Study and Reports on the VAT Gap in the EU-28 Member States:
2017 Final Report

TAXUD/2015/CC/131

Client: Directorate General Taxation and Customs Union

CASE – Center for Social and Economic Research (Project leader)

Institute for Advanced Studies (Consortium leader)

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Acknowledgements

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List of Acronyms and Abbreviations

CASE  Center for Social and Economic Research (Warsaw)
CEE  Central and Eastern Europe
COICOP  Classification of Individual Consumption according to Purpose
EC  European Commission
ESA95  European System of Accounts 1995 in accordance with Council Regulation (EC) No 2223/96 of 25 June 1996 on the European system of national and regional accounts in the Community
EU  European Union
EU-27  Current Member States of the European Union except Cyprus
EU-28  Current Member States of the European Union
GDP  Gross Domestic Product
GFCF  Gross Fixed Capital Formation
IC  Intermediate Consumption
MOSS  Mini One Stop Shop
MTIC  Missing Trader Intra Community
NAC  National Currency
NPISH  Non-Profit Institutions Serving Households
OECD  Organisation for Economic Cooperation and Development
ORS  Own Resource Submissions
o/w  of which
QRM  Quick Reaction Mechanism
SUT  Supply and Use Tables
TAXUD  Taxation and Customs Union Directorate-General of the European Commission
UK  United Kingdom
VAT  Value Added Tax
VTTL  VAT Total Tax Liability
VR  VAT Revenue
Executive Summary

This analysis serves as the Final Report for the DG TAXUD Project 2015/CC/131, “Study and Reports on the VAT Gap in the EU-28 Member States”, which is a follow up to the reports published in 2013, 2014, 2015, and 2016.

We present new estimates of the VAT Gap and the Policy Gap for the year 2015, as well as updated estimates for the years 2011-2014. This report provides first estimates of the VAT Gap for Cyprus, using the newly revised national accounts data from the Cyprus Statistical Agency.

The VAT Gap is the difference between the amount of VAT revenue actually collected and the theoretical amount that is expected to be collected, given the observed information on the country’s economy and the actual VAT legislation. The amount of VAT total theoretical liability, known as VTTL, is calculated using the so-called “top-down” approach: the national VAT rate structure is imposed on the national accounts expenditure and investment data at the most detailed level possible to derive expected liability.

VAT Gap cannot be treated as a straightforward equivalent of VAT fraud. Apart from VAT fraud and tax evasion and avoidance, the VAT Gap can be influenced by bankruptcies and tax arrears, as well as reporting problems in national accounts.

An important change in the VAT rules in 2015 came with the introduction of the MOSS regime, which changed the way VAT was invoiced for exported electronic services. VAT structure remained unchanged in most countries, with only three Member States changing the level and scope of VAT rates.

Nominal VAT revenues increased on average by 4.5 percent in the EU-27—a combination of revived economic growth (2.9 percent) and an increase in VAT compliance (2.4 percent).\(^1\)

In nominal terms, in 2015, the VAT Gap in the EU-28 Member States amounted to EUR 151.5 billion. The VTTL accounted for EUR 1,187.8 billion, whereas VAT revenue was EUR 1,035.3 billion. Expressed as a percent of VTTL, the VAT Gap share dropped to 12.8 percent, down from 14.1 percent in 2014. In absolute values, the VAT Gap dropped by EUR 8.7 billion and is at its lowest level since 2011. The share of the VAT Gap in the VTTL decreased in 20 Member States, and increased only in 7 out of the total 27 Member States (EU-28 excluding Cyprus:

The smallest Gaps were observed in Sweden (-1.42 percent)\(^2\), Spain (3.52 percent), and Croatia (3.92 percent). The largest Gaps were registered in Romania (37.18 percent), Slovakia (29.39 percent), and Greece (28.27 percent). Overall, half of the EU-27 Member States recorded a Gap below 10.8 percent.

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1 Figures are not additive.
2 Possible reasons for negative VAT Gap are use of cash vs accrual revenues, underestimation of GFCF liabilities, or incompleteness of national accounts.
Introduction

This Report presents the fifth follow-up of the “Study to quantify the VAT Gap in the EU Member States”, which was conducted by Barbone et al. in 2013, 2014, 2015, and 2016. This update contains new VAT Gap estimates for 2015, as well as updated estimates for 2011-2014. It also includes the first ever VAT Gap estimates for Cyprus.

The VAT Gap is essentially the difference between expected and actual VAT revenues. One of the primary interests in the VAT Gap lies in its connection to VAT fraud, an important political and economic issue across Member States and for the EC. Numerous measures to tackle different forms of VAT tax evasion are discussed, debated, and implemented by EU Member States and the EC, such as the extension of the reverse charge mechanism, the recapitulative statement of intra-EU supplies, and the quick VAT fraud reaction mechanism (QRM), among others.

However, the VAT Gap estimates presented in this report should not be directly interpreted as VAT fraud estimates. Other factors such as bankruptcies, tax arrears, and reporting problems in national accounts can contribute positively to the VAT Gap. Therefore, the VAT Gap should be more cautiously treated as an upper bound estimate of VAT non-compliance, as well as a general index of the VAT system efficiency and tax administrations capacity to collect VAT.

The structure of this report resembles that of the previous publications. Chapter I of the report presents the main economic and policy factors that affected Member States during the course of 2015. It also includes a decomposition of the change in VAT revenues into base, effective rate, and tax compliance components. The overall results are presented and briefly described in Chapter II. Chapter III provides detailed results and outlines trends for individual countries coupled with analytical insights. In Chapter IV, we examine the Policy Gap and the contribution that VAT reduced rates and exemptions have made to this Gap. Annex A contains methodological considerations on the VAT Gap and the Policy Gap. Annex B provides statistical data and a set of comparative tables.

3 The first study of the VAT Gap in the EU was conducted by Reckon (2009); however, due to differences in methodology, it cannot be directly compared to these latter studies.
4 Cyprus VAT Gap estimates were omitted in the previous publications due to the absence of national accounts data.
5 VAT evasion – generally comprises illegal arrangements where tax liability is hidden or ignored, i.e. the taxpayer pays less tax than he/she is supposed to pay under the law by hiding income or information from the tax authorities; VAT fraud - is a form of deliberate evasion of tax which is generally punishable under criminal law. The term includes situations in which deliberately false statements are submitted or fake documents are produced; VAT avoidance – acting within the law, sometimes at the edge of legality, to minimise or eliminate tax that would otherwise be legally owed. It often involves exploiting the strict letter of the law, loopholes and mismatches to obtain a tax advantage that was not originally intended by the VAT legislation.
I. Background: Economic and Policy Context in 2015

a. Economic Conditions in the EU during 2015

2015 marked the third year of recovery since the economic crisis of 2011. Combined real GDP growth in the EU was 2.2 percent in 2015, up from 1.7 percent in 2014 and 0.2 percent in 2013. At the same time, nominal final consumption increased by approximately 4 percent and nominal GFCF by roughly 6 percent (see Table 1.1).

The highest growth rate of 26 percent in Ireland stands out as an accounting artefact, which occurred when several multinational companies moved their headquarters to Ireland and appeared on the investment balance sheet. The nominal final consumption expenditure in Ireland increased at a much moderate rate of 4 percent. For the remaining Member States, excluding Greece, real GDP growth rates were positive and ranged from 0 percent (Finland) to 7.3 percent (Malta).

The only country to experience a downturn in 2015 was Greece, with negative growth in final consumption as well as investment and intermediate consumption.

Table 1.1 also illustrates a well-known general fact about the nature of investment: changes in investment are much more variable than changes in consumption, both across countries and across time. In this example, it would hold true even if we compare variations without taking extreme GFCF growth rates into account (i.e. as in Ireland and Malta). If we were to examine the variation of GFCF over time for a particular sector: investment by government, households, or financial enterprises, among others, the picture would look even more complicated. It is mainly because of this feature that it is necessary to revise VAT Gap estimates whenever new information on actual investment figures becomes available.
Table 1.1. Real and Nominal Growth in the EU-28 in 2015

<table>
<thead>
<tr>
<th>Member State</th>
<th>Real GDP Growth (%)</th>
<th>Nominal Growth (%)</th>
<th>Intermediate Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GDP</td>
<td>Final Consumption</td>
<td>GFCF</td>
</tr>
<tr>
<td>Belgium</td>
<td>1.5</td>
<td>2.4</td>
<td>1.2</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>3.6</td>
<td>5.9</td>
<td>4.8</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>5.3</td>
<td>6.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Denmark</td>
<td>1.6</td>
<td>2.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Germany</td>
<td>1.7</td>
<td>3.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Estonia</td>
<td>1.4</td>
<td>2.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Ireland</td>
<td>26.3</td>
<td>32.4</td>
<td>4.5</td>
</tr>
<tr>
<td>Greece</td>
<td>-0.2</td>
<td>-1.3</td>
<td>-1.9</td>
</tr>
<tr>
<td>Spain</td>
<td>3.2</td>
<td>3.7</td>
<td>2.8</td>
</tr>
<tr>
<td>France</td>
<td>1.1</td>
<td>2.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Croatia</td>
<td>2.2</td>
<td>2.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Italy</td>
<td>0.8</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Cyprus</td>
<td>1.7</td>
<td>0.4</td>
<td>-0.1</td>
</tr>
<tr>
<td>Latvia</td>
<td>2.7</td>
<td>3.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1.8</td>
<td>2.0</td>
<td>3.8</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>4.0</td>
<td>4.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Hungary</td>
<td>3.1</td>
<td>4.9</td>
<td>3.7</td>
</tr>
<tr>
<td>Malta</td>
<td>7.3</td>
<td>9.8</td>
<td>6.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2.3</td>
<td>3.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Austria</td>
<td>1.0</td>
<td>2.9</td>
<td>2.0</td>
</tr>
<tr>
<td>Poland</td>
<td>3.8</td>
<td>4.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Portugal</td>
<td>1.6</td>
<td>3.7</td>
<td>2.8</td>
</tr>
<tr>
<td>Romania</td>
<td>3.9</td>
<td>6.4</td>
<td>6.3</td>
</tr>
<tr>
<td>Slovenia</td>
<td>2.3</td>
<td>3.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Slovakia</td>
<td>3.8</td>
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<td>3.1</td>
</tr>
<tr>
<td>Finland</td>
<td>0.0</td>
<td>2.0</td>
<td>1.6</td>
</tr>
<tr>
<td>Sweden</td>
<td>4.1</td>
<td>6.2</td>
<td>4.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2.2</td>
<td>2.8</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>EU-28</strong></td>
<td><strong>2.2</strong></td>
<td><strong>5.1</strong></td>
<td><strong>4.1</strong></td>
</tr>
</tbody>
</table>

*Source: Eurostat.*

b. **VAT Regime Changes**

One of the most important changes in 2015 was the EU-wide change in regulation regarding “place of supply” of electronic services. Before 2015, VAT charged on electronic services was invoiced to the country where the provider of services is registered, like for any other good. Since 2015, however, the VAT is to be paid to the country of customer residence. A voluntary MOSS system

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was set up in each EU country to facilitate VAT accounting. During the transitional period, the countries could retain 30 percent of the VAT revenues generated under the old regime. This change had a profound effect on the countries with a large export of electronic services, such as Luxembourg and Malta. The methodological issues regarding the introduction of the MOSS system concerning VAT Gap estimations are discussed in Section a of Annex A.

Luxembourg was one of the three Member States that implemented changes to the VAT rates structure, partly to counteract the loss of revenue due to MOSS. Except for the super reduced rate, all other rates in Luxembourg were raised by two percentage points.

In Greece, the government raised the rates in July 2015 as part of the bailout agreement with the EU. In particular, rates were raised for several of the food products and for hotels and accommodation services. Additionally, Greece’s mainland rate was established on several of the islands, where a 30 percent lower rate had been in use before.

The Czech Republic has introduced a lower 10 percent reduced rate for special items, such as pharmaceuticals, vaccines, and baby food (see Table 1.2).

Another noticeable change in VAT rules in 2015 was the expansion of the reverse charge mechanism across several countries (the process began in 2013-2014). In particular, the application of the reverse charge was extended in the Czech Republic, Italy, Hungary, Poland, and Slovenia. Importantly, the introduction of the reverse charge can have a negative temporary effect on VAT revenues due to delays in tax collection.

Across the EU, the standard VAT rate varied from 17 percent in Luxembourg to 27 percent in Hungary. The median standard rate remained at 21 percent. However, the median effective VAT rate was equal to 12.5 percent.
### Table 1.2. VAT Rate Structure as of 31 December 2014, and Changes during 2015

<table>
<thead>
<tr>
<th>Member State</th>
<th>Standard Rate (SR)</th>
<th>Reduced Rate(s) (RR)</th>
<th>Super Reduced Rate</th>
<th>Parking Rate</th>
<th>Changes during 2015</th>
<th>Weighted Average Rate²</th>
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<tbody>
<tr>
<td>Belgium</td>
<td>21</td>
<td>6 / 12</td>
<td>-</td>
<td>12</td>
<td>-</td>
<td>10.0</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>20</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>14.5</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>21</td>
<td>10/15</td>
<td>-</td>
<td>new RR 10</td>
<td>12.7</td>
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<td>25</td>
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<td>-</td>
<td>-</td>
<td>14.7</td>
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<tr>
<td>Germany</td>
<td>19</td>
<td>7</td>
<td>-</td>
<td>-</td>
<td>10.6</td>
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</tr>
<tr>
<td>Estonia</td>
<td>20</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>12.8</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>23</td>
<td>9 / 13.5</td>
<td>4.8</td>
<td>13.5</td>
<td>-</td>
<td>11.2</td>
</tr>
<tr>
<td>Greece</td>
<td>23</td>
<td>6 / 13</td>
<td>-</td>
<td>RR 6.5 to 6</td>
<td>10.8</td>
<td></td>
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<tr>
<td>Spain</td>
<td>21</td>
<td>10</td>
<td>4</td>
<td>-</td>
<td>8.5</td>
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<tr>
<td>France</td>
<td>19.6</td>
<td>5.5 / 10</td>
<td>2.1</td>
<td>-</td>
<td>9.6</td>
<td></td>
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<td>-</td>
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<td>-</td>
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<td>Lithuania</td>
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<td>5 / 9</td>
<td>-</td>
<td>-</td>
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<td>Luxembourg</td>
<td>17</td>
<td>8</td>
<td>3</td>
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<td>SR 15 to 17, RR 6 to 8, PR 12 to 14</td>
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<tr>
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<td>-</td>
<td>15.8</td>
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<td>Malta</td>
<td>18</td>
<td>5 / 7</td>
<td>-</td>
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<td>-</td>
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<td>6 / 13</td>
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<td>Romania</td>
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<td></td>
</tr>
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### c. Sources of Change in VAT Revenue Components

The value of actual VAT revenue can be expressed as the product of three components:

Actual Revenue = Net Base * Effective Rate * Compliance Gap, where Effective Rate is the ratio of theoretical VTTL to the Net Base. The Net Base (which is the sum of final consumption and investment by households, NPISH, and government), in turn, is calculated as the difference between Gross Base, which includes VAT, and VAT revenues actually collected.

² Ratio of VTTL and tax base. See methodological considerations in Section d in Annex A.
Table 1.3 presents the decomposition of the total changes in nominal VAT revenues into these three components: change in net taxable base, change in the effective rate applied to the base, and change in the compliance gap (Table 1.3 does not include Cyprus, for which the figures for 2014 are not available).

The highest contributing factor to the increase in revenues was growth in nominal net base: across the EU, this was about 2.9 percent. In two Member States, Greece and Croatia, the base shrank by 2.4 and 1.2 percent, respectively.

Malta and Luxembourg experienced the biggest negative change in effective rate, an effect generated by the loss of VTTL due to the MOSS regime introduction. The biggest positive increase in the effective rate—by 8.5 percent—was in Greece, which had made changes in its VAT rate structure. The 6.5 percent increase in the effective rate in Croatia, despite any changes to the VAT legislation, is explained in greater detail in the footnote.8

Excluding Malta and Luxembourg, the EU average increase in the effective rate was just 0.6 percent.

Finally, increase in VAT compliance was the second major contributor to the growth in revenues, in total 1.5 percent in the EU-27.

---

8 The increase in the effective rate in Croatia occurred as a result of the combination of a stagnant gross base, a stagnant VTTL, and a simultaneous increase in nominal revenues. Subsequently, the net base, calculated as the difference between the gross base and the VAT revenues, has contracted, and the effective rate has increased.
Table 1.3. Change in VAT Revenue Components (2015 over 2014)

<table>
<thead>
<tr>
<th>Member State</th>
<th>Change in Effective Rate (%)</th>
<th>Change in VAT Compliance (%)</th>
<th>Change in Base (%)</th>
<th>Change in Revenue (%)</th>
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</tr>
<tr>
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</tr>
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<tr>
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<td>5.2</td>
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<tr>
<td>Sweden</td>
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<tr>
<td>United Kingdom</td>
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<td>EU-27 (total)</td>
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</tbody>
</table>

Source: own calculations.
II. The VAT Gap in 2015

The VAT Gap measured in this study was estimated using essentially the same methodology as in the previously cited VAT Gap studies. The VAT Gap is defined as the difference between the VAT total tax liability (VTTL, sometimes also known as VAT total theoretical liability) and the amount of VAT actually collected. We compute VTTL in a “top-down” approach by deriving the expected VAT liability from the observed national accounts data, such as supply and use tables (SUT). In particular, VAT liability is estimated for final household, government, and NPISH expenditure; non-deductible VAT from intermediate consumption of exempt industries; and VAT from GFCF of exempt sectors. We also account for country-specific tax regulations, such as exemptions for small business under the VAT thresholds (if applicable); non-deductible business expenditures on food, drinks, and accommodation; and restrictions to deduct VAT on leased cars, among others. The precise formula is given in Section d in Annex A.

The availability and quality of SUT data varies greatly country by country and year by year. In the course of our computations, some expenditure and investment figures, which are not available for the latest years, are estimated using industry- and sector-specific growth rates and taxable shares. This requires the frequent revision of previous estimates whenever actual national accounts data is published or new information on the taxable investment becomes available.

In nominal terms, in 2015, the VAT Gap in the EU-28 Member States amounted to EUR 151.5 billion. The VTTL accounted for EUR 1,187.8 billion, whereas VAT revenue was EUR 1,035.3 billion. In relative terms, the VAT Gap share dropped to 12.8 percent down from 14.1 percent in 2014, and is at its lowest value since 2011. In absolute values, the nominal VAT Gap has dropped by EUR 8.7 billion and is at its lowest value since then. Of the EU-27 (excluding Cyprus), the VAT Gap share decreased in 20 countries and increased in only 7—namely, Belgium, Denmark, Ireland, Greece, Luxembourg, Finland, and the UK (see Figure 2.2).

---

The SUT are estimated using the RAS method, an iterative scaling procedure whereby a matrix is adjusted until its column sums and row sums equal to pre-specified totals. The GFCF VAT liability is estimated based on national accounts investment data in the specific sector combined with the shares of investment taxed at different rates, which, in turn, are derived from ORS.
The smallest Gaps were observed in Sweden (-1.42 percent), Spain (3.52 percent), and Croatia (3.92 percent). The largest Gaps were registered in Romania (37.18 percent), Slovakia (29.39 percent), and Greece (28.27 percent). Overall, half of the EU-27 Member States recorded a Gap below 10.8 percent (see Figure 2.1).

The biggest decline in the VAT Gap share occurred in Malta, as the result of a 17 percent decline in VTTL due to the effect that the introduction of the MOSS regime had on the e-gambling industry. The second biggest decline in VAT Gap (5.7 percentage points) occurred in Romania.

Figure 2.1. VAT Gap as a percent of the VTTL in EU-27 Member States, 2015 and 2014

Source: own calculations.

Figure 2.2. Percentage Point Change in VAT Gap (2015 over 2014)

Source: own calculations.
Figure 2.3. VAT Gap in EU Member States, 2011-2015

Source: own calculations.
Table 2.1. VAT Gap Estimates, 2014-2015 (EUR million)

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<th>VAT Gap (%)</th>
<th>Revenues</th>
<th>VTTL</th>
<th>VAT Gap</th>
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III. Individual Country Results

This Chapter reviews the individual results for each EU-27 Member State, highlighting statistical trends and the most important changes in the particular VAT systems. The results are presented in the following order:

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<th>Country</th>
<th>Page</th>
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Table 3.1. Belgium: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

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<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>29604</td>
<td>31229</td>
<td>31057</td>
<td>30496</td>
<td>30869</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>16666</td>
<td>17219</td>
<td>17576</td>
<td>17480</td>
<td>17870</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>1452</td>
<td>1482</td>
<td>1419</td>
<td>1441</td>
<td>1469</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>5983</td>
<td>6117</td>
<td>6278</td>
<td>5924</td>
<td>6069</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>4007</td>
<td>4895</td>
<td>4725</td>
<td>4992</td>
<td>5088</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>1496</td>
<td>1516</td>
<td>1059</td>
<td>660</td>
<td>373</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>25979</td>
<td>26844</td>
<td>27250</td>
<td>27518</td>
<td>27547</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>3625</td>
<td>4385</td>
<td>3807</td>
<td>2978</td>
<td>3323</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>12%</td>
<td>14%</td>
<td>12%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-1 pp</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Highlights
- In the second half of 2015, the reduced rate on electricity for household consumption (implemented in 2014) was eliminated. The VTTL rebounded up 1 percent from a decline in 2014. However, VAT revenues remained stagnant, which led to a slight increase in the VAT Gap by 1 percentage point.
Table 3.2. Bulgaria: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (BGN million)

<table>
<thead>
<tr>
<th>Bulgaria</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>8812</td>
<td>9340</td>
<td>9114</td>
<td>9751</td>
<td>9997</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>6577</td>
<td>7031</td>
<td>6648</td>
<td>6961</td>
<td>7149</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>314</td>
<td>384</td>
<td>413</td>
<td>421</td>
<td>393</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>903</td>
<td>876</td>
<td>930</td>
<td>1118</td>
<td>1070</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>905</td>
<td>935</td>
<td>1020</td>
<td>1164</td>
<td>1295</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>113</td>
<td>114</td>
<td>103</td>
<td>87</td>
<td>90</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>6575</td>
<td>7371</td>
<td>7624</td>
<td>7451</td>
<td>7940</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>2237</td>
<td>1970</td>
<td>1490</td>
<td>2300</td>
<td>2057</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>25%</td>
<td>21%</td>
<td>16%</td>
<td>24%</td>
<td>21%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-4 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- In 2015, Bulgaria’s VAT revenue rebounded by 6 percent, after a 3 percent decline in 2014. The VTTL increased at a slower pace, which resulted in a 3 percentage point drop in the VAT Gap. However, it is still 5 percentage points above the minimum level reached in 2014.
- No systemic changes were introduced to the VAT system parameters in 2015.
Table 3.3. Czech Republic: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (CZK million)

<table>
<thead>
<tr>
<th>Czech Republic</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>333607</td>
<td>358555</td>
<td>374939</td>
<td>383182</td>
<td>404443</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>208391</td>
<td>227951</td>
<td>241691</td>
<td>245538</td>
<td>253480</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>16408</td>
<td>17834</td>
<td>18903</td>
<td>19387</td>
<td>21485</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>69164</td>
<td>67714</td>
<td>70455</td>
<td>70219</td>
<td>72978</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>38706</td>
<td>44831</td>
<td>43902</td>
<td>48678</td>
<td>56826</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>939</td>
<td>224</td>
<td>-12</td>
<td>-640</td>
<td>-325</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>276533</td>
<td>286116</td>
<td>303823</td>
<td>319485</td>
<td>337774</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>57074</td>
<td>72439</td>
<td>71116</td>
<td>63697</td>
<td>66669</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>17%</td>
<td>20%</td>
<td>19%</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-1 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- In 2015, the VAT Gap continued its downward trend for the fourth consecutive year.

- In 2015, the reverse charge mechanism was amended to extend to domestic sales of electronics and similar goods, a measure to deter the MTIC type of VAT fraud.

- Since 2014, fraudulent companies are publicly listed on tax authority websites. Moreover, in 2014, electronic VAT reporting became compulsory.
Table 3.4. Denmark: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (DKK million)

<table>
<thead>
<tr>
<th>Denmark</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>197446</td>
<td>202841</td>
<td>204895</td>
<td>207753</td>
<td>213038</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>113365</td>
<td>117004</td>
<td>119265</td>
<td>120912</td>
<td>124077</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>5182</td>
<td>5230</td>
<td>5222</td>
<td>5327</td>
<td>5419</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>49611</td>
<td>51888</td>
<td>51269</td>
<td>51860</td>
<td>53032</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>24531</td>
<td>23656</td>
<td>23709</td>
<td>24421</td>
<td>25128</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>4757</td>
<td>5064</td>
<td>5430</td>
<td>5234</td>
<td>5381</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>176448</td>
<td>181618</td>
<td>181378</td>
<td>185994</td>
<td>189974</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>20998</td>
<td>21223</td>
<td>23517</td>
<td>21759</td>
<td>23064</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>11%</td>
<td>10%</td>
<td>11%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>0 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

- The VAT Gap for Denmark continues to fluctuate between 10 and 11 percent of the VTTL, increasing by merely 0.3 percentage points in 2015.
- Denmark did not implement any significant changes to VAT rates in 2015; however, in 2014, it extended its VAT reverse charge to domestic supplies of high value goods.
Table 3.5. Germany: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th>Germany</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>210499</td>
<td>218025</td>
<td>221654</td>
<td>227979</td>
<td>233982</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>134224</td>
<td>137795</td>
<td>139195</td>
<td>142349</td>
<td>146246</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>5634</td>
<td>5694</td>
<td>5891</td>
<td>5801</td>
<td>6053</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>37000</td>
<td>37914</td>
<td>39101</td>
<td>40936</td>
<td>41581</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>32277</td>
<td>35350</td>
<td>36084</td>
<td>37575</td>
<td>38792</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>1363</td>
<td>1274</td>
<td>1384</td>
<td>1317</td>
<td>1310</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>189910</td>
<td>194034</td>
<td>197005</td>
<td>203081</td>
<td>211616</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>20589</td>
<td>23991</td>
<td>24649</td>
<td>24898</td>
<td>22366</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>10%</td>
<td>11%</td>
<td>11%</td>
<td>11%</td>
<td>10%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>0 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- The nominal growth of VAT revenues increased from 3.1 percent to 4.2 percent in 2015, surpassing the 3.7 percent growth of gross national expenditures and the 2.6 percent growth of VTTL.
- The VAT Gap for Germany decreased 1 percentage point during 2015, or about EUR 2.5 billion. This amount comprised 29 percent of the total EU decrease in the VAT Gap.
- In 2014, Germany toughened penalties for late returns and unpaid VAT due and introduced a reverse charge on mobile phones. No substantial changes were made to the rate structure in 2015.
<table>
<thead>
<tr>
<th>Table 3.6. Estonia: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td>VTTL</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
</tr>
<tr>
<td>o/w net adjustments</td>
</tr>
<tr>
<td>VAT revenue</td>
</tr>
<tr>
<td>VAT GAP</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
</tr>
</tbody>
</table>

**Highlights**

- In 2015, Estonia experienced yet another remarkable decrease in VAT Gap for the second year in a row. As VTTL increased by 5 percent year to year, VAT revenues increased by 9 percent in nominal terms. As a result, the VAT Gap dropped below EUR 100 million, or less than 5 percent of the VTTL.
- No substantial changes were introduced to the VAT structure in 2015.
- In 2014, several new measures, namely, a single database and a new system for digital invoice collection targeting tax evasion and fraud were introduced.
### Table 3.7. Ireland: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th>Ireland</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>11550</td>
<td>12099</td>
<td>11725</td>
<td>12628</td>
<td>13275</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>7127</td>
<td>7405</td>
<td>7281</td>
<td>7520</td>
<td>7973</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>224</td>
<td>232</td>
<td>181</td>
<td>176</td>
<td>185</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>2742</td>
<td>3229</td>
<td>3072</td>
<td>3490</td>
<td>3485</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>1304</td>
<td>1079</td>
<td>1031</td>
<td>1289</td>
<td>1468</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>153</td>
<td>154</td>
<td>160</td>
<td>153</td>
<td>165</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>9755</td>
<td>10219</td>
<td>10372</td>
<td>11521</td>
<td>11955</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>1795</td>
<td>1880</td>
<td>1353</td>
<td>1106</td>
<td>1319</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>16%</td>
<td>16%</td>
<td>12%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-6 pp</td>
<td>-6 pp</td>
<td>-6 pp</td>
<td>-6 pp</td>
<td>-6 pp</td>
</tr>
</tbody>
</table>

#### Highlights

- Ireland’s VAT Gap stabilised at the 10 percent level in 2015, after falling 7 percentage points from 2012 to 2014.
- In 2014, the Irish government introduced several measures through its Finance Bill to improve VAT compliance, such as the VAT Fraud Quick Reaction Response Mechanism.
- No substantial changes to VAT structure occurred in 2015.
Table 3.8. Greece: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th>Greece</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>22677</td>
<td>19192</td>
<td>18751</td>
<td>16966</td>
<td>17964</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>16125</td>
<td>14017</td>
<td>13498</td>
<td>12381</td>
<td>13199</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>876</td>
<td>819</td>
<td>582</td>
<td>431</td>
<td>567</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>2001</td>
<td>1886</td>
<td>1722</td>
<td>1598</td>
<td>1676</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>3307</td>
<td>2220</td>
<td>2682</td>
<td>2312</td>
<td>2256</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>368</td>
<td>250</td>
<td>267</td>
<td>244</td>
<td>266</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>15021</td>
<td>13713</td>
<td>12593</td>
<td>12676</td>
<td>12885</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>7656</td>
<td>5479</td>
<td>6158</td>
<td>4290</td>
<td>5079</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>34%</td>
<td>29%</td>
<td>33%</td>
<td>25%</td>
<td>28%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-6 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- In 2015, Greek real GDP continued its contraction, having fallen almost 10 percent since 2011.

- In July 2015, several VAT rates were raised as a measure to increase revenue. The super reduced rate for accommodation was raised to the reduced level, and the rates on several food products, fertilisers, and other goods were raised to the full level. Also, the mainland rate was set on five islands that previously had 30 percent lower rates.

- These two opposing factors resulted in EUR 1 billion of additional VTTL. However, actual revenues increased by only EUR 200 million. Hence, the VAT Gap increased by 3 percentage points, from 25 to 28 percent.
Table 3.9a. Spain: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th>Spain</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>64526</td>
<td>62761</td>
<td>68926</td>
<td>69400</td>
<td>71092</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>44891</td>
<td>46291</td>
<td>50150</td>
<td>50979</td>
<td>52568</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>2454</td>
<td>2273</td>
<td>2387</td>
<td>2376</td>
<td>2447</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>8468</td>
<td>8253</td>
<td>8639</td>
<td>8377</td>
<td>8331</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>8463</td>
<td>5632</td>
<td>7353</td>
<td>7241</td>
<td>7279</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>250</td>
<td>313</td>
<td>398</td>
<td>427</td>
<td>467</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>55904</td>
<td>56652</td>
<td>60951</td>
<td>63643</td>
<td>68589</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>8622</td>
<td>6109</td>
<td>7975</td>
<td>5757</td>
<td>2503</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>13%</td>
<td>10%</td>
<td>12%</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-9 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- Trends in 2015 were similar to those of 2014. The VAT Gap continued its decline due to strong revenue performance. Overall, the 8 percent growth in revenue can be decomposed into a 3 percent increase in the net base and a 5 percent increase in VAT compliance.

- In 2015, a VAT deferral regime was introduced for large importers.
### Table 3.9b. Spain: Alternative Estimates

<table>
<thead>
<tr>
<th>VAT Gap based on alternative data</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>7150</td>
<td>4417</td>
<td>4337</td>
<td>2645</td>
<td>1120</td>
<td></td>
</tr>
</tbody>
</table>

| VAT Gap based on alternative data, as a percent of VTTL | 11% | 1% | 6% | 4% | 2% |

Note: Adjusting revenues for the continuing reduction in the stock of claims and adjusting the VTTL for the difference between national accounting and tax conventions in the construction sector based on the data received from Spanish Tax Authorities led to a downward revision of the VAT Gap for the entire period 2011-2015.
Table 3.10. France: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>152667</td>
<td>162380</td>
<td>162708</td>
<td>170435</td>
<td>171735</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>94180</td>
<td>96942</td>
<td>96958</td>
<td>101684</td>
<td>103383</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>1292</td>
<td>1379</td>
<td>1426</td>
<td>1561</td>
<td>1577</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>24610</td>
<td>25760</td>
<td>26230</td>
<td>27120</td>
<td>27499</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>28103</td>
<td>33496</td>
<td>33133</td>
<td>34634</td>
<td>33988</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>4482</td>
<td>4802</td>
<td>4961</td>
<td>5436</td>
<td>5288</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>140552</td>
<td>142527</td>
<td>144490</td>
<td>148454</td>
<td>151622</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>12115</td>
<td>19853</td>
<td>18218</td>
<td>21981</td>
<td>20113</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>8%</td>
<td>12%</td>
<td>11%</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>+4 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- The VAT Gap in France has been fluctuating around 12 percent since 2012, after the 4 percentage point surge in 2011.
- A stagnant base and a moderate 2 percent increase in VAT revenue contributed to a 1 percentage point reduction in the VAT Gap in 2015.
- In January 2015, France extended electronic audit filing to non-resident VAT companies. Previously, this was only required from resident companies.
Table 3.11. Croatia: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2014-2015 (HRK million)

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>42835</td>
<td>45084</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>31244</td>
<td>32017</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>1723</td>
<td>1690</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>5421</td>
<td>6782</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>4288</td>
<td>4032</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>159</td>
<td>564</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>40983</td>
<td>43315</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>1853</td>
<td>1769</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>4%</td>
<td>4%</td>
</tr>
</tbody>
</table>

**Highlights**

- Croatian estimates are available as of 2014, following the publication of ESA10 standard national accounts data.
- The VAT Gap estimate for 2014 was revised downward since the previous VAT Gap report due to the correction of the weighted average rate calculation.
- The VAT Gap in Croatia decreased marginally by 0.4 percentage points in 2015.
Table 3.12a. Italy: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th>Italy</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>139468</td>
<td>134560</td>
<td>133986</td>
<td>135376</td>
<td>136127</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>99560</td>
<td>97624</td>
<td>95936</td>
<td>97871</td>
<td>99158</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>1982</td>
<td>2098</td>
<td>2095</td>
<td>2070</td>
<td>2003</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>18296</td>
<td>17716</td>
<td>18282</td>
<td>18478</td>
<td>18460</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>15035</td>
<td>12770</td>
<td>13564</td>
<td>13212</td>
<td>13370</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>4594</td>
<td>4353</td>
<td>4108</td>
<td>3745</td>
<td>3136</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>98650</td>
<td>96170</td>
<td>93921</td>
<td>97071</td>
<td>101034</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>40818</td>
<td>38390</td>
<td>40065</td>
<td>38305</td>
<td>35093</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>29%</td>
<td>29%</td>
<td>30%</td>
<td>28%</td>
<td>26%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-3 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- No systemic changes to the applicable rates were introduced to the Italian VAT system in 2015.
- As a measure to combat fraud, the VAT split payments system was implemented in 2015 through the “Italian Stability Law”. It requires public bodies to pay VAT directly into a special Treasury bank account.
- In November 2015, a domestic reverse charge was imposed on sales of laptops, game consoles, and computer tablets.
- The VAT Gap for Italy decreased by 2 percentage points in 2015.
Table 3.12b. Italy: Alternative Estimates

<table>
<thead>
<tr>
<th>Italy</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAT Gap based on alternative data</td>
<td>41750</td>
<td>36810</td>
<td>37460</td>
<td>36856</td>
<td>35879</td>
</tr>
<tr>
<td>VAT Gap based on alternative data, as a percent of VTTL</td>
<td>30%</td>
<td>27%</td>
<td>28%</td>
<td>27%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Note: the estimates above are based on adjusted revenues for the changes in outstanding stocks of net reimbursement claims (to better approximate accrued revenues) and Italy's own estimates of illegal activities, namely illegal drugs and prostitution activities.
Table 3.13. Cyprus: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2015 (EUR million)

<table>
<thead>
<tr>
<th>Cyprus</th>
<th>2015</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>1639</td>
<td>- Thanks to the finalisation of national accounts and figures in the ESA10 standard, estimates for Cyprus are included in the VAT Gap Report as of 2015.</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>1034</td>
<td>- Cyprus’ VAT Gap in 2015 is estimated to be 7 percent, which is 3 percentage points below the EU average.</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>416</td>
<td></td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>141</td>
<td></td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>VAT revenue</td>
<td>1517</td>
<td></td>
</tr>
<tr>
<td>VAT GAP</td>
<td>122</td>
<td></td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>7%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VTTL</strong></td>
<td>2032</td>
<td>2068</td>
<td>2213</td>
<td>2207</td>
<td>2287</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>1555</td>
<td>1633</td>
<td>1679</td>
<td>1715</td>
<td>1770</td>
</tr>
<tr>
<td>o/w liability on government final consumption</td>
<td>44</td>
<td>47</td>
<td>44</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>303</td>
<td>296</td>
<td>317</td>
<td>325</td>
<td>341</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>196</td>
<td>194</td>
<td>278</td>
<td>238</td>
<td>246</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>-65</td>
<td>-102</td>
<td>-105</td>
<td>-117</td>
<td>-116</td>
</tr>
<tr>
<td><strong>VAT revenue</strong></td>
<td>1374</td>
<td>1570</td>
<td>1690</td>
<td>1787</td>
<td>1876</td>
</tr>
<tr>
<td><strong>VAT GAP</strong></td>
<td>658</td>
<td>498</td>
<td>523</td>
<td>420</td>
<td>411</td>
</tr>
<tr>
<td><strong>VAT GAP as a percent of VTTL</strong></td>
<td>32%</td>
<td>24%</td>
<td>24%</td>
<td>19%</td>
<td>18%</td>
</tr>
<tr>
<td><strong>VAT GAP change since 2011</strong></td>
<td>-14 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

- The VAT Gap in Latvia continued its downward trend and decreased 1 percentage point further in 2015. Since 2011, the VAT Gap has decreased by 14 percentage points.
- The previously published estimates for Latvia were revised in the current report due to the publication of updated SUT and national accounts data.
- There were no substantial changes to VAT legislation in 2015.
- Earlier in 2014, a new register of “high risk” entities was created with an obligation for the tax authorities to provide information on such individuals to the commercial register.
Table 3.15. Lithuania: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th>Lithuania</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>3465</td>
<td>3638</td>
<td>3686</td>
<td>3816</td>
<td>3925</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>2788</td>
<td>2941</td>
<td>3010</td>
<td>3132</td>
<td>3232</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>74</td>
<td>68</td>
<td>66</td>
<td>69</td>
<td>73</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>341</td>
<td>377</td>
<td>341</td>
<td>375</td>
<td>372</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>372</td>
<td>378</td>
<td>398</td>
<td>415</td>
<td>454</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>-110</td>
<td>-126</td>
<td>-129</td>
<td>-174</td>
<td>-206</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>2444</td>
<td>2521</td>
<td>2611</td>
<td>2764</td>
<td>2888</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>1021</td>
<td>1117</td>
<td>1075</td>
<td>1052</td>
<td>1037</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>29%</td>
<td>31%</td>
<td>29%</td>
<td>28%</td>
<td>26%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-3 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- The estimates for Lithuania were revised significantly downward with respect to the 2016 Report due to the correction of the methodology in the application of SUT data.
- The VAT Gap in Lithuania continues a downward trend since 2012, having decreased by another 2 percentage points in 2015.
- The rate for accommodation was lowered to 9 percent in 2015.
Table 3.16. Luxembourg: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VTTL</strong></td>
<td>3019</td>
<td>3301</td>
<td>3544</td>
<td>3823</td>
<td>3634</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>1079</td>
<td>1131</td>
<td>1143</td>
<td>1181</td>
<td>1452</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>30</td>
<td>33</td>
<td>31</td>
<td>31</td>
<td>34</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>563</td>
<td>573</td>
<td>611</td>
<td>691</td>
<td>904</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>305</td>
<td>317</td>
<td>306</td>
<td>319</td>
<td>382</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>1041</td>
<td>1247</td>
<td>1453</td>
<td>1601</td>
<td>862</td>
</tr>
<tr>
<td><strong>VAT revenue</strong></td>
<td>2879</td>
<td>3164</td>
<td>3429</td>
<td>3732</td>
<td>3432</td>
</tr>
<tr>
<td><strong>VAT GAP</strong></td>
<td>140</td>
<td>137</td>
<td>115</td>
<td>90</td>
<td>202</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>+1 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

- In 2015, Luxembourg VAT revenue suffered a EUR 738 million loss due to the introduction of the MOSS regime. MOSS obliged VAT from electronic services to be paid to the country of customer residence.
- Standard, reduced, and parking rates were increased by 2 percentage points in 2015 to partly offset the anticipated loss of revenue.
- Total liability contracted by about 5 percent in 2015; however, actual revenues dropped 8 percent. The VAT Gap increased to 6 percent of the VTTL.
Table 3.17. Hungary: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (HUF million)

<table>
<thead>
<tr>
<th>Hungary</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>3026487</td>
<td>3351065</td>
<td>3407061</td>
<td>3629657</td>
<td>3834330</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>2160869</td>
<td>2381684</td>
<td>2439438</td>
<td>2524595</td>
<td>2612814</td>
</tr>
<tr>
<td>o/w liability on government final consumption</td>
<td>122279</td>
<td>116969</td>
<td>122358</td>
<td>133364</td>
<td>139925</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>415184</td>
<td>446366</td>
<td>429682</td>
<td>465428</td>
<td>490771</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>299953</td>
<td>338232</td>
<td>362648</td>
<td>455410</td>
<td>543345</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>28201</td>
<td>67815</td>
<td>52935</td>
<td>50859</td>
<td>47475</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>2379253</td>
<td>2627571</td>
<td>2693555</td>
<td>3011162</td>
<td>3307312</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>647234</td>
<td>723495</td>
<td>713506</td>
<td>618495</td>
<td>527019</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>21%</td>
<td>22%</td>
<td>21%</td>
<td>17%</td>
<td>14%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-7 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

- VAT compliance continued to improve in 2015, with the VAT Gap falling by a further 3 percentage points. Hungary remained the Member State with the highest standard rate (27 percent).

- In 2015, Hungary continued to introduce additional anti-fraud measures:
  - All intra-EU movements of goods by road transport must be declared in the electronic EKAER system;
  - A domestic reverse charge was introduced for steel products; and
  - The threshold for reporting domestic recapitulative statements is lowered for invoices from HUF 2 to 1 million.
Table 3.18. Malta: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th>Malta</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>882</td>
<td>938</td>
<td>992</td>
<td>1063</td>
<td>883</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>386</td>
<td>412</td>
<td>429</td>
<td>448</td>
<td>474</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>13</td>
<td>15</td>
<td>15</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>445</td>
<td>465</td>
<td>496</td>
<td>542</td>
<td>318</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>37</td>
<td>45</td>
<td>50</td>
<td>55</td>
<td>71</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>520</td>
<td>540</td>
<td>582</td>
<td>642</td>
<td>684</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>362</td>
<td>398</td>
<td>410</td>
<td>421</td>
<td>199</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>41%</td>
<td>42%</td>
<td>41%</td>
<td>40%</td>
<td>23%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-18 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

- The new “place of supply by the residence of customer” rule for electronic services had a negative effect on the intermediate consumption liability of Malta’s e-gambling industry by making a part of the input VAT recoverable (see Section a in Annex A).
- As a result of the decline in VTTL, there was a considerable drop in the VAT Gap in 2015 to 20 percent. However, it remains 13 percentage points higher than the EU average of 10 percent.
- VAT on e-books was lowered to 5 percent in 2015.

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VTTL</strong></td>
<td>46173</td>
<td>45971</td>
<td>47166</td>
<td>47050</td>
<td>48751</td>
</tr>
<tr>
<td>o/w liability on</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>household final</td>
<td>24285</td>
<td>24745</td>
<td>25882</td>
<td>25363</td>
<td>25952</td>
</tr>
<tr>
<td>consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o/w liability on</td>
<td>615</td>
<td>586</td>
<td>565</td>
<td>556</td>
<td>554</td>
</tr>
<tr>
<td>government and NPISH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>final consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o/w liability on</td>
<td>12054</td>
<td>12330</td>
<td>13000</td>
<td>13121</td>
<td>13348</td>
</tr>
<tr>
<td>intermediate</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>8750</td>
<td>7824</td>
<td>7205</td>
<td>7502</td>
<td>8389</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>469</td>
<td>487</td>
<td>514</td>
<td>508</td>
<td>507</td>
</tr>
<tr>
<td><strong>VAT revenue</strong></td>
<td>41610</td>
<td>41699</td>
<td>42424</td>
<td>42708</td>
<td>44879</td>
</tr>
<tr>
<td><strong>VAT GAP</strong></td>
<td>4563</td>
<td>4272</td>
<td>4742</td>
<td>4342</td>
<td>3872</td>
</tr>
<tr>
<td><strong>VAT GAP as a</strong></td>
<td>10%</td>
<td>9%</td>
<td>10%</td>
<td>9%</td>
<td>8%</td>
</tr>
<tr>
<td>percent of VTTL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VAT GAP change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-2 pp</td>
</tr>
<tr>
<td>since 2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

- The VAT Gap in the Netherlands fluctuated around 9-10 percent during 2011-2014, decreasing slightly in 2015, as the growth of revenues outpaced the growth of the VTTL.
- During the course of 2015, the 6 percent reduced rate for the renovation and repair of buildings was increased to the standard 21 percent rate. There were no other substantial changes implemented in the VAT structure.
Table 3.19b. Netherlands: Alternative Estimates

<table>
<thead>
<tr>
<th>Netherlands</th>
<th>VAT Gap based on alternative data</th>
<th>VAT Gap based on alternative data, as a percent of VTTL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2012</td>
</tr>
<tr>
<td>VAT Gap based on alternative data</td>
<td>4023</td>
<td>3724</td>
</tr>
<tr>
<td>VAT Gap based on alternative data, as a percent of VTTL</td>
<td>9%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Note: These estimates are obtained under alternative assumptions regarding the limited right to deduct benefits in kind and business entertainment, which are limited to EUR 227 per employee annually. To calculate a lower bound estimate of the VAT Gap, we assume that such deductions were applied to all employees currently working in Netherlands.
Table 3.20. Austria: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>26189</td>
<td>26625</td>
<td>27624</td>
<td>28084</td>
<td>28589</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>17767</td>
<td>18307</td>
<td>18995</td>
<td>19305</td>
<td>19470</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>778</td>
<td>794</td>
<td>758</td>
<td>951</td>
<td>986</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>3626</td>
<td>3750</td>
<td>3888</td>
<td>3956</td>
<td>4091</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>2477</td>
<td>2296</td>
<td>2545</td>
<td>2562</td>
<td>2621</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>1541</td>
<td>1477</td>
<td>1438</td>
<td>1310</td>
<td>1421</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>23394</td>
<td>24507</td>
<td>24895</td>
<td>25386</td>
<td>26232</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>2795</td>
<td>2118</td>
<td>2730</td>
<td>2699</td>
<td>2357</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>11%</td>
<td>8%</td>
<td>10%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-3 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- The VAT Gap in Austria averaged 9.2 percent over the five year period.
  - In 2015, the VAT Gap decreased by 1.4 percentage points.
- During 2014, Austria introduced reverse VAT charges on a range of goods, including: the supply of gas and electricity, the supply of precious metals, and sales of laptops, tablets, and games consoles.
- There were no major changes in the VAT rules during 2015.
Table 3.21. Poland: VAT Revenue VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (PLN million)

<table>
<thead>
<tr>
<th>Poland</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>154570</td>
<td>159072</td>
<td>158351</td>
<td>163321</td>
<td>166694</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>102061</td>
<td>108658</td>
<td>109749</td>
<td>112706</td>
<td>114645</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>6737</td>
<td>6864</td>
<td>6716</td>
<td>7005</td>
<td>7269</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>22252</td>
<td>22923</td>
<td>22385</td>
<td>23723</td>
<td>24950</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>19524</td>
<td>16423</td>
<td>15306</td>
<td>16938</td>
<td>17522</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>3996</td>
<td>4203</td>
<td>4195</td>
<td>2949</td>
<td>2308</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>122647</td>
<td>116265</td>
<td>116607</td>
<td>122671</td>
<td>125836</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>31923</td>
<td>42807</td>
<td>41744</td>
<td>40650</td>
<td>40858</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>21%</td>
<td>27%</td>
<td>26%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>+4 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

- Since 2012, the VAT Gap fell by approximately PLN 2 billion and 2 percentage points of the VTTL. However, it remained almost unchanged in 2015.

- Reverse charges on the sales of laptops, mobile phones, and tablets were introduced in July 2015.

- Several measures concerning tax compliance and efficiency were introduced in 2014. In particular, the government consolidated organisational functions and introduced a single database of tax identification numbers.
<table>
<thead>
<tr>
<th>Portugal</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>16461</td>
<td>16581</td>
<td>16288</td>
<td>16914</td>
<td>17357</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>11432</td>
<td>12371</td>
<td>12239</td>
<td>12818</td>
<td>13112</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>264</td>
<td>223</td>
<td>219</td>
<td>218</td>
<td>265</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>2773</td>
<td>2646</td>
<td>2606</td>
<td>2649</td>
<td>2673</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>1665</td>
<td>981</td>
<td>887</td>
<td>894</td>
<td>955</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>328</td>
<td>359</td>
<td>336</td>
<td>334</td>
<td>352</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>14265</td>
<td>13995</td>
<td>13710</td>
<td>14682</td>
<td>15368</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>2196</td>
<td>2586</td>
<td>2578</td>
<td>2232</td>
<td>1989</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>13%</td>
<td>16%</td>
<td>16%</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-2 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Highlights**

- Portugal’s VAT Gap decreased by over 3 percentage points in 2014 to its lowest level since 2011. Roughly half of the growth of VAT revenue can be attributed to the growing economy, with the other half due to increased VAT compliance.
- No substantial changes were introduced to the VAT regime in 2015.
Table 3.23. Romania: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (RON million)

<table>
<thead>
<tr>
<th>Romania</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>77123</td>
<td>79881</td>
<td>84547</td>
<td>89390</td>
<td>91569</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>46751</td>
<td>49115</td>
<td>49611</td>
<td>54031</td>
<td>55053</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>3943</td>
<td>4932</td>
<td>4502</td>
<td>4625</td>
<td>4658</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>7870</td>
<td>7823</td>
<td>7674</td>
<td>9548</td>
<td>9106</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>15762</td>
<td>15105</td>
<td>20944</td>
<td>18266</td>
<td>19915</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>2797</td>
<td>2906</td>
<td>1816</td>
<td>2920</td>
<td>2836</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>48375</td>
<td>49066</td>
<td>51745</td>
<td>51086</td>
<td>57520</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>28749</td>
<td>30815</td>
<td>32802</td>
<td>38304</td>
<td>34049</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>37%</td>
<td>39%</td>
<td>39%</td>
<td>43%</td>
<td>37%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>0 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- In 2015, VAT revenues increased by a record level of 12.6 percent per year, twice as high as nominal GDP growth. The estimated VAT Gap returned to its 2011 level. However, Romania’s VAT Gap of 37 percent remains one of the highest in the EU.
- In 2014, the reverse charge mechanism was introduced by the Romanian government for the supply of energy, for green certificates, and in the wood industry.
- In 2015, the VAT rate for touristic services was lowered to 9 percent. There were no other substantial changes.

<table>
<thead>
<tr>
<th>Slovenia</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>3179</td>
<td>3165</td>
<td>3209</td>
<td>3411</td>
<td>3406</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>2271</td>
<td>2285</td>
<td>2284</td>
<td>2412</td>
<td>2411</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>65</td>
<td>61</td>
<td>62</td>
<td>63</td>
<td>64</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>407</td>
<td>410</td>
<td>428</td>
<td>445</td>
<td>453</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>322</td>
<td>303</td>
<td>334</td>
<td>403</td>
<td>399</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>113</td>
<td>106</td>
<td>101</td>
<td>88</td>
<td>78</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>2995</td>
<td>2888</td>
<td>3046</td>
<td>3155</td>
<td>3219</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>184</td>
<td>277</td>
<td>164</td>
<td>256</td>
<td>188</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>6%</td>
<td>9%</td>
<td>5%</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>0 pp</td>
<td>0 pp</td>
<td>0 pp</td>
<td>0 pp</td>
<td>0 pp</td>
</tr>
</tbody>
</table>

Highlights

- During the 2011-2015 period, the VAT Gap in Slovenia fluctuated around the average level of 6.5 percent.
- A moderate increase in VAT revenues combined with stagnant expenditures resulted in the 2 percentage point decrease of the VAT Gap in 2015.
- In 2015, the reverse charge mechanism was introduced for domestic sales on carbon trading transactions as an anti-VAT fraud measure.
- In 2015, Slovenia remained among the top five Member States with the lowest VAT Gap in the EU.
Table 3.25. Slovakia: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th>Slovakia</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>6570</td>
<td>6960</td>
<td>7048</td>
<td>7227</td>
<td>7677</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>4873</td>
<td>5029</td>
<td>5101</td>
<td>5239</td>
<td>5357</td>
</tr>
<tr>
<td>o/w liability on government final consumption</td>
<td>249</td>
<td>238</td>
<td>308</td>
<td>326</td>
<td>345</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>822</td>
<td>928</td>
<td>903</td>
<td>932</td>
<td>997</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>607</td>
<td>745</td>
<td>725</td>
<td>751</td>
<td>994</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>19</td>
<td>19</td>
<td>11</td>
<td>-22</td>
<td>-17</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>4711</td>
<td>4328</td>
<td>4696</td>
<td>5021</td>
<td>5420</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>1859</td>
<td>2632</td>
<td>2352</td>
<td>2206</td>
<td>2256</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>28%</td>
<td>38%</td>
<td>33%</td>
<td>31%</td>
<td>29%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>+1 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- The VAT Gap in Slovakia continued its decrease in 2015 since its peak in 2012. In 2015, the VAT Gap fell by an additional 2 percentage points, with growth in revenues more than twice as high as growth in nominal GDP and VTTL.

- No substantial changes were made to the VAT regime in 2015.

- Several measures to improve VAT compliance were introduced earlier in 2014. Among others, Slovakia’s 2014 tax reforms included a wider introduction of cash registers. Furthermore, starting from the fourth quarter of 2013, the government launched the VAT receipt lottery.
Table 3.26. Finland: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (EUR million)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>18261</td>
<td>18919</td>
<td>19959</td>
<td>20159</td>
<td>20392</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>10154</td>
<td>10513</td>
<td>11041</td>
<td>11074</td>
<td>11323</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>367</td>
<td>372</td>
<td>456</td>
<td>465</td>
<td>468</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>3895</td>
<td>3987</td>
<td>4293</td>
<td>4433</td>
<td>4453</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>3295</td>
<td>3570</td>
<td>3622</td>
<td>3583</td>
<td>3537</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>550</td>
<td>478</td>
<td>547</td>
<td>604</td>
<td>610</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>17315</td>
<td>17987</td>
<td>18888</td>
<td>18948</td>
<td>18974</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>946</td>
<td>932</td>
<td>1071</td>
<td>1211</td>
<td>1418</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>$+2 \text{ pp}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- Finland’s VAT Gap continued to increase its share in the VTTL. Despite this unfavourable trend, Finland, with its 6.9 percent Gap, remains one of the countries with the best VAT compliance in the EU.
- No systemic changes were introduced to the parameters of the Finnish VAT system in 2015.
Table 3.27. Sweden: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (SEK million)

<table>
<thead>
<tr>
<th>Sweden</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
<td>340051</td>
<td>348981</td>
<td>345128</td>
<td>354439</td>
<td>373516</td>
</tr>
<tr>
<td>o/w liability on household final consumption</td>
<td>181072</td>
<td>185455</td>
<td>182692</td>
<td>188167</td>
<td>195314</td>
</tr>
<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>15297</td>
<td>18716</td>
<td>19263</td>
<td>16245</td>
<td>17115</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>81901</td>
<td>81284</td>
<td>81022</td>
<td>83875</td>
<td>90383</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>54675</td>
<td>55764</td>
<td>56775</td>
<td>60228</td>
<td>64441</td>
</tr>
<tr>
<td>o/w net adjustments</td>
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<td>7762</td>
<td>5377</td>
<td>5924</td>
<td>6264</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>330770</td>
<td>329311</td>
<td>337823</td>
<td>353439</td>
<td>378830</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>9281</td>
<td>19670</td>
<td>7305</td>
<td>1000</td>
<td>-5314</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>3%</td>
<td>6%</td>
<td>2%</td>
<td>0%</td>
<td>-1%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>-4 pp</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- In 2013 and 2014, Sweden recorded the lowest VAT Gap in the EU-27, approaching a nil VAT Gap in 2014.
- Due to the record 7 percent growth in revenues combined with the much more moderate 4 percent growth in the net base, Sweden’s VAT revenues exceeded the estimated VTTL in 2015. Of the SEK 25.5 billion increase in revenues, SEK 14 billion can be attributed to the decline in VAT refunds remitted by the state.
- Since 2015, import VAT is invoiced directly to the Tax Authority instead of the Customs Authority.
- Possible reasons for negative VAT Gap: use of cash vs accrual revenues, underestimation of GFCF liabilities, or incompleteness of national accounts.
Table 3.28. United Kingdom: VAT Revenue, VTTL, Composition of VTTL, and VAT Gap, 2011-2015 (GBP million)

<table>
<thead>
<tr>
<th>United Kingdom</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTTL</td>
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<td>128958</td>
<td>134792</td>
<td>142033</td>
<td>148184</td>
</tr>
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<td>o/w liability on household final consumption</td>
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<td>88706</td>
<td>94064</td>
<td>99409</td>
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<tr>
<td>o/w liability on government and NPISH final consumption</td>
<td>2597</td>
<td>2556</td>
<td>2537</td>
<td>2618</td>
<td>3131</td>
</tr>
<tr>
<td>o/w liability on intermediate consumption</td>
<td>29271</td>
<td>28730</td>
<td>29021</td>
<td>29773</td>
<td>30805</td>
</tr>
<tr>
<td>o/w liability on GFCF</td>
<td>8578</td>
<td>10267</td>
<td>11436</td>
<td>13317</td>
<td>13614</td>
</tr>
<tr>
<td>o/w net adjustments</td>
<td>1734</td>
<td>2233</td>
<td>3091</td>
<td>2262</td>
<td>1226</td>
</tr>
<tr>
<td>VAT revenue</td>
<td>113534</td>
<td>116283</td>
<td>120784</td>
<td>126946</td>
<td>132063</td>
</tr>
<tr>
<td>VAT GAP</td>
<td>11019</td>
<td>12675</td>
<td>14008</td>
<td>15087</td>
<td>16121</td>
</tr>
<tr>
<td>VAT GAP as a percent of VTTL</td>
<td>9%</td>
<td>10%</td>
<td>10%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>VAT GAP change since 2011</td>
<td>+2 pp</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights
- The VAT Gap in the UK remained stable in 2015, increasing over the year by just 0.3 percentage points. Over the course of the entire period (2011-2015), the share of the VAT Gap increased by 2 percentage points.
- The VAT Gap in the UK is equal to the median Gap of EU-28 Member States.
- No substantial changes were made to the VAT regime in the UK throughout 2015.
IV. Policy Gap Measures

In this Chapter, we present an update of the series of estimates of the Policy Gap and its components for the EU-28.

As discussed in 2016 Report, the Policy Gap captures the effects of applying multiple rates and exemptions on the theoretical revenue that could be levied in a given VAT system. In other words, the Policy Gap is an indicator of the additional VAT revenue that a Member State could theoretically (i.e. in the case of perfect tax compliance) generate if it applied a uniform VAT rate on all goods and services. Due to the idealistic assumption of perfect tax compliance, the practical interpretation of the Policy Gap draws criticism. Nonetheless, the assumption of perfect VAT collectability is indispensable, as interdependencies between tax compliance and rate structure are not straightforward. Furthermore, the example of the negative VAT Gap in Sweden shows that the assumption of perfect tax compliance is not as idealistic as it may seem.

The Policy Gap could be further decomposed into different components of revenue loss, as we show in Section f in Annex A. Such elements are, for instance, the Rate Gap and the Exemption Gap, which capture the loss in VAT liability due to the application of reduced rates, and the loss in liability due to the implementation of exemptions.

Moreover, following Barbone et al. (2013), the Policy Gap and its components could be further adjusted to address the issue of the extent to which the loss of theoretical revenue depends on the decision of policymakers. Measures that exclude liability from the final consumption of “imputed rents” (the notional value of home occupancy by homeowners), financial services, and the provision of public goods and services, as charging them with VAT is impractical or beyond the control of national authorities, are named the “Actionable Gaps”.

Results for 2015

The estimates of the Policy Gap, Rate Gap, Exemption Gap, Actionable Policy Gap, and Actionable Exemption Gap for the EU-28 Member States are presented in Table 4.1.

For the EU overall, the average Policy Gap level is 44 percent. In other words, VAT from final consumption and investment, even in the case of 100 percent compliance, generates just slightly more than half of what it could bring if taxed uniformly at the full rate. Of this 44 percent, 9 percentage points are due to the application of various reduced and super reduced rates (the Rate Gap). Countries with the most flat level of rates in the EU, according to the Rate Gap, are Denmark, Slovakia, Estonia, and Bulgaria. Installing a uniform Standard Rate would generate less than 3 percent of notional additional revenue in these countries. On the other side of spectrum are countries with the highest Rate Gap: Cyprus’ revenue could increase by more than 30 percent, and in Italy, Poland, and Spain by about 15 percent, if only the Standard Rate were applied.

The Exemption Gap, or the average share of Ideal Revenue lost due to various exemptions, is 35 percent in the EU on average. Member States with the highest Exemption Gap are Spain (44.93 percent), UK (43.44 percent) and Finland (43.25 percent), whereas the lowest value of the Gap was observed in Cyprus (15.20 percent), Malta (15.65 percent) and Romania (20.20 percent). The Exemption Gap in Spain is relatively high due to the application of other than VAT indirect taxes in the Canary Islands, Ceuta, and Melilla (see Section c in Annex A). The largest part of Exemption
gap is composed of exemptions on services that cannot be taxed in principle, such as imputed rents, the provision of public goods by the government, or financial services. The remaining level of “Actionable” Exemption Gap is about 8 percent, on average.

The Actionable Policy Gap, a combination of the Rate Gap and the Actionable Exemption Gap, is, on average, 16 percent. This figure shows the combined reduction of Ideal Revenue due to reduced rates and the exemptions that can possibly be removed.
### Table 4.1. Policy Gap, Rate Gap, Exemption Gap, and Actionable Gaps

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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</thead>
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<td>B2</td>
<td>B3</td>
<td>B4</td>
<td>B5</td>
<td>B6</td>
<td>B7</td>
<td>B8</td>
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<td>2.29</td>
<td>7.30</td>
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<td>13.40</td>
</tr>
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<td>5.26</td>
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<td>26.00</td>
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<td>3.01</td>
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<td>11.29</td>
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<td>16.36</td>
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</table>
Annex A. Methodological Considerations

The Methodological Annex is structured as follows. Subsection a describes the impact of the introduction of the MOSS system on the VAT Gap estimates. Subsection b discusses sources of revisions to figures published in the 2016 Report. Subsection d, e and f repeat the overview of the VAT Gap and Policy Gap estimation methodology, which remained the same as published in the 2016 Report (Poniatowski et al. 2016).

a. New rule for place of supply of electronic services and its application to the VAT Gap

The new rule for taxation of electronic and digital services came into force on 1st January 2015. Since the amendment of the rules, telecommunications, broadcasting and electronically supplied services (including e-gambling) were taxed in the country where the customer (either business or consumer) resided. In order to ease the compliance burden, each MS had installed an Internet portal – the MOSS, the only place where the company would need to register and pay its VAT liability.

Currently, Member States take the responsibility to remit VAT to each other Member State, according to the customer’s residence. In the transition year of 2015, Member States were allowed to keep 30 percent of the e-services VAT revenue for themselves.

From the VAT Gap perspective, the new rule had an impact on overall household consumption liability, and on the special cases of Luxembourg and Malta.

1) The VAT liability estimates derived from the final consumption from USE tables actually became more accurate. This can be illustrated by an example. Suppose, a household in Germany had purchased a EUR 200 worth of digital services of which half was supplied from Germany, half from Luxembourg.

Before 2015, the actual liability was split between EUR 16 paid to Germany and 15 euro paid to Luxembourg.

After 2015, all of the liability is paid to Germany (except for EUR 5 temporary retention fee left to Luxembourg).

In both cases, SUT would attribute the whole amount of EUR 200 to the final household consumption, implying EUR 31 of the VAT liability to Germany. Therefore, the household liability estimates derived from SUT become closer to the actual liability under the new rule.

The overall effect of this correction to the household liability is rather small: taxable digital services fall unto category “J69_J60: Motion picture, video and television programme production services, sound recording and music publishing; programming and broadcasting services”, which on average make up for just a half of the percent of total household consumption.

2) In the case of Luxembourg, the effect was quite substantial as Luxembourg with its lowest statutory VAT rate in the EU was the top registration destination for digital services companies. All in all, in 2014 Luxembourg derived additional EUR 1,200 million from the VAT on e-services, making up almost one-third of the total VTTL. In order to account for
this additional revenue, in this, as well as in previous VAT Gap reports, we inflated the VTTL estimates by the special adjustment, using the official “e-commerce” revenue provided by the Authorities. As a result of the implementation of the new rules as of 2015, the value of adjustment fell significantly. Luxembourg still kept a portion of the revenue according to the transitional retention rate in 2015, but it is expected to decline in 2016 and further years.

3) In the case of Malta, the new rule had an effect via the third channel, namely the change in the amount of non-deductible intermediate consumption of the gambling and games of chance industry. Unlike other digital services, gambling and betting is exempt in all EU Member States. Moreover, the intermediate consumption of these companies was to a large extent non-deductible. Malta stands out from other EU Member States due to the importance of e-gambling industry in the economy. Before the new rule, the IC of “R90-R92 industry”, which includes gambling and betting together with creative arts, museums, entertainment and other cultural services made up more than 47 percent of all intermediate consumption liability in Malta.

Despite a large reduction in the estimated VTTL the amount of actually collected, revenue in Malta did not show a decline in 2015. This could suggest, that the e-gambling industry had previously found ways to deduct VAT even before the new rule was implemented.

b. Source of revisions of VAT Gap estimates

Every year, the estimates of the VAT Gap are updated and revised backwards. There are three different sources of such revisions:

1) Updates in the underlying national accounts data published by Eurostat: updates in VAT revenues, new supply and use tables, revised industry specific growth rates, etc.

2) Updates in the estimated GFCF liability, based on the new information from the ORS submissions on taxable shares of GFCF by five sectors: households, government, NPISH and exempt financial and non-financial enterprises.

3) Revision of the parameters of the VTTL model: weighted average rates, pro-rata coefficients and net adjustments, either due to new information from ORS or due to correcting errors in the previous computation.

The breakdown of three different components of the revisions in 2014 figures are presented in Table A.1.
Table A.1. Source of revisions of VAT Gap estimates

<table>
<thead>
<tr>
<th>Country</th>
<th>2016 estimates for 2014</th>
<th>2017 estimates for 2014</th>
<th>Changes due to updates in national accounts data</th>
<th>Changes due to revised estimates in GFCF</th>
<th>Changes to revision of other parameters</th>
</tr>
</thead>
<tbody>
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c. Country specific issues

Tank tourism from Germany, France and Belgium to Luxembourg – the adjustment of the VTTL in Luxembourg due to fuel and services, which is exported from within the country to non-residents, but still generate VAT. These transactions, which are subject to VAT, but not accounted for in Eurostar increase the VTTL in Luxembourg. However, due to unavailability of data on the
share of tourism by their residence, amendments have not been applied to Belgian, French and German figures.

**Exemption Gap in Spain** – both the Exemption Gap and the Actionable Exemption Gap in Spain include the loss of ideal VAT due to non-application of VAT in the Canary Islands, Ceuta, and Melilla. The value of both gaps would be reduced by 5.6 percentage points if this loss was excluded the estimation.

d. **Decomposition of VAT Revenue**

As VAT Revenue (VR) is the difference between the VTTL and the VAT Gap \( VR = VTTL - VAT\ Gap \), and the VTTL is a product of the effective rate and the base \( VTTL = effective\ rate \times base \), VAT revenue could be decomposed using the following formula:

\[
VR = VTTL \times VAT\ compliance = effective\ rate \times base \times \left( 1 - \frac{VAT\ Gap}{VTTL} \right)
\]

Thus, the year-over-year relative change in revenue is denoted as:

\[
\frac{\Delta VR}{VR} = \frac{\Delta (effective\ rate)}{effective\ rate} \times \frac{\Delta base}{base} \times \frac{\Delta \left( 1 - \frac{VAT\ Gap}{VTTL} \right)}{\left( 1 - \frac{VAT\ Gap}{VTTL} \right)}
\]

where \( \frac{\Delta (effective\ rate)}{effective\ rate} \) denotes change in effective rate, \( \frac{\Delta base}{base} \) denotes change in base, and \( \frac{\Delta \left( 1 - \frac{VAT\ Gap}{VTTL} \right)}{\left( 1 - \frac{VAT\ Gap}{VTTL} \right)} \) denotes change in VAT compliance.

e. **Data Sources and Estimation Method**

The “top-down” method that is utilised for VAT Gap estimation relies on national accounts figures. These figures are used to estimate the VAT liability generated by different sub-aggregates of the total economy. The VTTL is estimated as the sum of the liability from six main components: household, government, and NPISH final consumption; intermediate consumption; GFCF; and other, largely country-specific, adjustments.

In the “top-down” approach, VTTL is estimated using the following formula:

\[
VTTL = \sum_{i=1}^{N} \left( rate_{i} \times Value_{i} \right) + \sum_{i=1}^{N} \left( rate_{i} \times propex_{i} \times IC\ Value_{i} \right) + \sum_{i=1}^{N} \left( rate_{i} \times propex_{i} \times GFCF\ Value_{i} \right) + net\ adjustments
\]

Where:

*Rate* is the weighted average tax rate i.e. the effective rate,
Value is the final consumption value,

IC Value is the value of intermediate consumption,

Propex is the percentage of output in a given sector that is exempt from VAT,

GFCF Value is the value of gross fixed capital formation, and

index $i$ denotes sectors of the economy.

To summarise, VTTL is a product of the VAT rates and the propexes multiplied by the theoretical values of consumption and investment (plus country specific net adjustments).

For the purpose of VAT Gap estimation, roughly 10,000 parameters are estimated for each year, including the weighted average rates for each 2-digit CPA (i.e. $rate_i$ in the VTTL formula presented above) group of products and services and the percentage of output in a given sector that is exempt from VAT for each type of consumption (i.e. $propex_i$ in the VTTL formula presented above). For instance, for Education services (CPA no. 85) in Croatia, like for any other country and group of products and services, we estimated weighted average rates in household, government and NPISH final consumption, as well as the percentage of output that is exempt from VAT. The main source of information is national accounts data and Own Resource Submissions (ORS), i.e. VAT statements provided by the Members States to the European Commission. In a number of specific cases where the ORS information was insufficient, additional data provided by the Member States was used. As these data are not official Eurostat publications, we decline responsibility for inaccuracies related to their quality.

A complete description of data and sources is shown in Table A.2.
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<tr>
<th>DESCRIPTION</th>
<th>PURPOSE</th>
<th>SOURCE</th>
<th>COMMENT</th>
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<td>1</td>
<td>Household expenditure by CPA/COICOP category.</td>
<td>Estimation of effective rates for household final consumption for each 2-digit CPA category.</td>
<td>ORS / HBS(^1)</td>
</tr>
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<td>The intermediate consumption of industries for which VAT on inputs cannot be deducted, pro-rata coefficients, alternatively share of exempt output.</td>
<td>Estimation of propexes.</td>
<td>ORS / assumptions common for all EU Member States</td>
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<tr>
<td>3</td>
<td>Investment (gross fixed capital formation) of exempt sectors.</td>
<td>Estimation of VAT liability from investment.</td>
<td>ORS / Eurostat</td>
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<td>4</td>
<td>Government expenditure by CPA/COICOP category.</td>
<td>Estimation of effective rates for government final consumption for each 2-digit CPA category of products and services.</td>
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<td>NPISH expenditure by CPA/COICOP category.</td>
<td>Estimation of effective rates for NPISH final consumption for each 2-digit CPA category of products and services.</td>
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<td>6</td>
<td>VTTL adjustment due to small business exemption, business expenditure on cars and fuel, and other country-specific adjustments.</td>
<td>Estimation of net adjustments.</td>
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<td>7</td>
<td>Final household consumption, government final consumption, NPISH final consumption, and intermediate consumption.</td>
<td>Estimation of VTTL.</td>
<td>Eurostat</td>
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<td>8</td>
<td>VAT revenue.</td>
<td>VAT revenue.</td>
<td>Eurostat</td>
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</table>

\(^1\) *Household Budget Survey, Eurostat.*

\(^2\) RAS method (use the definition from above)
f. Derivation of the Policy Gap

In this section of Annex, we define the concepts used in Chapter IV and discuss some of the methodological considerations.

We begin with the Notional Ideal Revenue that, by definition, should indicate an upper limit of VAT revenue (i.e. the revenue levied at a uniform rate in the environment of perfect tax compliance). As shown in Figure A1, ideal revenue is larger than VTTL and subsequently larger than VAT collection. However, due to the existence of exemptions, it does not capture the entire VTTL and tax collection. If no exemptions were applied, neither intermediate consumption nor the GFCF of business sector would be the base for computing VTTL.

The problem arises when deciding whether investment by the non-business sector should be a part of the VAT base. According to the OECD (2014), notional ideal revenue is defined as the standard rate of VAT times the aggregate net final consumption. Multiplying the standard rate and final consumption would yield, however, lower liability than in the case where a country applied no exemptions, no reduced rates, and was able to enforce all tax payments. In real life, VTTL is comprised partially from VAT liability from investment made by households, government, and NPISH. In the case of the non-inclusion of this investment to the base, VTTL would be partially extended beyond the ideal revenue despite “no exemptions” present in the system (see Figure A1 (c)).

Policy makers can see the upper limit of VAT revenue by considering all final use categories of households, non-profit, and government sectors. Thus, in this report, Notional Ideal Revenue is defined as the standard rate of VAT times the aggregate net final and net GFCF of the household, non-profit, and government sectors, as recorded in the national accounts (interdependence among the various concepts presented is shown in Figure A1).13

The Policy Gap is defined as one minus the ratio of the “legal” tax liability (i.e. the chunk of the Notional Ideal Revenue that, in the counterfactual case of perfect tax compliance, is not collected due to the presence of exemptions and reduced rates). The Policy Gap is denoted by the following formula:

\[
\text{Policy Gap} = \frac{(\text{Notional Ideal Revenue} - \text{VTTL})}{\text{Notional Ideal Revenue}}
\]

The Policy Gap could be further decomposed to account for the loss of revenue. Such components are the Rate Gap and the Exemption Gap, which capture the loss in VAT liability due to the application of reduced rates and the loss in liability due to the implementation of exemptions.

The Rate Gap is defined as the difference between the VTTL and what would be obtained in a counterfactual situation, in which the standard rate, instead of the reduced, parking, and zero rates, is applied to final consumption. Thus, the Rate Gap captures the loss in revenue that a particular country incurs by adopting multiple VAT rates instead of a single standard rate (Barbone et al., 2015).

13 National accounts for most countries report final consumption on a gross (i.e. VAT-inclusive) basis. Net consumption is estimated on the basis of the gross consumption recorded in the use tables, from which VAT revenues are subtracted.
The Exemption Gap is defined as the difference between the VTTL and what would be obtained in a counterfactual situation, in which the standard rate is applied to exempt products and services, and no restriction of the right to deduct applies. Thus, the Exemption Gap captures the amount of revenue that might be lost because of exempted goods and services. Note that the Exemption Gap is composed of the loss in the VAT on the value added of exempt sectors, minus the VAT on their inputs, minus the VAT on GFCF inputs for these sectors. Thus, in principle, the Exemption Gap might be positive or negative (if the particular sector had negative value added, or if it had large GFCF expenditures relative to final consumption) (Barbone et al., 2015).

In algebraic terms, we have the following:

Definitions:

\[ T^*_i,E = \frac{VTTL^*E_i}{c_i} \] – effective rate for group \( i \) of products in the case where the standard rate instead of the zero rate, parking rate, or reduced rate is applied (for final consumption and the GFCF of non-business activities).

\[ VTTL^*E_i \] – liability from final consumption GFCF of non-business activities of group \( i \) of products, in the case of the standard rate instead of the zero rate, parking rate, or reduced rate is applied. Actual liability from intermediate consumption and GFCF of business activities is assumed.

\[ T^*_i,R = \frac{VTTL^*R_i}{c_i} \] – effective rate for group \( i \) of products in the event where exempt products within the group are taxed at the standard rate.

\[ VTTL^*R_i \] – liability from final consumption of group \( i \) when exempt products within the group are taxed at the standard rate. Actual liability from final consumption GFCF of non-business activities is assumed.

\( \tau_s \) – statutory rate.

\( i \in (1;65) \) – sectors of the economy.

Policy Gap:

\[
1 - P = \left( \frac{\sum_{i=1}^{N} T_i^* c_i}{\tau_s \sum_{i=1}^{N} c_i} \right) \left( \frac{\sum_{i=1}^{N} T_i^* c_i}{\sum_{i=1}^{N} T_i^* c_i} \right) = \left( \frac{\sum_{i=1}^{N} T_i^* c_i}{\tau_s \sum_{i=1}^{N} c_i} \right)
\]

\[ \]14 The additive decomposition of the Policy Gap into the Exemption and Rate Gap presented in this report differs from that in Keen (2013). Keen (2013) defines the Rate Gap as the loss from applying reduced and zero rates to the final consumption liability, measured as a percentage of the Notional Ideal Revenue. The Exemption Gap measures unrecovered VAT accumulated in the production process as a percentage, on the contrary, of final consumption liability. Due to these definitions, the Policy Gap can be split multiplicatively into gaps attributable to reduced rates and exemptions. Since the numerator of the “[1 - Rate Gap]” and denominator of the “[1 - Exemption Gap]” are equal, multiplication of these two components yields – VAT revenue as a percentage Notional Ideal Revenue, which equals “[1 - Policy Gap]” (Barbone et al., 2015).
Exemption Gap:

\[ 1 - P_E = \left( \frac{\sum_{i=1}^{N} T_i C_i}{\tau_s \sum_{i=1}^{N} C_i} \right) \left( \frac{\sum_{i=1}^{N} T_i^{*E} C_i}{\sum_{i=1}^{N} T_i C_i} \right) = \left( \frac{\sum_{i=1}^{N} T_i^{*E} C_i}{\tau_s \sum_{i=1}^{N} C_i} \right) \]

Rate Gap:

\[ 1 - P_R = \left( \frac{\sum_{i=1}^{N} T_i C_i}{\tau_s \sum_{i=1}^{N} C_i} \right) \left( \frac{\sum_{i=1}^{N} T_i^{*R} C_i}{\sum_{i=1}^{N} T_i C_i} \right) = \left( \frac{\sum_{i=1}^{N} T_i^{*R} C_i}{\tau_s \sum_{i=1}^{N} C_i} \right) \]

By definition we have:

\[ \tau_s \sum_{i=1}^{N} C_i = \sum_{i=1}^{N} T_i^{*} C_i + \left( \tau_s \sum_{i=1}^{N} C_i - \sum_{i=1}^{N} T_i^{*} C_i \right) \]

\[ = \sum_{i=1}^{N} T_i^{*} C_i + \left( \tau_s \sum_{i=1}^{N} C_i - \sum_{i=1}^{N} T_i^{*R} C_i \right) + \left( \tau_s \sum_{i=1}^{N} C_i - \sum_{i=1}^{N} T_i^{*E} C_i \right) \]

Thus:

\[ P = 1 - \left( \frac{\sum_{i=1}^{N} T_i^{*} C_i}{\tau_s \sum_{i=1}^{N} C_i} \right) = \left( \frac{\tau_s \sum_{i=1}^{N} C_i - \sum_{i=1}^{N} T_i^{*} C_i}{\tau_s \sum_{i=1}^{N} C_i} \right) = \left( \frac{2\tau_s \sum_{i=1}^{N} C_i - \sum_{i=1}^{N} T_i^{*E} C_i - \sum_{i=1}^{N} T_i^{*R} C_i}{\tau_s \sum_{i=1}^{N} C_i} \right) \]

\[ = P_R + P_E \]

Using the above convention, one can decompose the Rate Gap and the Exemption Gap into the components indicating loss of the Notional Ideal Revenue due to the implementation of reduced rates and exemptions on specific the goods and services. Such additive decomposition is carried out for the computation of, as defined by Barbone et al. (2015), the Actionable Exempt Gap, which excludes services and notional values that are unlikely to be taxed even in an ideal world.
Figure A1. Components of Ideal Revenue, VTTL, and VAT Collection

Source: own.
## Annex B. Statistical Appendix

### Table B1. VTTL (EUR million)

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*Source: own calculations.*
### Table B2. Household VAT Liability (EUR million)

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**Source:** own calculations.
Table B3. Intermediate Consumption and Government VAT Liability (EUR million)

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Source: own calculations.
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Source: own calculations.
Table B5. VAT Revenues (EUR million)

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Source: Eurostat.
### Table B6. VAT Gap (EUR million)

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Source: own calculations.
Table B7. VAT Gap (percent of VTTL)

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| EU-27 (2014)      |       |       |       |       |       |
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Source: own calculations.
References


