additionally, there are efficiency costs from distortionary effects of taxation and operative costs of the tax system. For the latter, a distinction is made between administrative costs for collecting taxes and compliance costs for paying taxes. Compliance costs refer to the costs borne by taxpayers and businesses to

⁶³ Cevik S., Gottschalk J., Hutton E., Jaramillo L., Karnane P., and Sow M., 'Structural transformation and tax efficiency', *International Finance*, Vol.22(3), 2019, pp.341-379.

comply with the obligations of the tax system. They are direct private sector costs and thus distinguishable from administrative costs that are incurred by the government and indirectly paid by taxpayers. Compliance costs can be divided into three subgroups.⁶⁴ The costs of labour and time to complete the tax return, the costs of external professional expertise to support the completion of tax activities, and incidental expenses involved in complying with tax obligations.⁶⁵

The amount of compliance costs borne by businesses is determined by multiple factors. Multiple standard and non-standard VAT rates, differentiated exemptions, and VAT registration thresholds increase the complexity of the tax regime and are associated with substantial monetary costs for compliance. Compared to a system with a single tax rate, rate differentiation tends to be more demanding for businesses in filing their VAT returns.⁶⁶ Furthermore, the costs associated with complying with tax obligations are greater when there are complex rules and obligations, when administrative procedures are inconvenient and when the application and interpretation of rules differ across jurisdictions. The frequency of legislative changes also increases tax compliance costs for businesses.⁶⁷ Since compliance costs are predominantly fixed costs that are independent of the volume of the taxed transaction, they constitute a disproportionately large burden for small businesses.⁶⁸

This regressivity of the VAT compliance burden is well-established in the literature.⁶⁹ For small firms, one-off transactions with little volume but high information and resource requirements are more frequent and the large share of fixed compliance costs in these transactions disadvantages SMEs.⁷⁰

Differentiated VAT rates and complex tax regimes further harm the functioning of the internal market because they act as a market entry barrier and discourage intra-EU trade. Exporting firms not only need to consider their domestic tax regulations but also the specific regulations of the importing countries. This tends to be especially relevant for firms that do not have a physical establishment in other EU Member States.⁷¹

To quantify compliance costs, the Standard Cost Model (SCM) is most commonly used. In the SCM, the costs necessary to comply with legally defined information obligations are called administration costs. The starting point of the calculation is the cost for complying with a single information obligation. This information cost is measured as the working time necessary for the company to provide the required information. In a second step, this information cost is summed up over the number of 'cases', i.e., the frequency of occurrence and the number of companies affected by the information obligation. This results in the total administrative costs for complying with the specific

⁶⁴ In addition, the psychological costs of tax compliance are occasionally discussed in the literature. However, due to their infrequent mention, they are not considered in this briefing paper.

⁶⁵ Evans C., 'Taxation Compliance and Administrative Costs: An Overview', *Tax Compliance Costs for Companies in an Enlarged European Community*, Linde Verlag and Kluwer Law International, 2017, pp. 447-468.

⁶⁶ Ebrill L., Keen M., Bodin J.-P. and Summers V., *The Modern VAT*, International Monetary Fund, 2001, p.78.

⁶⁷ Barbone L., Bird R., and Vázquez J., 'The Costs of VAT: A Review of the Literature', *CASE Network Reports*, No.106, DG TAXUD, European Commission, 2012, pp.10-59.

⁶⁸ Institute for Fiscal Studies, *A retrospective evaluation of elements of the EU VAT system*, DG TAXUD, European Commission, 2011, p. 75.

⁶⁹ KPMG, *Study on tax compliance costs for SMEs – Final Report*, DG GROW, European Commission, 2018, p.47.

⁷⁰ Evans C., 'Taxation Compliance and Administrative Costs: An Overview', *Tax Compliance Costs for Companies in an Enlarged European Community*, Linde Verlag and Kluwer Law International, 2017, pp.447-468.

⁷¹ Borselli F., Chiri S., and Romagnano E., 'Patterns of reduced VAT rates in the European Union', *International VAT monitor*; Vol. 1; 2012; p.14.

regulation. By further summing up the administrative costs of all VAT regulations, the overall compliance burden placed on all businesses by the VAT system can be obtained.⁷²

The general formula for quantifying the administrative burden (AB) of businesses with the SCM is thus given by:

$$\begin{aligned} AB &= Price * Time * Quantity \\ &= Price * Time * Number of Businesses * Frequency \end{aligned}$$

The variable *Price* measures the internal wage and material costs or the costs for contracting out compliance activities to an external service provider. *Time* defines the time necessary for the business to perform the activity demanded by the regulation. *Quantity* refers to the number of businesses affected by the regulation and the frequency with which the activity must be completed each year.⁷³

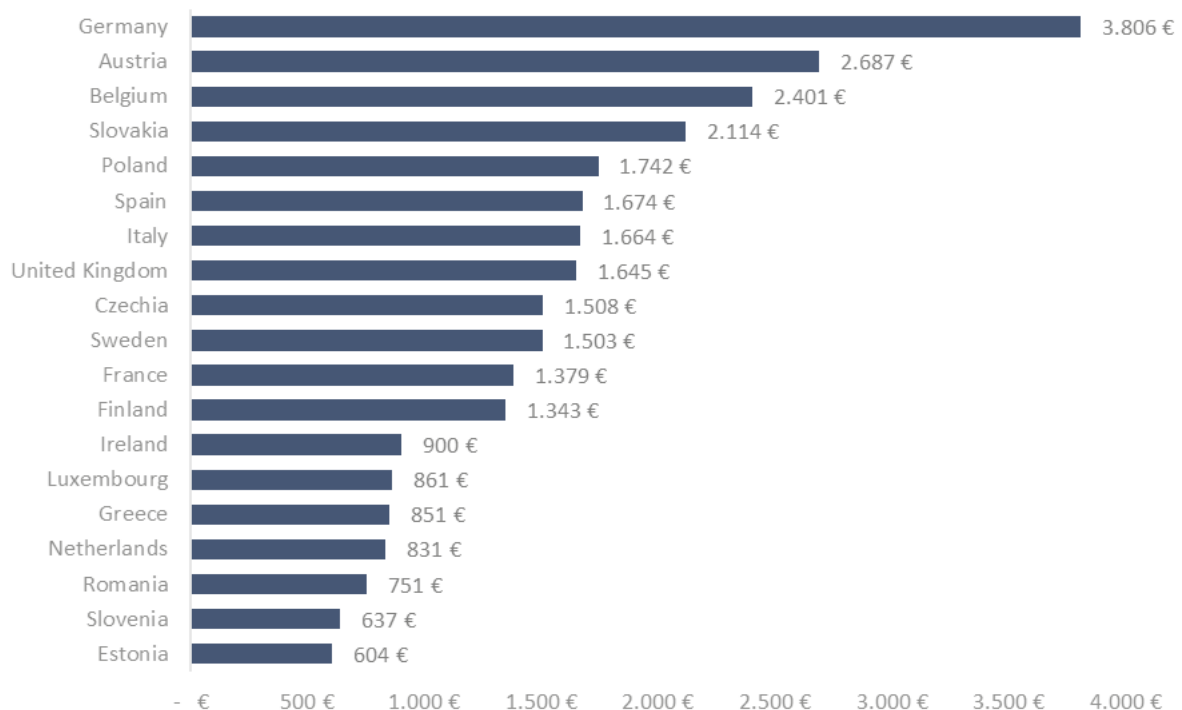
The estimates of the variables *Time* and *Price* are standardised to obtain representative values of normally efficient firms and to avoid biases through outliers. Since the *Time* variable can most efficiently be collected through surveys and interviews, new calculations from individual EU Member States are outside the scope of this briefing paper. *Instead, the discussion will focus on a recent (2018) survey of the compliance costs of EU SMEs conducted by KPMG*

The absolute VAT compliance costs for stand-alone enterprises in the 2018 KPMG study amounted to EUR 1 792 on average. Across the sample of Member States, these costs ranged from only EUR 585 in Slovenia to EUR 3 580 in Germany. Irrespective of company size, the data collection process is the main driver of tax compliance costs, especially for medium-sized firms, in which data collection accounts for 70 % of the average VAT compliance costs. VAT compliance costs tend to increase with firm size, the exception being small enterprises, which face slightly higher compliance costs than medium-sized firms. Figure 9 shows that SMEs faced the highest compliance costs in Germany, while the lowest compliance cost burden for SMEs was in Estonia (Figure 9). For all firm size categories, compliance costs are lower when tax compliance is handled internally.

⁷² Wegrich, K., 'The Administrative Burden Reduction Policy Boom in Europe: Comparing mechanisms of policy diffusion', *Center for Analyses of Risk and Regulation*, Discussion Paper No.52, London School of Economics and Political Science, 2009.

⁷³ International working group on Administrative Burdens, *The Standard Cost Model. A framework for defining and quantifying administrative burdens for businesses*, European Commission, 2004.

Figure 9 Average VAT Compliance Costs of SMEs in selected EU Member States



Source: DIW Econ, based on KPMG.⁷⁴

The KPMG study quantifies the relative tax compliance burden by relating the total tax compliance costs (for both VAT and corporate income tax) to the company's turnover. Findings indicate that the average compliance burden amounted to 2.5 % of a firm's revenue. In the Member State comparison, Luxembourg had the lowest relative compliance burden of less than 1 %, while this indicator was by far the highest in Poland, at almost 4 %.⁷⁵ The study further confirms the regressivity of tax compliance costs by finding a negative correlation between the relative burden and firm size.

To what extent can digitalisation reduce compliance costs?

Several studies suggest that digitalisation has already significantly reduced tax compliance costs over recent years, as the use of digital technologies greatly facilitates record keeping and the completion of forms.⁷⁶ In Europe and Central Asia, the time necessary for tax compliance fell from 473 hours to 225 hours in 2006-2020, mainly due to the adoption of electronic filing and payment systems.⁷⁷ Several international case studies provide further empirical evidence of this.

⁷⁴ KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, pp. 238.

⁷⁵ KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, p. 32.

⁷⁶ see for example Barbone L., Bird R., and Vázquez J., 'The Costs of VAT: A Review of the Literature', CASE Network Reports, No. 106, DG TAXUD, European Commission, 2012, p.16; Institute of Chartered Accountants in England and Wales, Digitalisation of tax: international perspectives, 2019., Gupta S., Keen M., Shah A. and Verdier G., Digital Revolutions in Public Finance, International Monetary Fund, 2017 and PWC and World Bank, Paying Taxes 2020 The changing landscape of tax policy and administration across 190 economies, 2020.

⁷⁷ PWC and World Bank, Paying Taxes 2020 The changing landscape of tax policy and administration across 190 economies, 2020, p.27.

Table 2 Selected empirical studies on the effect of digitalisation on compliance costs

Study	Aspect of digitalisation	Sample	Effect
Bellon et al. (2020)	introduction of VAT electronic invoicing	Peru	<ul style="list-style-type: none"> • increase in firm sales • increase in purchases • increase in value added
Fan et al. (2020)	adoption of digital invoice encryption for VAT revenues	China	<ul style="list-style-type: none"> • increase in VAT compliance and government revenue • decrease in firm revenues and inputs, increase in productivity
KPMG 2018	Use of electronic filing	Sample of European Countries	<ul style="list-style-type: none"> • The data does not show that electronic filing reduces relative compliance burden
Lee (2016)	implementation of mandatory VAT electronic invoicing	South Korea	<ul style="list-style-type: none"> • decrease in tax compliance costs • increase in tax compliance
Yilmaz and Coolidge (2013)	adoption of electronic filing for VAT	South Africa, Ukraine, Nepal	<ul style="list-style-type: none"> • ambiguous: depends on the availability of digital knowledge and technology

A recent paper by Bellon et al. identifies a positive effect of e-invoicing on firm sales, purchases, and value added in Peru.⁷⁸ Lee finds that the introduction of e-invoicing in South Korea reduced compliance costs and increased the transparency of business transactions, which also facilitated tax audits for the authorities.⁷⁹ Furthermore, Fan et al. show that e-invoicing increased VAT revenue and the productivity of large manufacturing firms in China.⁸⁰ Contrary to these findings, a study by KPMG shows that the use of electronic tax returns did not reduce the compliance burden of companies in 20 European countries.⁸¹ Although e-filing is more convenient for businesses, it is still associated with complexity and costs, e.g., in terms of providing the required technology or for setting up and understanding software systems and electronic processes. Consequently, smaller companies are less likely to file their tax returns electronically. Nevertheless, 87 % of businesses in the sample submitted their VAT returns electronically in 2014, with e-filing being most common in Slovenia, Estonia, and Italy.⁸² An older study by Yilmaz and Coolidge emphasises that e-filing has ambiguous effects on the compliance burden when computerisation and digital knowledge are not yet widespread.⁸³ However, within the EU, the digitalisation of the tax system has most likely already

⁷⁸ Bellon M., Chang J., Dabla-Norris E., Khalid S., Lima F., Rojas E. and Villena P., 'Digitalization to Improve Tax Compliance: Evidence from VAT e-Invoicing in Peru', International Monetary Fund, Working Paper No.19(231), 2019.

⁷⁹ Lee H. C., 'Can Electronic Tax Invoicing Improve Tax Compliance? A Case Study of the Republic of Korea's Electronic Tax Invoicing for Value-Added Tax', Policy Research Working Paper 7592, World Bank Group, 2016.

⁸⁰ Fan H., Liu Y., Qian N. and Wen J., 'Computerizing VAT invoices in China', *NBER Working Paper Series*, Working Paper 24414, 2020.

⁸¹ The geographic scope of the KPMG study includes Austria, Belgium, Czechia, Estonia, Finland, France, FYROM, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.

⁸² KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, p. 48.

⁸³ Yilmaz F. and Coolidge J., 'Can E-Filing Reduce Tax Compliance Costs in Developing Countries?', Policy Research Working Paper 6647, World Bank Group, 2013.

passed this hurdle. Nonetheless, digital exclusion remains an important problem for companies in the EU Member States and especially for smaller firms.⁸⁴

Other major challenges of using digital solutions to reduce the tax compliance burden of businesses are the associated costs and concerns about safety and privacy. The adoption of new technology may increase compliance costs in the short run, since businesses need to learn how to deal with the technology or need to initially buy the necessary software. The benefits of digitalisation in the form of reduced compliance costs therefore often only materialise in the long run. An additional concern regarding the digitalisation of the tax system is related to data safety and personal as well as corporate privacy. This is especially relevant since taxation requires a lot of sensitive data.⁸⁵

Nevertheless, new technologies like artificial intelligence, big data, and blockchain innovations – if well implemented - have the potential to significantly reduce compliance costs for businesses. They allow for real-time tracking of transactions, large scale cross-checking of VAT invoices, and automated processing of VAT credits or refunds. However, a wide-ranging application is not yet possible and needs to be accompanied by significant structural and operational changes and adjustments to existing tax laws.⁸⁶

Furthermore, pre-filled tax returns are a major simplification for businesses. Using third-party information, such as digital consumer transaction data, can help authorities to prepopulate VAT returns so that the taxpaying business only needs to verify the information.⁸⁷ This has great potential for reducing the tax compliance burden, since data collection is the most costly and time-consuming process for firms, especially for SMEs.⁸⁸ However, prepopulated VAT returns can only reduce compliance costs associated with cross-border trade when the application and the underlying information is harmonised across the EU Member States. A single universal identification system that stores relevant information on EU businesses is crucial for the functioning of prepopulated tax returns.⁸⁹

In general, the harmonisation of digital systems across EU Member States is essential for the reduction of compliance costs through the digitalisation of tax administration. The use of a single VAT software system in all EU Member States would greatly reduce the burden on companies of coping with different administrative procedures. Firms with operations in many Member States would particularly benefit from the harmonisation of digital services across the EU.⁹⁰

Box 4 Key findings - Chapter 3.1

What are the costs and impacts of the current diversification of reduced VAT rates on compliance for businesses (in particular for cross-border transactions and SMEs)?

⁸⁴ Institute of Chartered Accountants in England and Wales, Digitalisation of tax: international perspectives, 2019, p. 2.

⁸⁵ Institute of Chartered Accountants in England and Wales, Digitalisation of tax: international perspectives, 2019, p. 12.

⁸⁶ PWC and World Bank, Paying Taxes 2020 The changing landscape of tax policy and administration across 190 economies, 2020, pp. 21-24.

⁸⁷ Gupta S., Keen M., Shah A. and Verdier G., Digital Revolutions in Public Finance, International Monetary Fund, 2017 and Digitalisation of tax: international perspectives, Institute of Chartered Accountants in England and Wales, 2019, p.7.

⁸⁸ KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, p. 260.

⁸⁹ Institute of Chartered Accountants in England and Wales, Digitalisation of tax: international perspectives, 2019, p. 7.

⁹⁰ KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, pp. 141-148 and PWC, Study on the feasibility of alternative methods for improving and simplifying the collection of VAT through the means of modern technologies and/or financial intermediaries, DG TAXUD, European Commission, 2010, pp. 79-82.

- Differentiated VAT rates, exemptions and registration thresholds are important drivers of compliance costs
- SMEs face proportionately higher compliance costs compared to larger firms (“regressivity of the VAT compliance burden”)
- Differentiated VAT regimes within the EU further increase compliance costs for cross-border transactions, and consequently harm the functioning of the internal market
- Average VAT compliance costs are substantial (2.5 % of a firm’s revenue) and vary greatly between Member States (LU less than 1 %, PL almost 4 %).

To what extent can digitalisation reduce compliance costs?

- Several international case studies show that digitalisation has great potential for reducing VAT compliance costs
- The adoption of electronic filing and payment systems have already reduced compliance costs in Member States in recent years
- The positive effects of digitalisation on compliance costs are more likely to materialise in the long run, whereas in the short run, the adoption of new technologies might actually increase compliance costs
- Firms operating in other Member States would benefit from the use of a single VAT software system
- Digital innovations like AI, big data and blockchain technology are likely to reduce compliance costs in future

2.2. Impact on the EU internal market

To what extent does this current diversification create distortions in the EU internal market and lead to tax competition among Member States?

The current diversification of VAT rates across EU Member States distorts the functioning of the EU internal market in three ways. Firstly, differences in standard and reduced rates, exemptions and VAT registration thresholds lead to uneven competition in the EU internal market as they de facto subsidise certain products or industries. This distorts relative prices and consequently firms cannot compete on a level playing field in the EU internal market.⁹¹ Secondly, the current system, with multiple VAT rates, is not trade-neutral because it increases the compliance burden and thus also production costs, which has cascading effects on domestic and export prices and distorts competition in the internal market further.⁹² Thirdly, the diversification of VAT rates creates an incentive to exploit price differences across Member States by shifting consumption to Member States with lower VAT rates.

Since compliance costs are regressive, they worsen the competitive position of SMEs relative to large enterprises. Because complying with tax obligations in multiple Member States requires more knowledge, information, and complex accounting from companies, it discourages their engagement in cross-border trade. Thus, the multiple VAT rates within the EU interfere with the efficient functioning of the internal market. For SMEs in particular, compliance costs might function as an entry barrier to the EU internal market. This is supported by the fact that small firms export less

⁹¹ De la Feria R., ‘EU VAT Rate Structure: Towards Unilateral Convergence?’, Oxford University Centre for Business Taxation, *Working Paper 13(05)*, 20013.

⁹² Institute for Fiscal Studies, *A retrospective evaluation of elements of the EU VAT system*, DG TAXUD, European Commission, 2011, pp. 267-269.

often and if they do export, these sales make up a larger share of their total revenue than for large firms.⁹³

Empirical evidence shows that the total compliance costs of companies with cross-border trade activities are about 67 % higher than in companies which operate only domestically. This holds true even after controlling for other company characteristics. However, relative to company turnover, the tax compliance costs of businesses engaging in cross-border trade are 0.86 % lower than in companies which are only active domestically. This result reflects the fact that companies operating internationally have a significantly higher turnover (61 % - 166 % higher, depending on the firm size) than those without cross-border trade. This finding can at least partially explain why the absolute compliance costs are substantially larger for firms with cross-border activities, since total tax compliance costs increase with turnover.⁹⁴

Another empirical model simulates the effect on intra-EU trade of harmonisation of the VAT systems across Member States. The results indicate that a reduction in the dissimilarity of VAT obligations by 10 % increases intra-EU trade by 3.7 %. However, the results are likely to overestimate the true causal effect of differentiated VAT systems on intra-EU trade because of reverse causality (i.e., the effect of trade patterns on the adoption of a certain VAT policy). However, after eliminating the possibility of reverse causation, the estimation still finds that the removal of VAT compliance costs increases intra-EU trade.⁹⁵

Of course, business decisions on international expansion are determined by a number of factors and the VAT compliance burden is unlikely to be the only key factor. However, it is reasonable to assume that companies which decide to engage in cross-border trade have more efficient processes to deal with tax obligations. Other firms might be discouraged from entering the EU internal market since they are put at a competitive disadvantage due to higher compliance and production costs.⁹⁶

On the consumer side, the differentiation of VAT rates creates incentives for cross-border shopping to exploit price differences across the EU. Especially in combination with an absence of border controls and the conveniences of a common currency in the Euro area, this has the potential to seriously distort the internal market. Furthermore, it undermines fair competition, since firms that would be highly competitive on a level playing field are put at a competitive disadvantage due to the tax regime in their country of operation.⁹⁷ However, the observed real-world effect of differentiated VAT rates on consumer choices is rather small, since the effective VAT rates are differentiated along a narrow range across most EU Member States.⁹⁸

⁹³ Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011, pp. 75-79.

⁹⁴ KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, pp. 41-42.

⁹⁵ Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011, p. 196.

⁹⁶ KPMG, Study on tax compliance costs for SMEs – Final Report, DG GROW, European Commission, 2018, p. 47.

⁹⁷ Ebrill L., Keen M., Bodin J.-P. and Summers V., The Modern VAT, International Monetary Fund, 2001, p.78.

⁹⁸ Study on reduced VAT applied to goods and services in the Member States of the European Union, European Commission, 6503 DG TAXUD, 2007, p.71.

Additionally, diversified VAT systems distort the revenue collection of governments and redistribute VAT revenue among Member States.⁹⁹ Since lower VAT rates encourage exports and cross-border shopping, VAT tax revenue is redistributed to Member States with reduced VAT rates. This might potentially enhance tax competition.

Box 5 Key findings - Chapter 3.2

To what extent does this current diversification create distortions in the EU internal market and lead to tax competition among Member States?

- Higher VAT compliance costs act as an entry barrier for the EU internal market
- Reduced rates de facto subsidise certain products and industries
- For consumers, VAT rate diversification across Member States incentivises cross-border shopping
- Competition between SMEs and large firms is distorted, since SMEs are disproportionately affected by higher VAT compliance costs
- VAT diversification is not trade-neutral, but discourages intra-EU trade and distorts competition
- Revenue collection of governments is distorted, leading to redistribution of VAT revenue from low-tax to higher-tax Member States and potentially enhancing tax competition

2.3. Impact on international trade

Is there an uneven playing field for EU and non-EU companies?

In theory, a well-functioning and well-designed VAT system should not affect trade.¹⁰⁰ Border tax adjustments ensure that imports are taxed at the destination country's VAT rate, while exports are zero-rated. Because the VAT paid on intermediate goods is recoverable, it does not affect the production costs and thus does not distort relative prices of domestic and imported goods. Consequently, the border tax adjustment is the main mechanism that ensures the trade neutrality of VAT. The associated zero rating of exports is thus not a subsidy to enhance international competitiveness, but rather a necessary mechanism to ensure that the VAT does not function as a trade tariff.¹⁰¹

However, there are several reasons why real-world VAT systems may create an uneven playing field in international trade. Firstly, as already discussed in the previous chapter, the diversification of VAT systems may distort international competition due to the effect on firms' production costs. Differentiated VAT rates raise production costs for firms, as more complex VAT systems tend to increase compliance costs. Higher production costs have cascading impacts on domestic and export prices and thereby distort the position of EU firms in international competition.

Secondly, international trade may be distorted by exemptions. Exemptions encourage imports since domestic producers cannot recover VAT paid on input goods from exempt businesses. Thus, they act as an implicit subsidy of imports. At the same time, exemptions discriminate against exports

⁹⁹ Copenhagen Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008, p.16.

¹⁰⁰ see for example Benzarti Y. and Tazhitdinova A., 'Do Value-Added Taxes Affect International Trade Flows? Evidence from 30 Years of Tax Reforms', *NBER Working Paper Series*, 2019.; Desai M. A. and Hines J. R., 'Value-Added Taxes and International Trade: The Evidence', *mimeo*, University of Michigan, 2005., Krugman P. and Feldstein M., 'International Trade Effects of Value Added Taxation', *NBER Working Paper Series*, 1989., Sharma R. R., 'Does the VAT Tax Exports?', *Economic Inquiry*, No.58(1), 2020, pp.225-240.

¹⁰¹ Krugman P. and Feldstein M., 'International Trade Effects of Value Added Taxation', *NBER Working Paper Series*, 1989.; Sharma R. R., 'Does the VAT Tax Exports?', *Economic Inquiry*, No.58(1), 2020, pp.225-240.

because the VAT on exempt intermediate goods cannot be recovered.¹⁰² Since exemptions tend to apply to non-traded goods and services, the unequal tax treatment further distorts production and consumption patterns towards non-traded goods.¹⁰³

Thirdly, deficient refund systems can act as a tax on exports and hinder the cross-border activities of EU firms. When firms have difficulties obtaining VAT refunds on input purchases for exported goods, they are put at a competitive disadvantage in the world market.¹⁰⁴

Finally, VAT systems can distort international competitiveness through a macroeconomic channel.¹⁰⁵ VAT systems are part of a whole tax system and are often implemented as a substitute for other direct taxes that affect imports and exports. For example, when a VAT substitutes for an income tax, the reduction of the income tax has a positive effect on trade, while a perfectly implemented VAT has no distorting effect in itself. Thus, the transition from direct taxation to a VAT system distorts the competitive position of the country which implements it.¹⁰⁶

Despite the various theoretical channels through which VAT systems may distort international trade, the empirical evidence is ambiguous. Table 3 presents an overview of the findings of empirical studies on the effect of VAT on international trade.

Table 3 Selected empirical estimates of the effect of VAT on international trade

Study	Dependent Variable	Sample	Findings
Benzarti and Tazhitdinova (2019)	trade flows (imports and exports)	EU Member States (1988-2016)	<ul style="list-style-type: none"> • little to no effect on trade flows • trade flow elasticities with respect to VAT are small
Desai and Hines (2003)	international trade (imports and exports)	136 countries in 2000 168 countries in 1950-2000 American MNEs in 52 countries in 1999	<ul style="list-style-type: none"> • VAT reduces volume of trade • negative correlation between VAT reliance and international trade • strongest among low-income countries
Freund and Gagnon (2017)	real exchange rate, trade balance	34 advanced economies (1970-2015)	<ul style="list-style-type: none"> • positive effect on real exchange rate • no effect on trade balance in the long run
Keen and Lockwood (2010)	trade openness (GDP share of imports and exports)	143 countries (1975-2000)	<ul style="list-style-type: none"> • negative correlation between openness and probability of VAT adoption
Keen and Syed (2006)	export performance	OECD countries (1967-2003)	<ul style="list-style-type: none"> • no effect on the trade balance in the short and long run

¹⁰² Cnossen S., 'Modernizing the European VAT', *CESifo Working Paper*, No. 8279, 2020.

¹⁰³ Krugman P. and Feldstein M., 'International Trade Effects of Value Added Taxation', *NBER Working Paper Series*, 1989.

¹⁰⁴ Sharma R. R., 'Does the VAT Tax Exports?', *Economic Inquiry*, No.58(1), 2020, pp.225-240.

¹⁰⁵ Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011, pp. 252-266.

¹⁰⁶ Krugman P. and Feldstein M., 'International Trade Effects of Value Added Taxation', *NBER Working Paper Series*, 1989.

Study	Dependent Variable	Sample	Findings
Nicholson (2010)	trade balance	bilateral US trade data for 146 countries by 29 sectors (1997-2008)	<ul style="list-style-type: none"> negative effect on trade volumes, extent differs between sectors
Sharma (2020)	Exports	105 countries (1962-2015)	<ul style="list-style-type: none"> strong negative effect on exports of industries that rely intensively on intermediate goods effect is absent for high-income countries
Ufier (2014)	trade as a share of GDP	192 countries (1967-2012)	<ul style="list-style-type: none"> no effect on trade

On the one hand, Benzarti and Tazhitdinova, Keen and Syed, Ufier as well as Freund and Gagnon do not find a significant effect of changes in VAT rates or VAT adoption on the volume of trade or the trade balance.¹⁰⁷ On the other hand, Desai and Hines show that VAT systems can substantially reduce the volume of trade, and Sharma provides evidence that VAT disproportionately reduces exports in industries that rely more heavily on intermediate goods, supporting the notion of VAT as a tax on exporters' input purchases. Both studies however conclude that the negative trade effects of value-added taxation are of little or no relevance for high-income countries.¹⁰⁸ Finally, Keen and Lockwood find a negative correlation between trade openness and the probability of VAT adoption. Nevertheless, the authors argue that this correlation does not imply that the VAT system itself negatively impacts trade, but instead, open economies might be less inclined to adopt a VAT system for some other reason.¹⁰⁹

Box 6 Key findings - Chapter 3.3

Is there an uneven playing field for EU and non-EU companies?

- Economic theory predicts that a well-functioning and well-designed VAT system is trade-neutral
- However, real world VAT systems may not be trade-neutral and thus create an uneven playing field through four channels:
 - Diversified VAT systems increase compliance costs
 - VAT exemptions favour imports
 - Deficient refund systems discourage exports
 - VAT is implemented as a substitute for direct taxes
- However, empirical evidence on the effect of VAT systems on international trade is inconclusive

¹⁰⁷ see Benzarti Y. and Tazhitdinova A., Do Value-Added Taxes Affect International Trade Flows? Evidence from 30 Years of Tax Reforms, NBER Working Paper Series, 2019; Keen M. and Syed M., Domestic Taxes and International Trade: Some Evidence, IMF Working Paper, 2006; Ufier A., 'Quasi-Experimental Analysis of the Effects of Adoption of a Value-Added Tax', *Economic Inquiry*, No.52(4), 2014, pp.1364-1379 and Freund C. and Gagnon J. E., 'Effects of Consumption Taxes on Real Exchange Rates and Trade Balances', Working Paper 17-5, *Peterson Institute for International Economics*, 2017.

¹⁰⁸ Desai M. and Hines J., 'Value-added taxes and international trade: The evidence', University of Chicago Law School, 2003. and Sharma R. R., 'Does the VAT Tax Exports?', *Economic Inquiry*, No.58(1), 2020, pp.225-240.

¹⁰⁹ Keen M. and Lockwood B., The Value-Added Tax: Its Causes and Consequences, IMF Working Paper, 2013.

3. Impact of reduced VAT rates on consumers and social/environmental goals

Non-standard VAT rates are primarily introduced by governments to achieve distributional goals, as well as other policy goals, e.g. environmental objectives. By applying lower VAT rates to necessities (e.g. food), which make up a larger share of low-income budgets, policymakers intend to improve the accessibility of everyday necessities, relieve the burden on low-income households and create a more equal (post-consumption) income distribution. Moreover, reduced VAT rates are often used as a tool to promote the consumption of certain goods and services with positive externalities, such as energy-saving appliances, for which individual consumption might otherwise be lower than socially optimal.¹¹⁰

Chapter 4 examines whether reduced VAT rates are an effective and efficient tool for achieving social and environmental goals, relying on both theoretical arguments and empirical evidence. Additionally, VAT differentiation will be compared to other suitable tools, such as direct transfers or targeted taxes, in terms of efficiency.

3.1. Pass-through of reduced VAT rates

To what extent does the use of non-standard VAT rates permanently reduce the price to the consumer?

A necessary precondition for reaching social and environmental objectives via VAT rate differentiation is that the reduced VAT rate is (at least partially) passed through to consumers. Distributional goals can only be reached if prices for necessities subject to a lower VAT rate are reduced permanently. In addition, a strong price signal is necessary to change consumer behaviour and to promote the consumption of certain goods and services.

In principle, VAT reductions can result in three different price reactions:¹¹¹

- Full pass-through (100 %), i.e. consumer prices fall exactly by the (absolute) amount of VAT reduction;
- Undershifting (<100 %), i.e. consumer prices fall by less than the amount of VAT reduction;¹¹²
- Overshifting (>100 %), i.e. consumer prices fall by more than the amount of VAT reduction.

The degree of pass-through determines whether the demand side or the supply side is more affected by VAT reductions. A greater degree of pass-through implies that the demand side benefits more, via lower consumer prices. A smaller pass-through implies a higher profit margin for firms and potentially higher earnings for employees.¹¹³

¹¹⁰ See e.g. Copenhagen. Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008. p.72.

¹¹¹ Benedek D., De Mooij R., Keen M. and Wingender P., 'Varieties of VAT pass through', *International Tax and Public Finance*, Vol.27(4), 2020, pp. 890-930.

¹¹² A special case of undershifting is a zero-pass through, i.e. consumer prices are not reduced following VAT reduction.

¹¹³ Ván B. and Olah D., 'Does VAT cut appear on the menu? The consumer price impact of Hungarian VAT decreases of 2016-2017', *Public Finance Quarterly*, Vol.63(3), 2018, pp.355-375.

Traditionally, a full pass-through is assumed for VAT changes in both distributional analysis and policymaking.¹¹⁴ However, this universal assumption of full pass-through is (highly) questionable, both theoretically and empirically.

Theoretical considerations

From a theoretical perspective, several factors can influence and limit the degree of pass-through to consumer prices.

Under perfect competition, pass-through is primarily determined by the price elasticity of supply and demand.¹¹⁵ Generally speaking, high supply elasticity allows for higher pass-through rates, whereas high demand elasticity is usually associated with lower pass-through rates for VAT reductions. In a perfectly competitive market, full pass-through, as well as undershifting, are possible¹¹⁶.

However, in the real world, the assumption of perfect competition is often violated. In microeconomic theory, there is a consensus that the market structure determines the pass-through rate.¹¹⁷ In imperfect markets, all price reactions are possible: full pass-through, undershifting and overshifting.¹¹⁸ However, due to the variety and interplay of different market characteristics such as demand curvature and cost structures, economic theory cannot deliver any clear, universal predictions on pass-through.

Competition is a crucial factor for pass-through. Economic theory provides mixed predictions on the effects of competition on pass-through. Based on theoretical considerations and empirical evidence from 14 Eurozone countries between 1999 and 2013, Bellon & Copestake conclude that less competition (in the upstream sector), and higher regulated markets are usually associated with lower pass-through of VAT reductions, provided that marginal costs are increasing.¹¹⁹ If the market is characterised by a small number of businesses, it can be profitable for businesses to pass on only part of the VAT reduction to consumers.¹²⁰ However, the complexity of different factors characterising the market structure impedes exact predictions of pass-through. For simplicity, it is usually assumed that pass-through is stronger in more competitive markets.¹²¹

Moreover, the time horizon of the VAT reduction can impact the degree of pass-through. If reduced VAT rates are perceived as temporary by suppliers, the pass-through tends to be smaller since businesses will most likely not change their capital structure and employ more people to respond to increased demand following price reductions. Hence, a full pass-through is not likely if reduced

¹¹⁴ Benedek D., De Mooij R. A., Keen M., and Wingender P., 'Varieties of VAT pass through', *International Tax and Public Finance*, Vol.27(4), 2020, pp.890-930.

¹¹⁵ Weyl E. and Fabinger M., 'Pass-through as an economic tool: Principles of incidence under imperfect competition', *Journal of Political Economy*, Vol.121(3), 2013, pp.528-583.

¹¹⁶ Benedek D., De Mooij R., Keen M. and Wingender P., 'Varieties of VAT pass through', *International Tax and Public Finance*, Vol.27(4), 2020, pp.890-930.

¹¹⁷ Weyl E. and Fabinger M., 'Pass-through as an economic tool: Principles of incidence under imperfect competition', *Journal of Political Economy*, Vol.121(3), 2013, pp. 528-583.

¹¹⁸ Benedek D., De Mooij R. A., Keen M., and Wingender P., 'Varieties of VAT pass through.' *International Tax and Public Finance*, 1-41, 2019, pp.890-930.

¹¹⁹ Bellon M. and Copestake A., 'The Role of Market Structure and Timing in Determining VAT Pass-Through', *IMF Working Paper*, 2021.

¹²⁰ Copenhagen. Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008, p.42.

¹²¹ IHS Institute for Advanced Studies, A study on the economic effects of the current VAT rates structure, DG TAXUD, European Commission, 2013, p.36.

VAT rates are regarded as a temporary measure.¹²² Additionally, businesses facing high menu costs¹²³ are usually more reluctant to change their prices. Consequently, a full pass-through of VAT changes is less likely in the presence of high menu costs in the short- and medium-term. However, while menu costs may result in a lagged pass-through, in the long term, menu costs should not determine the degree of pass-through.¹²⁴

The size of the VAT reduction might also affect the pass-through to consumer prices. The empirical evidence from major changes in VAT rates supports the conclusion that large changes in VAT rates of between 10 and 20 percentage points are more or less fully passed on to consumers. Experiences with much smaller changes in VAT rates are less conclusive and vary significantly. A common explanation is that the impact of small VAT rate changes is drowned out by the effects of other factors influencing measured consumer prices, including uncertainty about the measurement of pricing itself. Furthermore, the complexity of the VAT rate system is another potential pass-through determinant. If consumers cannot easily distinguish whether or not a product is subject to a reduced rate, a full pass-through is less likely.^{125,126}

To summarise, a variety of country-specific, as well as product- and market-specific factors, can influence the pass-through rate of reduced VAT rates. Concrete predictions on the pass-through rates based on economic theory alone are not feasible due to the complexity and interaction effects of the determinants identified in the literature. Consequently, the pass-through of reduced VAT rates for certain products remains unclear.

Empirical evidence

The majority of studies on VAT pass-through are country-specific case studies focusing on VAT changes to a narrow range of specific products or services, such as hairdressing services or housing repair services. Table 4 shows the empirical pass-through estimates from selected case studies, structured by product group. The case studies are characterised by a great heterogeneity in pass-through estimates, even within specific product groups. For example, in terms of the introduction of reduced VAT rates on basic food products, a broad range of pass-through rates is estimated in the literature, ranging from zero in Latvia to full pass-through in Norway. Overall, most case studies in Table 4 identify undershifting, which means that the VAT reduction is not fully passed on to consumers. Nonetheless, some case studies also identify full-pass through, and, more rarely, overshifting.

¹²² Copenhagen Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008, p.37.

¹²³ In economics, menu costs refer to price adjustments costs, such as printing a new menu in a restaurant.

¹²⁴ Jonker N., Folkertsma C. and Blijenberg H., 'An Empirical Analysis of Price Setting Behavior in the Netherlands in the Period 1998-2003 Using Micro Data', 2004.

¹²⁵ Ván B. and Olah D., 'Does VAT cut appear on the menu? The consumer price impact of Hungarian VAT decreases of 2016-2017', *Public Finance Quarterly*, Vol.63(3), 2018, pp.355-375.

¹²⁶ A wide range of additional pass-through determinants such as psychological factors or the curvature of the demand curve is discussed in the literature (see for example, Benedek D., De Mooij R., Keen M. and Wingender P., 'Varieties of VAT pass through', *International Tax and Public Finance*, Vol.27(4), 2020, pp. 890-930.)

Table 4 Selected empirical estimates of pass-through of VAT reductions

Study	Product group	Sample	VAT decrease	Pass-through estimate
Gaarder (2016) ¹²⁷	Food	Norway, 2001	From 24 % to 12 %	Full pass-through or even slightly overshifting
Bernal (2018)	Food	Poland, 2011	From 7 % to 5 %	Zero pass-through
Nipers et al (2019) ¹²⁸	Fruits and vegetables	Latvia, 2018	From 21 % to 5 %	Undershifting (88 %) in short-term
Ván, Olah (2018)	Food (meat)	Hungary, 2016-2017	From 27 % to 5 %	Almost full pass-through
Kosonen (2015) ¹²⁹	Hairdressing services	Finland, 2002-2009	From 22 % to 8 %	Undershifting
Jongen et al (2018)	Hairdressing services	Netherlands, 2000	From 17.5 % to 6 %	Undershifting (88 %)
Trannoy (2011)	Restaurants	France, 2009	From 19.6 % to 5.5 %	Undershifting (0.28 % or 45 %)
Harju, Kosonen (2014)	Restaurants	Finland (2011) ; Sweden (2012)	From 22 % to 13 % ; From 25 % to 12 %	Undershifting (25 %)
Ván, Olah (2018)	Restaurants	Hungary, 2017	From 27 % to 18 %	Zero pass-through
Benzarti et al (2019)	Restaurants	France, 2009	From 19.6 % to 5.5 %	Undershifting (9.7 %)
Carbonnier (2007)	Housing repair services	France, 1999	From 20.6 % to 5.5 %	Undershifting (77 %)
Carbonnier (2007)	New car sales market	France, 1999	From 33.3 % to 18.6 %	Undershifting (52 %)

The empirical estimation of VAT pass-through poses several methodological challenges since VAT reductions are not the only changing variable which may potentially impact consumer prices. In order to isolate the effect of the VAT reduction on consumer prices, most case studies choose the prices of other domestically consumed goods as control variables. This may lead to biased pass-through estimations in cases in which cross-price elasticities exist between goods subject to the VAT change and control items.¹³⁰ Moreover, the generalisability of case studies is, by their very nature, rather limited.

In recent years, a growing number of researchers have estimated VAT pass-through rates based on larger, cross-country panel datasets in order to derive more general statements about pass-through of VAT rates. In a recent study, Benedek et al. examine the pass-through of VAT changes in 17

¹²⁷ Gaarder I., 'Incidence and distributional effects of value added taxes', *The Economic Journal*, Vol.129(618), 2019, pp.853-876.

¹²⁸ Nipers A., Upite I., Pilvere I., Stalgiene A., and Viira, A., 'Effect of VAT rate reduction for fruits and vegetables on prices in Latvia: ex-post analysis', *Agraarteadus Journal of Agricultural Science*, 2019.

¹²⁹ Kosonen T., 'More and cheaper haircuts after VAT cut? On the efficiency and incidence of service sector consumption taxes', *Journal of Public Economics*, Vol.131, 2015, pp. 87-100.

Eurozone countries from 1999 to 2013.¹³¹ Their main finding is that for changes in the standard VAT rate, the universal assumption of full pass-through is justified. The average pass-through for changes in reduced rates is significantly lower compared to changes in the standard VAT rate and the authors reject the universal assumption of full pass-through for changes in reduced rates. Furthermore, they discover that the average pass-through for reclassifications, i.e. when the VAT rate for a product group changes from one category to another, is close to zero. For reclassification, the authors also reject the universal assumption of full pass-through. Overall, they conclude that “there is no such thing as ‘the’ rate of VAT pass through” (p. 916).

Traditionally, pass-through estimates used as the basis for policy advice do not explicitly differentiate between increases and decreases in VAT. However, recent studies have pointed out that the pass-through of VAT reductions tends to be lower compared to the pass-through of VAT increases. Benzarti et al. compare the pass-through of VAT increases to VAT decreases, using empirical data on all VAT changes in the European Union from 1996 to 2015 as well as VAT rate decreases and increases on hairdressing services in Finland. They find that the pass-through of VAT decreases is significantly lower than the pass-through of VAT increases and that this asymmetry is not only a short-term phenomenon, but seems to persist over time. In the Finnish case study, when VAT increased the pass-through was double the rate of pass-through of VAT decreases.¹³² Other studies also find evidence for asymmetric rates of pass-through related to whether the VAT change is an increase or a decrease.^{133,134}

Hence, using pass-through estimates without differentiating between decreases and increases in VAT will likely result in an overestimation of the pass-through of VAT reductions and consequently in an overestimation of the effectiveness of reduced VAT rates.

All in all, empirical evidence shows that reduced VAT rates are often not fully passed through to consumers. Therefore, the universal assumption of full pass-through should not be the basis for policymaking. The high degree of heterogeneity between pass-through estimates, even within product groups, makes predictions on the effectiveness of reduced VAT rates highly uncertain.

Box 7 Key findings - Chapter 4.1

To what extent does the use of non-standard VAT rates permanently reduce the price to the consumer?

- Various country-specific and product/market-specific factors can potentially influence the pass-through of reduced VAT rates
- Empirical evidence suggests that reduced VAT rates are often not fully passed through to consumers
- The high degree of heterogeneity between pass-through estimates, even within a product group, makes predictions on the effectiveness of reduced VAT rates highly uncertain

¹³¹ Benedek D., De Mooij R., Keen M. and Wingender P., ‘Varieties of VAT pass through’, *International Tax and Public Finance*, Vol.27(4), 2020, pp.890-930.

¹³² Benzarti Y., Carloni D., Harju J. and Kosonen T., ‘What goes up may not come down: asymmetric incidence of value-added taxes’, *Journal of Political Economy*, Vol.128(12), 2020, pp 4438-4474.

¹³³ See e.g. Carbonnier C., ‘Is Tax Shifting Asymmetric? Evidence From French VAT Reforms, 1995-2000’, Working Paper, 2005.; Politi R. and Mattos E., ‘Ad-Valorem Tax Incidence and After-Tax Price Adjustments: Evidence From Brazilian Basic Basket Food’, *Canadian Journal of Economics/Revue Canadienne d’Economie*, Vol.44(4), 2011, pp. 1438– 1470. and Copenhagen. Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008.

¹³⁴ Other studies do not find evidence for the asymmetry of incidence. One explanation for these mixed results brought forward is that heterogeneity in asymmetry might exist across different sectors (see Benedek D., De Mooij R., Keen M. and Wingender P., ‘Varieties of VAT pass through’, *International Tax and Public Finance*, Vol.27(4), 2020, pp. 890-930.).

- Pass-through of reductions in reduced rates tends to be lower than for reductions in standard rates
- Pass-through of VAT reductions tends to be smaller than pass-through of VAT increases

3.2. Effectiveness of VAT rates in achieving policy goals

Do non-standard VAT rates help or hinder the achievement of environmental and social objectives such as promoting circular economy activities that target final consumers, notably repair services?

The pass-through of lower VAT rates to consumer prices is a necessary, but not a sufficient condition for achieving environmental and social objectives on the demand side. Other factors, particularly the price elasticity of demand, which measures by how much consumers change their consumption in response to price changes, are decisive for whether non-standard VAT rates are successfully contributing to distributional, environmental and social objectives.

Distributional effects

In contrast to the promotion of cultural and environmental goods, an increase in demand and consumption of necessities is not the main channel through which reduced VAT rates are supposed to achieve distributional goals. Since low-income households spend a larger share of their income than high-income households on necessities, by reducing VAT rates on these goods, more equal distribution of income can be achieved. The larger the difference in the shares of income spent on necessities between low-income and high-income households, the stronger is the redistributive effect.

This implies that the potential effectiveness of reduced VAT rates as a policy instrument for distributional goals differs between EU Member States. In Member States with high income inequality, the difference in the income share spent on necessities by low-income households compared to high-income households is more pronounced. In these Member States, reduced VAT rates are thus potentially more effective in promoting income equality.¹³⁵

To assess the distributional effects of VAT, two methodological approaches can be found in the literature: income-based and expenditure-based. The former measures the VAT burden relative to (disposable) income, while the latter measures the burden relative to expenditure. Proponents of the expenditure-based approach argue that it is better suited to studying the distributive effects of the VAT system because it excludes the distorting impact of savings.¹³⁶

Empirical evidence shows that the current system of multiple VAT rates is regressive in EU Member States when measured as a percentage of disposable income, but tends to be proportional or slightly progressive in most EU Member States when measured as a percentage of expenditure. In particular, when measured in terms of expenditure, existing reduced and zero VAT rates thereby help to make VAT more progressive compared to single rate VAT systems.¹³⁷ However, empirical

¹³⁵ Copenhagen. Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008.

¹³⁶ Thomas A., 'Reassessing the regressivity of the VAT', *OECD Taxation Working Papers*, No. 49, 2020., OECD Publishing, Paris; and Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011.

¹³⁷ Thomas A., 'Reassessing the regressivity of the VAT', *OECD Taxation Working Papers*, No. 49, 2020., OECD Publishing, Paris; Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011 and IHS Institute for Advanced Studies, A study on the economic effects of the current VAT rates structure, DG TAXUD, European Commission, 2013,

evidence also shows that only VAT rates which were reduced with the aim of supporting low-income households (such as reduced rates on food) make the VAT more progressive. Other reduced rates (such as reduced rates to promote cultural goods), in contrast, tend to have a regressive effect and therefore counteract the distributional goals of policy makers. Furthermore, while existing reduced and zero VAT rates are of greater proportional benefit to low-income households in the EU (measured as the proportion of expenditure), they are typically of greater benefit to high-income households in absolute (cash) terms.¹³⁸

Country-specific case studies mostly confirm the results from cross-country studies: although low-income households do benefit from reduced VAT rates, the distributional effects from reduced rates are rather small. Several case studies conclude that the distributional effects are not a strong argument for VAT rate differentiation since they do not significantly contribute to redistribution while subsidising high-income households. However, the studies also highlight that increasing the existing reduced rates without compensation measures would disproportionately hurt low-income households.¹³⁹

Socially desirable goods and environmental goods

In addition to redistributive goals, reduced VAT rates are frequently implemented to increase the consumption of merit goods. The crucial factor in this context is the price elasticity of demand.¹⁴⁰ The more elastic the demand of a good which is subject to a reduced VAT rate, the greater the increase in demand (and consumption) in response to the reduced VAT rate.

Furthermore, the effectiveness of reduced rates in achieving policy goals is subject to three limitations resulting from the indirect nature of VAT. Firstly, it is impossible to target specific consumers with reduced VAT rates. Secondly, reduced VAT rates offer no incentive for businesses to consume more of a certain good, since businesses can reclaim VAT on inputs. Thirdly, reduced VAT rates provide a higher subsidy to higher priced versions of a product, and hence disproportionately increase consumption of higher priced versions.¹⁴¹

Empirical studies evaluating the effect of reduced VAT rates on the consumption of merit goods in EU Member States are rather scarce. Thus far, a number of case studies explore the relationship of reduced VAT rates and book consumption in EU Member States, providing mixed results. Borowiecki & Navarrete analysed VAT rates on books in the EU-28 from 1993 to 2013 and concluded that reduced VAT rates do indeed promote book consumption.¹⁴² Their findings suggest that, on average, a 1 percentage point decrease in the VAT rate is associated with a 2.7 percentage point increase in book expenditure. Similarly, Ahlmark found that the introduction of reduced VAT rates

¹³⁸ See OECD/KIPF, 'The Distributional Effects of Consumption Taxes in OECD Countries', *OECD Tax Policy Studies*, No.22, 2014, OECD Publishing, Paris

¹³⁹ See e.g. Böhringer C., Büttner T., Kraus M. and Boeters S., 'Allokative und distributive Effekte einer Abschaffung des ermäßigten Umsatzsteuersatzes' Dienstleistungsauftrag des BMF, *Zentrum für Europäische Wirtschaftsforschung (ZEW)*, 2004; Swistak A., Wawrzak S. and Alinska A., 'In pursuit of tax equity: lessons from VAT rate structure adjustment in Poland', *Financial Theory and Practice*, Vol.39(2), 2015, pp.115-137; Braz C. and Cunha J.C., 'The Redistributive effects of VAT in Portugal', *Banco de Portugal Economic Bulletin*, 2009, pp.71-86 and Leahy E., Lyons S. and Tol R.S.J., 'The Distributional Effects of Value Added Tax in Ireland', *The Economic and Social Review*, Vo.42(2), 2011, pp. 213-235.

¹⁴⁰ The price elasticity of demand measures the percentage change in demand of a good following a 1 % price change of the same good.

¹⁴¹ Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011, pp. 551

¹⁴² Borowiecki K., Navarrete T., Fiscal and economic aspects of book consumption in the European Union, *Journal of cultural economics*, Vol.42(2), 2018, pp.309-339.

on books in Sweden has successfully increased book consumption. In contrast, the reduced VAT rate on books in Slovakia did not help in promoting book consumption. Possible explanations are that the VAT reduction was not fully passed through to consumers and that there may be a lower price elasticity of demand for books in Slovakia compared to the Swedish case study.¹⁴³

Traditionally, non-standard VAT rates are primarily introduced to promote goods and services for social and not environmental objectives. Since environmental policies have become increasingly important in recent years, the idea of differentiated VAT rates for environmental objectives has gained popularity. Differentiated VAT rates can potentially be used in two ways: VAT rates could be either increased for environmentally harmful products or reduced VAT rates could be introduced for environmentally friendly products.¹⁴⁴ Up to now, the latter approach is more common in both the literature and in political debates.

Similar to other policy goals, the effectiveness of lower VAT rates for environmental purposes crucially depends on the price elasticity of demand of taxed goods. While evidence on the price elasticity of demand for environmentally friendly products is generally scarce, existing studies indicate that demand is rather elastic and thus consumption could increase significantly in response to a price reduction. Moreover, the effectiveness of reduced rates on environmentally friendly products depends on the extent to which consumers are willing to switch from non-sustainable to sustainable products, in response to price changes.

On the supply side, reduced VAT rates provide an incentive for manufacturers to develop more environmentally friendly technologies, which, in turn, contributes to the achievement of environmental policy goals. Manufacturers of products taxed at a reduced VAT rate have a competitive advantage since, on the one hand, they can reduce prices and thus achieve a higher profit margin, and on the other hand, they may be able to increase their profits if they retain a part of the VAT reduction.¹⁴⁵

A limiting factor for the effectiveness of reduced VAT rates is environmental rebound effects. Reduced VAT rates on energy-efficient household appliances, for example, might cause an overall increase in energy consumption, if consumers continued to use older, energy-inefficient appliances in addition to the new, energy-efficient ones. While some argue that environmental rebound effects will likely offset the potential positive effects of reduced VAT rates,¹⁴⁶ others argue that the expected rebound effects are likely to be rather small.¹⁴⁷

Since the number of countries which have introduced reduced VAT rates for environmental purposes is limited, empirical evidence on the effects of reduced VAT rates is scarce. The evidence from the experience of current EU Member States Portugal and Czechia, and former EU Member State, the United Kingdom, is inconclusive.¹⁴⁸ Simulation models are most commonly used to evaluate the environmental effects of reduced VAT rates. Distelkamp et al., for example, simulated

¹⁴³ Geško M., Factors influencing the microeconomic and fiscal effects of the reduced VAT on books. In European Financial Systems, *Proceedings of the 10th International Scientific Conference*, 2013, pp. 99-106.

¹⁴⁴ See e.g. Albrecht J., 'The use of consumption taxes to re-launch green tax reforms', *International Review of Law and Economics*, Vol.26(1), 2006, pp.88-103.

¹⁴⁵ See Walkowiak B. and Wilts H., 'Reforming the EU VAT system to support the transition to a low-carbon and resource efficient economy', *Wuppertal Institute for Climate, Environment, Energy*, Germany, 2015.

¹⁴⁶ Copenhagen Economics, 'Reduced VAT for Environmentally Friendly Products', DG TAXUD, European Commission, 2008.

¹⁴⁷ Institute for Environmental Studies, 'The use of differential VAT rates to promote changes in consumption and innovation' DG Environment, European Commission, 2008.

¹⁴⁸ Institute for Environmental Studies, 'The use of differential VAT rates to promote changes in consumption and innovation' DG Environment, European Commission, 2008.

the introduction of reduced VAT rates for long-distance passenger transport services by train and an introduction of standard rates for air travel in Germany. They concluded that the VAT changes would result in demand shifts and reduce carbon emissions as well as energy consumption. Another study, funded by campaigners for VAT reduction, estimated that almost 240 000 tonnes of CO₂ could be saved through a VAT reduction on housing renovation and repair in the United Kingdom.¹⁴⁹ The problem with such simulation models is that the results are strongly driven by the underlying assumptions and some of the simulation models are commissioned by stakeholders who have an interest in identifying a positive effect.

Box 8 Key findings - Chapter 4.2

Do non-standard VAT rates help or hinder the achievement of environmental and social objectives such as promoting circular economy activities that target final consumers, notably repair services?

- Reduced VAT rates on necessities (e.g. food) tend to make VAT more progressive
- Reduced VAT rates which are not introduced for distributional purposes tend to make VAT more regressive
- In absolute terms, high-income households profit more from reduced rates
- Overall, there is broad consensus in the literature that the distributional effects of VAT are small
- Generally, the effectiveness of reduced VAT rates for the promotion of social or environmental goods and services depends primarily on pass-through and price elasticity of demand for goods or services subject to lower VAT rates
- Empirical evidence on the effectiveness of reduced VAT rates to promote socially desirable or environmental goods is scarce and ambiguous

3.3. Cost-Efficiency of VAT rates

Are (non-standard) VAT rates an effective tool for achieving social or environmental objectives in terms of costs for governments and efficiency?

Even if non-standard VAT rates can potentially help in achieving social and environmental goals, the question remains as to whether the benefits achieved outweigh the costs. Therefore, it is of utmost importance to consider the costs for governments caused by non-standard VAT in order to assess whether differential VAT rates are an effective and efficient tool for achieving social and environmental goals.

First of all, as a result of applying multiple (non-standard) VAT rates instead of a uniform standard VAT rate, governments suffer substantial tax revenue losses. An important indicator of revenue losses is the so-called Policy Gap, which can be further broken down into the Rate Gap and the Exemption Gap. The Rate Gap measures the potential revenue loss caused by the existence of reduced VAT rates, compared to the counterfactual situation of a uniform VAT rate system, calculated under the assumption of full compliance. In 2018, the average Rate Gap in the EU-28 was 10.07 %. Across the EU-28, the three highest Rate Gaps were in Cyprus (25.97 %), Malta (16.60 %) and Italy (15.86 %), while the lowest Rate Gaps were observed in Denmark (0.77 %), Slovakia (2.34 %) and Estonia (2.68 %).¹⁵⁰ Measured as share of GDP, revenue losses from non-standard VAT rates

¹⁴⁹ Experian, An estimate of the effects of a reduction in the rate of VAT on housing renovation and repair work- 2015 to 2020, 2015.

¹⁵⁰ Center for Social and Economic Research, Study and Reports on the VAT Gap in the EU-28 Member States – Finale Report, DG TAXUD, European Commission, 2020.

ranged from less than 0.1 % of GDP in Denmark and Slovakia to over 1.3 % of GDP in Greece, Poland, Portugal, Cyprus and Malta in 2006.¹⁵¹

From an efficiency point of view, mechanical revenue losses are crucial. Mechanical revenue losses occur when reduced VAT rates subsidise consumption that does not contribute to achieving social and environmental objectives. For the promotion of merit goods, the higher the initial level of consumption, the higher will be the mechanical revenue loss from reduced VAT rates. For distributional goals, the mechanical revenue loss is higher the more similar household consumption patterns are across income distribution. Reduced VAT rates on necessities introduced for distributional reasons, for example, cause a mechanical revenue loss, since high-income households also gain from the lower VAT rates. High mechanical revenue losses significantly reduce the efficiency of reduced VAT rates as a policy tool for achieving social and environmental objectives.¹⁵²

The government not only faces revenue losses due to reduced VAT rates, but also bears higher administrative and enforcement costs. Compared to a system with a uniform VAT rate, the auditing process is more complex, and thus more time- and resource-intensive. In the case of multiple VAT rates, usually 30 to 40 percent of auditing time is spent on validating whether or not the breakdown of inventories, purchases and sales subject to different VAT rates is correct. In contrast, the auditing process is significantly simplified in the case of a single VAT rate, since the auditing can focus on the detection of underreporting of sales and overreporting of purchases. Additionally, cross-checks between income tax, customs data and VAT further simplify the auditing process in the case of a single standard rate.¹⁵³ Moreover, the number of VAT refund claims generally increases as a result of the application of multiple VAT rates. In particular, firms which buy input goods subject to the standard rate, but sell output goods taxed at reduced rates, are entitled to VAT refunds. These additional refund claims caused by a differentiated VAT rate system not only increase the administrative costs for revenue authorities, but also create scope for VAT fraud.¹⁵⁴ Additional administrative and legal costs arise due to classification definitions and disputes. The introduction of a reduced VAT rate requires a clear and precise definition of all product categories subject to the lower VAT rate, and a clear demarcation from similar goods and services that are not subject to the reduced rate, which is a time-intensive task for administrative staff.¹⁵⁵ Despite efforts to define the categories as precisely as possible, borderline cases repeatedly arise, in which it is unclear whether a certain product should be taxed at the standard rate or at a lower rate. Companies whose products are taxed at higher VAT rates than similar substitutes often bring these borderline cases to court.¹⁵⁶

In general, reduced VAT rates are often regarded as a tax policy that is particularly vulnerable to lobbying pressure. Several empirical studies come to the conclusion that VAT rate differentiation

¹⁵¹ Copenhagen. Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008, p.39.

¹⁵² Copenhagen. Economics, Study on reduced VAT applied to goods and services in the Member States of the European Union, *Taxation Papers No. 13*, DG TAXUD, European Commission, 2008, p.6.

¹⁵³ Ebrill L., Keen M., Bodin J., and Summers V., *The Modern VAT*, International Monetary Fund, 2001, pp. 78-79.

¹⁵⁴ See e.g. Keen M., and Smith S., 'VAT Fraud and Evasion: What do we know and what can be done?', *National Tax Journal*, Vol.LIX(4), 2006.; Ebrill L., Keen M., Bodin J.-P., and Summers V., *The Modern VAT*, International Monetary Fund, 2001, pp. 78-79, Institute for Fiscal Studies, A retrospective evaluation of elements of the EU VAT system, DG TAXUD, European Commission, 2011, p. 556.

¹⁵⁵ Tait A., *Value Added Tax International Practice and Problems*, International Monetary Fund, 1988, p.43.

¹⁵⁶ In 2020, for example, the Irish Supreme Court ruled that the bread used for Subway sandwiches does not fall into the category of "bread" due to its high sugar content and is therefore not VAT exempt, but subject to a VAT rate of 13.5 %. In 1991, an UK court decided in favour of McVittites that Jaffa Cakes are cakes, and thus subject to a zero rate, and not chocolate-covered biscuits subject to a standard VAT rate.

subsidises specific sectors, rather than achieving distributional or other policy objectives.¹⁵⁷ Companies lobby for lower VAT rates for their own products and services by arguing that similar products are already taxed at a reduced rate and that the principle of fiscal neutrality therefore requires a reduced VAT rate for their own products.¹⁵⁸ Additionally, due to the existence of the EU Single Market, lobbying campaigns for reduced VAT rates frequently use the argument that reduced VAT rates are levied on the same or similar products in other EU Member States and a VAT reduction is thus necessary to remain competitive.¹⁵⁹ When lobbying pressure is yielded to and the application of reduced VAT rates increases over time, tax revenues could potentially decrease further.¹⁶⁰ Ebrill et al. provide some empirical support that the greater the number of VAT rates there are to start with, the greater the likelihood that more reduced rates will be introduced in the future.¹⁶¹

Moreover, there is a broad consensus in the (theoretical) literature that multiple VAT rates generally increase compliance costs for businesses, reduce compliance and potentially increase VAT fraud. However, due to the non-observable nature of non-compliance, concrete empirical estimates on the effect of multiple rates on compliance and VAT fraud are scarce.¹⁶² As discussed in Chapter 3 of this briefing paper, compliance costs for businesses increase with the number of VAT rates. Higher compliance costs make non-compliance and VAT fraud more attractive to businesses and thus further increase government revenue losses.

Differentiated VAT rates enable misclassification fraud. Firms have an incentive to misclassify purchases as subject to higher tax rates and sales as subject to lower tax rates.¹⁶³ The scope of VAT fraud caused by reduced rates increases if similar products and substitutes are subject to different VAT rates.¹⁶⁴ As a result of increasing compliance costs due to reduced VAT rates, small firms which are slightly above the turnover threshold for compulsory VAT registration might be especially incentivised not to register in order to save VAT as well as compliance costs.¹⁶⁵ Agha & Haughton investigated the drivers of VAT compliance, using cross-country data from 17 OECD countries. They found empirical evidence that multiple VAT rates are indeed associated with lower compliance.

¹⁵⁷ See e.g. Boeters S., Böhringer C., Büttner T., and Kraus, M., 'Economic effects of VAT reforms in Germany', *Applied Economics*, Vol. 42(17), 2010, pp. 2165-2182.

¹⁵⁸ See e.g. Ebrill L., Keen M., Bodin J.-P. and Summers V., *The Modern VAT*, International Monetary Fund, 2001, pp. 79-80.; Institute for Fiscal Studies, *A retrospective evaluation of elements of the EU VAT system*, DG TAXUD, European Commission, 2011; Abramovsky L., Phillips D., and Warwick R., *Redistribution, efficiency and the design of VAT: a review of the theory and literature*, IFS Briefing Note BN212, 2017.

¹⁵⁹ A prominent example in this context is the "Cut Tourism VAT" campaign, which started in 2011 and advocates for reduced VAT rates on hospitality and tourism.

¹⁶⁰ See e.g. Ebrill L., Keen M., Bodin J.-P. and Summers V., *The Modern VAT*, International Monetary Fund, 2001, pp. 79-80.; Institute for Fiscal Studies, *A retrospective evaluation of elements of the EU VAT system*, DG TAXUD, European Commission, 2011; Abramovsky L., Phillips D., and Warwick R., *Redistribution, efficiency and the design of VAT: a review of the theory and literature*, IFS Briefing Note BN212, 2017.

¹⁶¹ Ebrill L., Keen M., Bodin J.-P. and Summers V., *The Modern VAT*, International Monetary Fund, 2001, pp. 79-80.

¹⁶² Institute for Fiscal Studies, *A retrospective evaluation of elements of the EU VAT system*, DG TAXUD, European Commission, 2011, p. 138.

¹⁶³ Abramovsky L., Phillips D., and Warwick R., *Redistribution, efficiency and the design of VAT: a review of the theory and literature*, IFS Briefing Note BN212, 2017, p.13.

¹⁶⁴ See e.g. Institute for Fiscal Studies, *A retrospective evaluation of elements of the EU VAT system*, DG TAXUD, European Commission, 2011, p.557; M. Keen and S. Smith, 'VAT Fraud and Evasion: What do we know and what can be done?', *National Tax Journal*, Vol. LIX(4), 2006.

¹⁶⁵ Keen M., and Smith S., 'VAT Fraud and Evasion: What do we know and what can be done?', *National Tax Journal*, Vol.LIX(4), 2006.

From a pure efficiency perspective, the welfare loss (“deadweight loss”) caused by a commodity tax depends on the price elasticity of demand for the taxed goods and services. A well-known rule in economic theory, the inverse elasticity rule, suggests that, in order to minimise efficiency losses, goods and services for which demand is rather inelastic should optimally be taxed at higher rates compared to goods and services with rather elastic demand. To put it simply, greater distortions of consumption choices cause greater welfare losses, and thus an optimal tax rate structure on commodities should minimise consumption distortions. Since the change in consumption for inelastic goods is less substantial than for elastic goods, inelastic goods such as food should be subject to higher VAT rates, while elastic goods should be subject to lower VAT rates.

Policymakers are thus faced with a trade-off between efficiency and redistribution.¹⁶⁶ In most VAT systems within the EU, necessities such as food are taxed at a lower rate for redistributive reasons. However, from an efficiency perspective, necessities should be taxed at higher rates because their demand is rather inelastic.

To assess the effectiveness of reduced VAT rates, the previously-mentioned costs must be contrasted with the benefits discussed in Chapter 4.2. However, the costs of reduced VAT rates that go beyond revenue losses and include, for example, VAT fraud, are difficult to quantify. Hence, empirical studies comparing costs and benefits of reduced VAT rates are scarce.

Box 9 Key findings - Chapter 4.3

Are (non-standard) VAT rates an effective tool for achieving social or environmental objectives in terms of costs for governments and efficiency?

- Costs of using non-standard VAT rates as a policy instrument are manifold:
 - Substantial revenue losses, particularly mechanical revenue losses
 - Higher administrative and enforcement costs
 - Increased lobbying pressure
 - Higher compliance costs for businesses reduce compliance and increase VAT fraud
 - Welfare loss (“deadweight loss”)
- Focusing only on the direct tax revenue loss (assuming perfect compliance) will likely result in an underestimation of the real economic costs
- Lack of quantitative estimates of broader costs impedes quantitative cost-benefit analysis

3.4. Reduced VAT rates versus other policy instruments

Do the benefits of non-standard VAT rates outweigh the costs in terms of revenue losses for governments, in comparison to other specific tools (like direct transfers targeted at specific households and other vulnerable groups)?

To fully assess the efficiency and effectiveness of non-standard VAT rates, it is necessary to compare them to alternative policy instruments. While non-standard VAT rates are indirect fiscal incentives, there are several alternative instruments that provide direct fiscal incentives. These direct fiscal instruments include direct subsidies and tax credits for consumers and tax credits for producers.

Direct fiscal incentives have several advantages for achieving distributional and environmental goals compared to reduced VAT rates. Firstly, as already discussed, higher priced versions of products are more highly subsidised by reduced VAT rates than lower priced product versions. In most cases, however, the benefit of a merit good is not proportional to its price, which is why

¹⁶⁶ See e.g. Mirrless J., Adam S., Besley T., Blundell R., Bond S., Chote R., Gammie M., Johnson P., Myles G., and Poterba J.M., ‘Tax by design’, *Institute for Fiscal Studies*, 2011, pp.153-158.

reduced VAT rates are often not an accurately targeted instrument. When promoting energy-efficient products through reduced VAT rates, for example, product A, which is more expensive but does not differ from product B in terms of energy efficiency, would be subsidised more in absolute terms. In contrast to reduced VAT rates, a fixed amount subsidy does not disproportionately benefit higher priced versions. As proposed by Copenhagen Economics, all products meeting certain environmental criteria would receive the same fixed amount subsidy.¹⁶⁷

Secondly, direct fiscal incentives can target specific consumers, which is not possible with reduced VAT rates. While reduced VAT rates are often introduced to promote merit goods, such as books, for low-income households, high-income households often disproportionately benefit from reduced VAT rates. The number of free riders (i.e. people who would have consumed the product anyway), can be reduced through targeting specific consumer groups. Thus, policy goals can be achieved at lower cost via direct subsidies.¹⁶⁸ In addition, the option to target only the residents of a country may counteract potential trade distortions. Therefore, for goods with high cross-border trade potential, Copenhagen Economics recommends a subsidy which is not applicable to all consumers, but to residents only.¹⁶⁹ Besides targeting specific consumers, direct fiscal incentives are, contrary to reduced VAT rates, an effective tool for targeting businesses that can reclaim VAT on inputs.

Thirdly, reduction in VAT rates, depending on its design. The pass-through from direct fiscal incentives a higher pass-through to consumers might be achieved from a direct fiscal incentive than from a designed as subsidies or income tax credits to consumers would be likely to be higher; whereas it would be lower for tax credits for manufacturers. The signaling effect of direct fiscal incentives is assumed to be higher, since direct subsidies are generally more visible to the consumer.¹⁷⁰ The higher visibility of direct subsidies, in turn, may make direct fiscal incentives less vulnerable to the rent-seeking efforts¹⁷¹ of certain sectors, compared to reduced VAT rates.¹⁷² The effect on lobbying activities is, however, ambiguous; other studies argue that due to the greater flexibility of direct fiscal incentives compared to VAT rules (e.g. restrictions on the minimum level and total number of VAT rates for all Member States), rent-seeking efforts might be more restricted when using reduced VAT rates.¹⁷³

Direct fiscal incentives can be adjusted in more ways and offer greater flexibility. Therefore, the theoretical literature generally estimates the targeting accuracy of direct fiscal incentives to be higher than that of reduced VAT rates. In the context of environmental goals, rebound effects can be (partially) addressed through direct fiscal incentives. In Italy, for example, the potential rebound

¹⁶⁷ Copenhagen Economics, *Reduced VAT for Environmentally Friendly Products*, DG TAXUD, European Commission, 2008, p. 42.

¹⁶⁸ Kosonen K. and Nicodème G.J.A, 'The role of fiscal instruments in environmental policy', CESifo Working Paper, No. 2719, 2009.

¹⁶⁹ Copenhagen Economics, *Reduced VAT for Environmentally Friendly Products*, DG TAXUD, European Commission, 2008, pp.45 -46

¹⁷⁰ See Kosonen K. and Nicodème G.J.A, 'The role of fiscal instruments in environmental policy', CESifo Working Paper, No. 2719, 2009.

¹⁷¹ The economic concept of rent-seeking describes the situation where an individual seeks to increase their own wealth without creating any benefits or wealth to the society.

¹⁷² Institute for Fiscal Studies, *A retrospective evaluation of elements of the EU VAT system*, DG TAXUD, European Commission, 2011, p.557

¹⁷³ Institute for Fiscal Studies, *A retrospective evaluation of elements of the EU VAT system*, DG TAXUD, European Commission, 2011, p. 553

effect of tax credits on energy efficient freezers and refrigerators has been reduced, since the tax credit is only granted to consumers replacing their old freezer or refrigerator.¹⁷⁴

One advantage of reduced VAT rates over direct subsidies is the fact that reduced VAT rates are based on an existing tax system, which, in turn, could save administrative costs.¹⁷⁵ Nevertheless, most studies advocate direct subsidies/fiscal incentives as a better targeted, and usually less costly, instrument.

Overall, theoretical considerations show that direct fiscal incentives are preferable to reduced VAT rates as a policy tool in many cases. The optimal design of direct fiscal incentives as alternative instruments depends on the specific policy objectives. In the following section, the abolition of VAT rate differentiation, in combination with various transfer mechanisms (direct fiscal incentives) that help low-income households, is discussed as an alternative policy for achieving distributional goals. Direct fiscal incentives, such as fixed-amount subsidies and information campaigns, are presented as options for the promotion of merit goods.

Distributional goals

In the economic literature, non-standard VAT rates are often regarded as a rather blunt instrument for targeting low-income households. Following the logic of Atkinson and Stiglitz, a non-linear income tax is considered to be a better suited policy tool for redistributive goals. Generally speaking, if the state has income taxes or other more efficient redistribution instruments at its disposal, the majority of studies suggest that these should be used instead of reduced VAT rates.¹⁷⁶ For redistributive purposes, the progressivity of the overall tax system is decisive. Even if the VAT is highly regressive, provided the tax system as a whole is progressive, distributional goals can be reached. These insights are reflected in modern VAT systems (e.g. Australia, New Zealand), which are characterised by a uniform VAT rate.

A case study comparing the European VAT system with the modern VAT system in New Zealand provides evidence for these theoretical arguments. Thomas simulates the introduction of a multi-variant system to New Zealand, similar to the existing UK system. In contrast to European countries, New Zealand has a single rate VAT system and applies a tax credit for low-income households for redistribution. In line with previous studies, Thomas finds that the introduction of reduced rates, particularly on food, would have a progressive effect, but in absolute terms, rich households would benefit the most. He further estimates that the introduction of a multi-rate VAT system could lead to VAT revenue losses of 22 %. Thomas concludes that the fiscal costs of reduced VAT rates clearly outweigh the potential small distributional benefits and thus he favours a uniform VAT system, combined with a targeted redistributive tool such as the income-tested tax credit package for low-income households currently in place in New Zealand.¹⁷⁷ Most case studies dealing with the

¹⁷⁴ See Kosonen K. and Nicodème G.J.A, 'The role of fiscal instruments in environmental policy', CESifo Working Paper, No. 2719, 2009.

¹⁷⁵ See Kosonen K. and Nicodème G.J.A, 'The role of fiscal instruments in environmental policy', CESifo Working Paper, No. 2719, 2009.; Institute for Environmental Studies, 'The use of differential VAT rates to promote changes in consumption and innovation' DG Environment, European Commission, 2008.

¹⁷⁶ See, e.g. Ebrill L., Keen M., Bodin J.-P. and Summers V., *The Modern VAT*, International Monetary Fund, 2001; Tait A., *Value Added Tax International Practice and Problems*, International Monetary Fund, 1988.; Crawford I., Keen M. and Smith S., *Value Added Tax and Excises Dimensions of Tax Design: The Mirrlees Review*. Oxford University Press., 2010, pp. 301-303. For an overview of recent developments in the theoretical discussion of optimal tax, see Sorensen P., 'The theory of optimal taxation : New developments and policy relevance', *Nationaløkonomisk Tidsskrift* 148, 2010, pp. 212-244.

¹⁷⁷ Thomas A., 'The Distributional Effects of Consumption Taxes in New Zealand', Working Papers in Public Finance No. 08/2015, Victoria University of Wellington, 2015.

distributive effects of reduced VAT rates share this assessment, although not all explicitly estimate the costs.¹⁷⁸

For VAT systems which reduce rates on necessities, the abolition of reduced rates would disproportionately hit low-income households. Crawford et al., however, emphasise that combining the elimination of reduced VAT rates with a well-designed reform package is an effective and successful strategy for increasing efficiency and progressivity of the overall tax system. The additional revenue achieved through such a reform could then be used for distributional purposes. They demonstrate their point by simulating the effect of VAT rate unification in the UK, combined with an increase in income support, income-based job-seeker's allowances and tax credit rates, as well as an increase in the threshold for certain social benefits. Overall, the simulation shows that both efficiency and progressivity of the overall tax system would be improved, while the additional revenue of £11 billion could be used to achieve distributional policy goals.¹⁷⁹ The optimal design of an effective accompanying reform package for VAT rate unification is country-specific and depends on the existing transfer and tax systems. Targeting is crucial for the effectiveness of the reform package. In a simulation model for Germany, Bach proposes the introduction of a VAT bonus, a transfer payment which is designed to compensate low-income households for their VAT burden. The amount of the VAT bonus is differentiated by household size and income. In particular, low-income households receive a greater VAT bonus than high-income households to cushion the distributional effects of VAT rate unification for low-income households.¹⁸⁰

Promotion of merit goods

There are only a few empirical studies which quantitatively compare VAT reductions to other policy tools in terms of cost effectiveness in the promotion of merit goods. This is probably due to the fact that an estimation of the costs and benefits of different policy options poses severe challenges, which require making strict assumptions for simulating effects, which in turn limits the studies' explanatory power. Most existing studies conclude that more targeted tools such as direct subsidies, are the most effective, based primarily on theoretical considerations. In many case studies, alternative instruments are only briefly mentioned in the conclusion, but not compared more closely with VAT rates. Browiecki et al. point out, for example, that a comparative analysis of direct subsidies and VAT rates reduced for cultural reasons is a promising avenue for further research. Gesko recommends that the best way of targeting the promotion of book consumption is through direct subsidy rather than through reduced VAT rates.

In a scenario analysis, Dalongeville et al. compared the cost-effectiveness of three policy tools, all of which aim to increase the consumption of fruit and vegetables in France for health reasons. In addition to a VAT reduction of 3.2 percentage points on fruits and vegetables, they also examined the effectiveness of food stamps for low-income households (EUR 100, per person, per year) and the effectiveness of information campaigns (EUR 10 million). Overall, they found that the effect of all three policy tools on consumption, and in turn health, are only modest. In terms of cost-effectiveness, measured as mean cost per death avoided and mean cost per life-years saved, the information campaign is the most effective policy tool, followed by the VAT reduction. The food stamp policy scores worst in terms of cost-effectiveness. However, the food stamp policy is the only

¹⁷⁸ See e.g. Braz C. and Cunha J.C., 'The Redistributive effects of VAT in Portugal', *Banco de Portugal Economic Bulletin*, 2009.

¹⁷⁹ Crawford I., Keen M. and Smith S., *Value Added Tax and Excises' Dimensions of Tax Design: The Mirrlees Review*, Oxford University Press, 2010.

¹⁸⁰ Bach S., 'Der Mehrwertsteuer-Bonus: eine Alternative zu ermäßigten Mehrwertsteuersätzen', *DIW Wochenbericht*, Vol.78(24), 2011, pp.12-18.

policy tool that successfully reduces health inequalities between low-income households and middle-and high-income households, whereas information campaigns and VAT reductions seem to increase health inequalities.¹⁸¹ The study shows that information campaigns can be a cost-effective alternative, especially if the presumed effects of direct or indirect fiscal incentives on the overall policy goal are small. Moreover, the study illustrates that reduced VAT rates are not an effective tool for targeting specific consumers.

In general, the effectiveness of reduced VAT rates as a policy tool must always be evaluated in the specific context of other existing policy tools, since reduced VAT rates are not an isolated, stand-alone policy tool. Reduced VAT rates are often complementary to existing social and environmental policy tools. Before introducing reduced VAT rates, it should therefore be examined whether already existing policy tools might influence the effectiveness of reduced VAT rates.

For example, the literature provides a strong argument against the introduction of reduced VAT rates on energy-efficient products which use energy covered by the EU Emission Trading Scheme (EU ETS). Since the EU ETS caps the total yearly emissions, reduced VAT rates on products using energy covered by the EU ETS would not contribute to lower overall emissions, but only to a different sector allocation of emissions.¹⁸² Voßwinkel argues that such reduced VAT rates might even be counterproductive in terms of climate policy, if, due to lower VAT rates, economic agents choose different, more costly emission abatement strategies and hence reduce the emission reduction potential. Overall, many studies come to the conclusion that reduced VAT rates are not the best policy tool for achieving environmental policy goals. Copenhagen Economics argue that the introduction of reduced VAT rates on energy efficient products is, in any case, less effective than a fixed amount subsidy. Voßwinkel argues that the focus of political debate should be on improving existing environmental policy tools, such as energy taxation, EU ETS, and energy labelling, rather than by introducing reduced VAT rates for environmental purposes. Kosonen et al. conclude that root taxation (i.e. directly taxing emissions, energy etc) is the best option of all in the majority of cases. Kosonen et al. also argue that the usefulness of reduced VAT rates, in addition to root taxation, depends on the extent of free riders, rebound effects and pass-through.

Box 10 Key findings - Chapter 4.4

Do the benefits of non-standard VAT rates outweigh the costs in terms of revenue losses for governments, in comparison to other specific tools (like direct transfers targeted at specific households and other vulnerable groups)?

- VAT rate differentiation is a rather blunt policy instrument
- Direct fiscal incentives such as direct subsidies or tax credits are more targeted and therefore more efficient and cost-effective in most cases
- For distributional goals, most studies conclude that a uniform VAT system, combined with better targeted redistributive tools would be more efficient
- The effectiveness of reduced VAT rates depends on the specific context of other existing policies
- Information campaigns are a cost-efficient alternative for the promotion of merit goods

¹⁸¹ Dallongeville J., Dauchet L., De Mouzon O., Requillart V. and Soler L.G., 'Increasing fruit and vegetable consumption: a cost-effectiveness analysis of public policies.' *European Journal of Public Health*, Vol.21(1), 2011, pp.69-73.

¹⁸² See e.g. Voßwinkel J.S., 'Ermäßigte Mehrwertsteuersätze als Instrument der Umweltpolitik in der EU?', *CEP Centrum für Europäische Politik*, 2009. and Kosonen K. and Nicodème G.J.A, 'The role of fiscal instruments in environmental policy', CESifo Working Paper, No. 2719, 2009.

4. Conclusion

This briefing paper provides an overview of VAT systems and their effects across the EU Member States. It has found that there is great heterogeneity in VAT systems and thereby also in VAT gaps and compliance costs across the EU Member States. On average, only 60 % of total household consumption is subject to standard VAT rates and compliance costs are substantial, at 2.5 % of firm revenue.

The effectiveness and efficiency of reduced VAT rates for achieving distributional, social and environmental goals crucially depend on the pass-through to consumer prices and the degree to which consumption responds to price changes and are thus highly context-specific. However, the literature concludes that the distributional effects of reduced VAT rates are often rather small, while the costs are often larger than for direct fiscal instruments (such as direct subsidies or tax credits), as VAT rates do not allow targeting specific income groups.

There are several promising avenues for future research, particularly empirical research. First, there is a need for empirical research on the effects of diversified VAT systems on the EU Single Market and international trade. So far, there are various theoretical arguments for why diversified VAT systems distort trade, but there is no robust empirical evidence. Second, as environmental policy becomes ever more important, future studies should evaluate the effectiveness of reduced VAT rates for achieving environmental goals. Finally, future research should develop new quantitative methods for evaluating the benefits and costs of reduced VAT rates and alternative policy instruments.

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In November 2020, the European Parliament's Subcommittee on Tax Matters requested authorisation to draw up an implementation report on the implementation of the Sixth VAT Directive. Olivier Chastel (Renew Europe, Belgium) has been appointed as rapporteur for the report.

To further support the Subcommittee on Tax Matters in its scrutiny work on the subject, the Ex-Post Evaluation Unit within the European Parliamentary Research Service has drawn up the present European implementation assessment. It focuses on the causes underlying the huge gap between the VAT projected and de facto collected, by looking at factors such as the Member States' disparate VAT systems and at the effects of reduced VAT rates on businesses and consumers.

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