

# A retrospective evaluation of elements of the EU VAT system

Executive Summary

TAXUD/2010/DE/328

FWC No. TAXUD/2010/CC/104

Client: European Commission, TAXUD

Institute for Fiscal Studies (project leader)

In consortium with:

CPB Netherlands Bureau for Economic Policy Analysis (consortium leader)

CAPP                      CASE

CEPII                     ETLA

IFO                        IHS

London, 1 December 2011

This report was commissioned by the European Commission (DG TAXUD) and prepared by a consortium under the project leader IFS. The views and opinions expressed in this report are not necessarily shared by the European Commission, nor does the report anticipate decisions taken by the European Commission.



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This report is dedicated to the memory of Luis Jaime Vázquez Caro, who died unexpectedly on 28 September 2011, during the final stages of this project, on which he worked as part of the CASE team. Jaime, a 1973 graduate of the International Tax Program at Harvard University, was a well-known professional in the area of tax policy and administration, having been the deputy tax commissioner of Colombia, and having spent over 15 years of his career working on tax administration reform issues first at the IMF and then at the World Bank. In the mid-1990s, he was involved in several projects to help in the implementation of tax and tax administration reforms in central Europe, and was particularly concerned with the emergence of different types of VAT-based frauds, discussed in this report. At the time of his passing, he was also working on a project on tax administration reform in Armenia. Our condolences go to his wife Maria Teresa and his son José Camilo, who live in Bogotá, Colombia.

## Executive Summary

In the 1960s, the member states of the EU pioneered the use of VAT in place of the variety of turnover tax systems then in operation. Over the years, VAT has become a major source of revenue for all member states and by 2009 it raised €784bn annually – 6.6% of the EU's GDP and 17.3% of all taxes raised.

Clearly, how well VAT works is a question that matters, especially as VAT is considered as a tool for the fiscal consolidation taking place (or due to take place) across much of Europe. The bigger VAT is, the more important it is to design it well. And conversely, whether VAT works well has an important bearing on the question of whether it is the right tax to use to raise further revenue.

VAT has many desirable properties in principle. It should not distort saving and investment decisions, production patterns, trade and competitiveness – though it is unlikely to raise the long-run growth rate. Although VAT taxes final consumption in a rather roundabout way (it is levied on all transactions, with registered businesses able to reclaim VAT paid on inputs), this has advantages: sellers do not have to distinguish between businesses and final consumers, and it reduces the potential and incentive to evade tax. These desirable properties are mostly displayed by the EU VAT regime in practice as well: there is much to be said in its favour.

However, the EU VAT system also has a number of weaknesses. This is, in part, because the economic environment in which VAT operates has changed a great deal since the main features of the regime were put in place. The nature of business activities has evolved. International trade has expanded dramatically – particularly in difficult-to-tax services – and internal frontiers within the single European market were abolished in January 1993. Technology has changed both how taxes can be operated and the nature of what is to be taxed. Over the last two decades, piecemeal policy responses have sought to improve the functioning of the VAT system in the face of these developments but have left many fundamental problems unaddressed. A more radical remodelling of the VAT system could address the significant limitations of the current regime and allow VAT to fulfil its potential as the economically efficient tax it can, in principle, be. Moreover, experience in New Zealand and other countries demonstrates that such reform is possible. With its December 2010 Green Paper, the European Commission has initiated a debate on more comprehensive reforms aimed at making the EU VAT system simpler, more robust and more efficient.

To facilitate this process, this report is directed at a *retrospective* evaluation of the consequences, in economic terms, of the functioning of the most pertinent elements of the current EU VAT system. To make policy decisions, it is necessary to compare alternatives: both different possible designs of the VAT, and VAT as compared with other taxes. We leave the design and analysis of alternative policies to future studies.

But what are the main weaknesses and problems with the current EU VAT regime?

Exemptions are the most obvious and probably the most economically damaging. Where they exist, VAT is no longer a tax on final consumption, as intended. This results in significant distortions to decisions by firms of whether to self-supply or purchase goods and services from the market, and to competition between exempt and non-exempt firms and between different EU countries, and, last but not least, in an increase in compliance and administrative costs for those firms that have to allocate input tax between exempt and taxed transactions. Through these mechanisms, exemptions reduce productivity and output, impede the Single Market and reduce the international competitiveness of important European industries. For instance, if financial services firms could reclaim VAT on their inputs, the cost of financial services to businesses would be reduced by around 3–5% in the four biggest euro-area countries (France, Germany, Italy and Spain), leading to an increase in their international price competitiveness of 0.16%, on average. Reducing the extent of exemptions would also have a double dividend for governments: extra revenues that could be used to reduce the rate of VAT or other taxes, reduce borrowing or increase spending.

Albeit to a lesser degree, the extensive use of reduced rates also causes problems. Zero and reduced rates can be progressive and can be used to encourage use of socially desirable goods and services. But because of the structure of VAT, they are rarely well-targeted tools to use for either of those aims. Furthermore, they increase the complexity of the system – thereby increasing administrative costs, litigation costs and compliance costs – and distort households' spending patterns, reducing welfare. Indeed, our estimates show that it would be possible, in principle, to abolish zero and reduced rates of VAT and compensate all households and still have revenue left over. In practice, it would not be possible to compensate all households exactly, but changes in direct tax and transfers can be used to ensure poor households and other vulnerable groups are compensated, on average.

In part because there are multiple rates, the complexity of the VAT regime, along with variations across the EU in how it operates, continues to create substantial compliance

costs. This is particularly the case for small businesses, which is why substantial VAT registration thresholds are one form of VAT exemption we do think is justified – they reduce burdens on the smallest businesses. Considerable complexity is also created for those wishing to trade across borders, although we welcome moves to simplify the VAT treatment of trade in services. Particularly worrisome are the many differences across member states in VAT-related administrative procedures: on average, a firm trading in two EU15 members would have to deal with 11 such differences. Such intra-EU differences form a source of trade costs that hamper the development of the internal market and discourage cross-border trade. Our estimates suggest that a 10% reduction in differences in VAT procedures could boost intra-EU trade by up to 3.7% and GDP by up to 0.4%, although we consider these estimates very much upper bounds of the true effects. Harmonising procedures and limiting differences in VAT rates, and more generally reducing compliance costs, look like worthwhile goals.

Finally, the level of evasion remains a concern. The ‘VAT gap’ – the gap between actual VAT revenues and what they would have been with full compliance – is big, estimated at an average of 12% of liabilities in 2006. Clearly, most VAT is evaded through transactions in the shadow economy that are not reported, followed by frauds based on reducing the reported level of taxable sales or on exaggerating claims for refunds of VAT paid on business inputs. Contrived insolvency fraud is also a problem, although recent measures have reduced its extent. It is unlikely that shadow economy fraud will be reduced by applying lower rates to the transactions that are not reported, because it remains attractive to evade the associated income tax.

While most VAT fraud is domestic, cross-border trade is associated with particular forms of fraud, notably missing trader intra-Community (MTIC) fraud. This arises because of the break in the VAT ‘audit trail’ that occurs at the border, and the zero-rating of exports. Possible strategies for tackling such problems range from making more use of ‘reverse charging’ (whereby buyers rather than sellers are responsible for reporting the tax due) to, more radically, moving away from the zero-rating of exports towards a system such as the ‘VIVAT’ in which a uniform rate is applied to all business-to-business transactions. Because compliance costs are already high for cross-border trade, distorting trade and reducing GDP as we saw above, efforts should be made to ensure that moves to increase compliance do not increase these further; this makes increased cooperation, data-sharing and joint anti-fraud operations between revenue authorities in different member states a first priority.

One good measure of the extent of departures from a simple uniform VAT is the VAT revenue ratio, which tells us that actual VAT revenues in 2008 were only 58.1% of what they would have been if all consumption had been successfully taxed at the standard VAT rate, or 85.4% of what they would have been if all consumption by households had been successfully taxed and no government consumption had been taxed. This shows that, taken together, exemptions, reduced rates and various forms of non-compliance significantly reduce the amount of VAT that is raised.

We now go on to look at each of these features and problems, and several others.

### ***Taxation of trade and the internal market (Chapter 3)***

Broadly speaking, a destination-based VAT – one in which the VAT levied on goods and services depends on the country in which they are consumed – should not distort trade patterns within the European single market, since items are taxed at the same rate regardless of their origin. But applying the destination principle can be problematic, leading to distortions to trade and potentially higher compliance costs.

Developments in product markets (such as digital downloads), the abolition of intra-EU border controls in 1993, and the fact that the VAT treatment of services has been brought more into line with the VAT treatment of goods, have reduced the significance of differences between goods and services for tax policy. Increasingly, the central distinction is instead between business-to-business (B2B) and business-to-consumer (B2C) trade.

For most B2B trade, a zero rate of VAT is applied to exports, with imports subject to the VAT applicable in the importing country. In principle, this application of the destination principle avoids distorting trade patterns.

Trade in services has traditionally been more problematic for the VAT system. Complex and varied ‘place of supply’ rules designed to ensure the proper levying of taxes acted as a significant discouragement to trade by increasing compliance costs. They also made it more likely that they will be interpreted and applied differently in different countries, giving rise to the potential for double or zero taxation where both or neither country claims taxing rights over the supply; rules intended to prevent this exist, but there is evidence in the legal literature that these have not always worked in a satisfactory way. Fortunately, these problems have been significantly reduced by



reforms in the last two years that mean a large majority of B2B services are now taxed in the customer's location at the VAT rate applicable at that location.

The major downside of zero-rating exports and taxing imports – the approach now applied to most B2B services as well as goods – is that it breaks the VAT 'chain' (the collection of VAT in parts from traders throughout the supply chain), opening up enforcement risks. Measures taken to mitigate this enforcement risk have helped limit the tax fraud that would otherwise take place, but are one of many causes of higher compliance costs of doing business across borders, creating a barrier to trade. Given this, it is unlikely to be the case that the present set-up represents best policy: whilst it is beyond the scope of this report to suggest alternative policies, we note that many proposals exist, including improved cross-border audits and radical ones such as the 'VIVAT' (which would establish a common EU VAT rate for B2B trade).

B2C trade falls into two broad categories, each of which has its own difficulties.

Cross-border shopping, small-scale distance-selling and some B2C services are taxed in the supplier's location. In these cases, consumers' ability to choose between suppliers charging different VAT rates can potentially give rise to economically inefficient outcomes, with resources wasted as consumers' choices – and therefore competition between firms and firms' location decisions – are driven by tax rather than commercial considerations. However, because of the relatively small flows of trade involved, the economic cost is likely to be fairly small. Furthermore, it is not clear to us that existing arrangements could be improved: charging customers the VAT applicable in their country of residence would greatly increase compliance costs and be impractical to enforce, particularly in the case of cross-border shopping.

Distance sales above the destination country's distance-selling threshold (either €35,000 or €100,000), and some B2C services, are taxed according to the customer's location. This is useful and prevents the biggest revenue losses and distortions that could result if all B2C sales were taxed in the supplier's location. However, the need for sellers to register for VAT in all member states to which they make substantial sales does add to the compliance burden for businesses selling across borders. The distance-selling regime can also be difficult for governments to enforce, since the tax authorities in the destination country (to whom the VAT is due) have no jurisdictional power over suppliers in other member states.

***VAT exemptions and the taxation of small businesses (Chapters 3 and 11)***

Exemptions, by which VAT is not charged on sales but also cannot be reclaimed on input purchases, run wholly counter to the logic of VAT as a consumption tax and are highly economically inefficient in a number of respects:

- They result in B2C sales being undertaxed and B2B sales being overtaxed.
- They give firms an incentive to supply their own inputs (or vertically integrate) rather than buy them, so as to reduce the amount of irrecoverable input VAT they face.
- They create distortions in competition when exempt firms compete with non-exempt firms, or when competing exempt firms in different EU countries face different costs as a consequence of being charged different VAT rates on their inputs.
- ‘Partial exemption’ – a widespread situation whereby some of a firm’s activities are exempt and some are not, leading to a need to allocate inputs between the exempt and the non-exempt activities – causes particular problems, adding to firms’ compliance costs in determining correct allocations and creating tax avoidance opportunities (and corresponding anti-avoidance work for governments). The variation across countries in methods for allocating inputs can also have trade-impeding effects by increasing the costs of cross-border sales.

Despite these problems, large areas of economic activity are exempt or (equivalently) outside the scope of VAT. The effective exemption of much of the public sector and of services in the public interest is a clear weakness of the EU VAT regime, with little justification (if such services are seen as socially desirable, they can be supported in less economically damaging ways).

The exemption of financial services is similarly damaging, and financially costly (estimated at around €1bn of forgone VAT revenues for the UK alone). VAT increases their production costs, putting EU financial firms at a competitive disadvantage compared with the financial services sector outside the EU, and has a cascading effect, increasing other domestic and export prices. Input–output calculations for the four biggest EMU countries (France, Germany, Italy and Spain) show that non-recoverable VAT increases the costs of intermediate inputs to the financial services sector by 6.9% on average. Allowing financial services firms to recover the VAT on their inputs would therefore make EU firms more competitive: by cutting the cost of producing financial services, we estimate that it would reduce the price of financial services by 3–5% in the four biggest euro-area countries with consequential price reductions for other sectors

using financial services as inputs. Overall, these four countries would see their terms of international price competitiveness improve by 0.16%. It is beyond the scope of this study to suggest specific reforms, but we note that there are a number of serious and credible proposals for bringing financial services into VAT (or an equivalent tax).

Of the major areas where VAT exemption is applied, the most defensible is the VAT registration threshold applied to small businesses. Despite the disadvantages of exemption, substantial registration thresholds are probably a price worth paying for avoiding disproportionate administrative and compliance costs for small businesses. There may also be a case for applying simplified flat-rate schemes to small businesses; however, the case for some other small business regimes currently in operation seems less compelling. Optional schemes invite traders to see which option is better for them by calculating their liabilities under both scenarios, potentially combining maximum effort (and hence compliance costs) by the trader as they make the calculations and maximum revenue loss for government. Graduated thresholds can easily complicate rather than simplify the system and such a scheme in Finland does not appear to have significantly reduced the barrier to growth caused by VAT registration.

#### ***Costs of administration and compliance (Chapter 4)***

Evidence on the cost to government of administering VAT is very limited: the only figure we have been able to find is for the UK, at 0.7% of VAT revenue. However, there is broad agreement in the literature that more complex legislation (e.g. many exemptions, rate differences and special schemes) increases costs, as does having onerous procedural requirements (e.g. more frequent returns). Having many small clients also raises costs in relative terms, which is one reason why significant VAT thresholds are a good idea (see above).

The cost to business of complying with VAT obligations has been more extensively studied and documented. Compliance costs are substantial according to most studies, but the range of estimates is wide. Early studies for the UK, Australia and New Zealand reported compliance costs between 2% and 9% of VAT collected; more recent estimates range from a low of 0.3% reported in a study of Denmark, to as high as 8% or even 25% of VAT collected, as shown in studies of Croatia and Slovenia. One problem in drawing broad conclusions is that part of this variation reflects different methodologies used in the studies. However, some cross-country studies do exist and these show that compliance costs vary substantially, with them being particularly high

in the EU's newer members. Compliance with consumption taxes (mainly VAT) takes less time – and is presumably less costly – in countries where:

- VAT is administered by the same tax authority as the corporate income tax;
- online filing and payment are in place;
- VAT returns are required less frequently and require less information and accompanying documentation;
- rule changes are less frequent.

There is a strong consensus in the literature that, because much of the cost of complying with VAT is fixed (i.e. incurred regardless of the level of sales), compliance costs are relatively more burdensome for small businesses. Quantification of this is scarce, but one study of Croatia (admittedly not yet an EU member) found that compliance costs represented 3.9% of turnover for unincorporated businesses but only 1.5% of turnover for firms with more than six employees.

Compliance costs are also particularly high for cross-border trade – though some of the reporting requirements associated with trade would be needed even in the absence of VAT itself. To date, there is little convincing quantification of the compliance costs of doing business across borders, but indirect estimates of their effects on trade are discussed further below (see *The effects of VAT and VAT compliance costs on trade*).

Existing estimates do not give any indication that the compliance costs of VAT are falling over time, though it may be that the effects of e-filing and other initiatives are not yet visible in the data.

#### ***VAT fraud and evasion (Chapter 4)***

The 'VAT gap' – the gap between actual VAT revenues and what they would have been with full compliance – is big, estimated at an average of 12% of liabilities in 2006. It should be stressed, however, that not all of the VAT gap is due to outright fraud: it also includes non-payment arising from innocent error, legitimate tax avoidance measures or business failure.

The literature suggests that levels of compliance are associated with a number of 'behavioural' or 'institutional' factors that bear on a tax based on voluntary compliance: compliance is higher where the public have greater trust in institutions, corruption is lower, and the courts and legal process work efficiently. There is also evidence that

compliance rates are associated with ‘policy’ factors, with some evidence that compliance is higher where there are fewer VAT rates and where VAT rates are lower.

While most VAT fraud is domestic, cross-border trade is associated with particular forms of fraud, notably missing trader intra-Community (MTIC) fraud. This arises because of the zero-rating of exports and the break in the VAT audit ‘trail’ that occurs when the taxing jurisdiction cannot verify transactions before import or after export. Possible strategies for tackling non-compliance in the cross-border context range from increasing cooperation between revenue authorities in enforcement and audit procedures to making more use of ‘reverse charging’ (whereby buyers rather than sellers are responsible for reporting the tax due) or, more radically, moving away from the zero-rating of exports towards a system such as the ‘VIVAT’ in which a uniform rate is applied to all B2B transactions.

There is a natural link between tackling non-compliance on the one hand and compliance burdens and administrative costs on the other: governments adopt onerous reporting requirements and enforcement activities largely in order to ensure compliance. We find that countries that impose higher compliance burdens actually tend to have *more* non-compliance. This most likely reflects the fact that countries with large VAT gaps feel the need to take more stringent and burdensome anti-fraud action. We believe more detailed research on the working of particular anti-fraud policies is required.

#### ***The extent of differences in VAT rates and administration (Chapter 5)***

The extent of diversity in VAT policy and procedures across member states, one driver of compliance costs, can be characterised by calculating ‘VAT regime dissimilarity indices’. These are summary indicators that capture, for each pair of EU countries, the bilateral differences across many different aspects of national VAT regimes, including VAT rate structure, implementation regulations and the efficiency of the VAT regime.

One important conclusion from this work is that differences in the rates of VAT applied to different goods and services are a relatively small component of the overall differences in the VAT systems of member states. In one way, this is reassuring: the limits on how rates can vary that are part of the EU VAT Directives may be leading to a degree of harmonisation and simplification. But, market pressures from cross-border shopping may also limit how much VAT rates can differ across countries.

There are, however, many differences across member states in VAT-related administrative procedures. Such intra-EU differences could form a source of trade costs that hamper the development of the internal market and discourage cross-border trade. Out of 30 different administrative and procedural VAT rules included in the index, an average of 11 differ between each EU15 country pair. By contrast, the countries that joined the EU in the major enlargement in 2004 have fewer administrative differences in their VAT regimes than the EU15 countries. A possible reason is that these countries were able to start a VAT system from scratch and have chosen to adapt best-practice procedures from the EU15 countries. A similar assessment and adoption of best practice by older EU members would lead to a significant simplification of rules, reducing cross-border compliance costs and potentially boosting intra-Community trade.

### ***The effects of VAT and VAT compliance costs on trade (Chapters 6 and 7)***

National differences in VAT regimes can affect trade in the Single Market by increasing the costs of border-crossing trade flows relative to domestic sales, e.g. through the need to familiarise and comply with different procedures by country. Such costs are likely to bear relatively heavily on small and medium-sized businesses which may only be trading small volumes, creating a real market-entry barrier and anti-SME bias in intra-European trade. They may also distort and complicate firms' decisions of whether to export or set up local subsidiaries, which is likely to be a particular problem for firms that organise complex trade networks in intermediate goods. Finally, VAT regime differences can affect consumers' decisions. Cross-border shopping and distance-selling mean that consumers can take advantage of lower rates of VAT in other countries, especially in border regions. And, more generally, exemptions and variation in VAT rates can affect what consumers buy by changing relative prices differently in different countries.

Whilst we are unable to distinguish between these separate effects in our quantitative analysis, we can and do investigate how trade flows are related both to the dissimilarity indices described above and to VAT compliance costs. Allowing for other factors such as proximity and shared language, we find that higher trade volumes are associated with:

- similarity in administrative procedures and in the VAT rates applied to specific goods and services;
- the destination country imposing fewer VAT regulations beyond those required by EU law;
- the destination country imposing larger compliance burdens in other respects;

- the origin country imposing larger compliance burdens.

We do not find all these results plausible. Remember that we are assessing statistical relationships which need not imply causal relationships. It may be that some characteristic, which we cannot control for, helps to determine both VAT policy and trade patterns independently: e.g. that certain kinds of country are disposed both to adopt certain kinds of policy and to trade with each other.

Using some of the more plausible results of this estimation, we can simulate the effects of changes in VAT policy on trade, GDP and consumption, assuming that the relationships we observe are causal. We find that:

- removing all VAT obligations beyond EU requirements would increase intra-EU trade by 2.6%, GDP by 0.2% and consumption by 0.2%;
- a 10% reduction in the dissimilarity of general VAT obligations would increase intra-EU trade by 3.7%, GDP by 0.4% and consumption by 0.3%;
- a 50% reduction in the dissimilarity of rates for specified goods and services would increase intra-EU trade by 9.8%, GDP by 1.1% and consumption by 0.7%;
- moving to identical VAT rates across countries on specified internationally-traded services would increase intra-EU trade by 6.5%, GDP by 0.7% and consumption by 0.5%.

We believe these are likely to be overestimates since they assume causality is all one way (from VAT to trade patterns). To help give a sense of plausible magnitudes of the effect of VAT compliance costs on trade, we consider two further simulations that do not suffer this problem and that show the effects of eliminating all VAT compliance costs under illustrative assumptions as to their size. These show that:

- if the VAT compliance costs associated with intra-EU trade were equivalent to 1% of firms' sales, eliminating them would increase intra-EU trade by 4.3%, GDP by 0.4% and consumption by 0.3%;
- if VAT compliance costs were 3% of turnover, eliminating them would increase intra-EU trade by 13.3%, GDP by 1.4% and consumption by 1.0%.

It is also possible to assess the impact of compliance costs on the international price competitiveness using a different model. Our analysis is confined to the four largest EMU countries, and finds that complete elimination of compliance costs would reduce the price of tradable goods by 0.9% in France, 0.7% in Germany, 1.3% in Italy and 1.7% in Spain, although this effect may reduce in the long run as exchange rates adjust.

Clearly, VAT policy could potentially have quite significant effects on trade patterns and the wider economy. In principle, harmonising procedures and limiting differences in VAT rates, and more generally reducing compliance costs, therefore look like worthwhile goals.

***VAT, external competitiveness and macroeconomic performance (Chapters 7 and 11)***

Shifting from personal or corporate income taxes towards greater use of consumption taxes such as VAT can affect competitiveness. Since standard income taxes reduce incentives to save and invest and therefore reduce capital accumulation in the economy, moving to VAT leads to a rise in overall productivity and an improvement in competitiveness even after prices and exchange rates have adjusted. But there is no compelling reason to believe that shifting the tax mix towards VAT should increase the economy's long-run growth rate.

However, in the short run – before prices have time to adjust fully – a shift between different tax bases can have larger and somewhat different effects on trade and economic performance. In this report, we use the *Prometeia* international macroeconomic model to examine the short-run macroeconomic effects of a shift of 1% of GDP towards VAT instead of personal income tax, corporate income tax or employer social security contributions (SSCs). We find that such a shift could have significant short-run effects not only on the EU's terms of trade and trade balance, but also on GDP, consumer prices, employment and the public sector budget balance. Shifts from income tax and SSCs have the most beneficial impacts on GDP and employment, whilst shifts from corporate income tax improve public finances the most. However, over time as prices and exchange rates adjust, we would still expect the predictions of theory – essentially, that greater use of VAT will encourage investment and boost output slightly, but have no *direct* effect on competitiveness – to hold.

Existing simulations based on 'general equilibrium' modelling – including studies undertaken for the European Commission using the QUEST model – support these theoretical predictions. Cross-country studies also provide some evidence that a greater reliance on VAT acts to increase the level of GDP. However, the results of general equilibrium models are sensitive to the particular assumptions made (e.g. how wages are determined). In our own analysis, we are able to replicate the findings of the cross-country studies, but there is good reason to believe that these estimates are biased. Using more robust methodologies, we do not detect an effect of more reliance upon



VAT on the level of GDP, but that may be because our models are too demanding of the limited data available. So while we are unable to find clear evidence that shifting the tax mix towards VAT does increase GDP, nor can we rule it out. The impact of VAT on unemployment is also unclear, and we can find no evidence of an impact on aggregate consumption.

As far as aggregate tax revenues are concerned, in line with similar studies, we find no robust evidence that adopting a VAT is associated with an increase in overall tax revenues. Nor do we find robust evidence that increasing use of VAT leads to an increase in overall tax revenues. Finally, we estimate that a 1 percentage point increase in the standard rate of VAT is typically associated with an increase of only 0.4 percentage points in the amount of VAT actually collected as a proportion of consumption. This is a reminder of the importance of reduced rates, exemptions and non-compliance; but more than that, since 0.4 is somewhat below the average VAT revenue ratio in the EU, it implies that increases in standard rates of VAT tend to be accompanied by falls in the VAT revenue ratio.

#### ***How does VAT affect prices? (Chapter 8)***

Economic theory predicts that a number of factors should affect the extent to which firms pass on VAT into consumer prices, including the competitiveness of markets and the responsiveness of demand and supply to prices. Pass-through of a VAT change for a specific good is likely to be less than that for a broad-based VAT change, since a change that applies only to a narrow category of goods opens up more possibilities of substitution towards other goods.

All this implies that it should be possible to observe a wide range of price responses to VAT rate changes. Existing empirical work and new case studies included in this report broadly bear this out and find support for the predictions of theory. Estimates of pass-through vary widely (from 0% to 163%), as expected. Pass-through tends to be nearer 100% in more competitive markets and for more broad-based VAT changes. The long-run extent of pass-through seems to be achieved rather quickly – after the first few months there is little sign that prices adjust any further, and in some cases prices may adjust even before a reform is implemented. There is some evidence that short-run pass-through may be higher for tax rises than for tax cuts.

***VAT rates and structure (Chapters 9 and 10)***

Reduced rates of VAT and, in certain countries, zero rates are pervasive features of the European system of VAT – though the extent to which they are used varies widely between countries. The principal motives for using reduced (and zero) rates are to help poorer households and to change behaviour in ways perceived to be desirable. In both cases, we find that VAT rate differentiation can help to achieve these objectives, but it is usually an inefficient means of doing so.

While VAT rate differentiation can be progressive, other taxes and transfers can target the rich and the poor more directly, achieving more redistribution for a lower cost. Hence, the case for reduced (and zero) rates of VAT on items such as food and domestic energy for redistributive purposes is weak. Similarly, the particular features of VAT mean that it is rarely well targeted for encouraging the use of ‘socially beneficial’ goods and services. Reduced rates of VAT can only encourage purchases by final consumers, when often business use of the goods in question can be equally beneficial (such as for environmental products); and the encouragement provided is proportional to price, when often the benefit from consumption is no greater for more expensive varieties of the good in question. Specific subsidies may be better targeted.

We find reduced rates of VAT for ‘labour-intensive services’ more justifiable. Many of these services are substitutes for do-it-yourself (DIY) home production. Taxation in general creates distortions that encourage households to rely more than they otherwise would on such DIY and to buy less from, and work less in, the market economy. Reduced rates of VAT can be used to offset these distortions and can therefore boost productivity and formal economic output. They may also reduce the incentive to evade VAT (by reducing the gain from doing so) in activities that are generally seen as particularly liable to evasion (e.g. paying a painter or plumber in cash with no receipt), although the concurrent evasion of the income tax may be a more important factor.

However, having different VAT rates for different products adds to the complexity of the system. Firms face extra compliance costs (and governments extra administration costs) to ensure that products are correctly categorised; particular problems occur at boundaries between products, where uncertainty and litigation are common results. More zero- and reduced-rated outputs mean a higher chance that deductible VAT on firms’ input purchases exceeds the VAT due on their sales, with the resulting refunds a notoriously difficult administrative area. And greater rate differentiation within

countries means greater disparities between countries as well, with implications for distorting trade patterns of the kind already discussed.

Furthermore, reduced rates of VAT distort households' spending patterns and tend to reduce welfare. We estimate the effect of reduced and zero VAT rates on welfare for Belgium, Germany and the UK, putting to one side the issue of the effects of VAT on work and DIY. We find that while removing all zero and reduced rates and using the revenue to reduce the main rate would, on its own, be regressive, the fact that consumption decisions would be less distorted means that governments could, in principle, redistribute the gains of the winners to the losers and still have revenue left over. That is a measure of the economic efficiency loss associated with VAT rate differentiation. We estimate this 'surplus' revenue – the welfare gain – at €0.17bn (or €0.74 per week per household) in Belgium, €5.8bn (or €3.10 per week per household) in Germany and €1.3bn (or €1.07 per week per household) in the UK. While the modelling is not robust enough to justify putting too much emphasis on these exact numbers, the results demonstrate that reduced rates of VAT, taken together, do reduce overall welfare. There are better and less damaging ways to redistribute and to encourage use of socially desirable goods and services, although reduced rates for labour-intensive services and others that can encourage work (e.g. for childcare) do look justifiable despite the costs.

### ***Final thoughts***

This summary provides the key findings and assessments of a major evaluation of the existing EU VAT system. Reading it, one may be struck by the number of faults and issues we highlight. We do not want to be relentlessly negative: virtually all taxes have problems, distort firm and consumer behaviour to some extent, and entail costly compliance burdens. The idea of a consumption tax that underlies and is largely embodied in the EU VAT system is a good one: such a tax is efficient, and avoids distorting business decisions and the internal market. However, there are significant shortcomings with the existing system. Exemptions, a proliferation of reduced rates, and significant variation in rules and procedures across countries increase compliance costs for businesses, distort trade and business and consumer choices, and reduce productivity and GDP. Assessing how to address these problems and choosing the most efficient and cost-effective solutions lie beyond the scope of this retrospective evaluation. But it is our view that there is considerable scope for beneficial policy development, and we hope that by providing evidence of the main problems with the existing system, this study can help that process.