

## Some Insights of Value-Added Tax Gap

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### Abstract

*This paper analyzes the Total Value-Added Tax Gap and its components for the Member States of the European Union: the Policy VAT Gap (which reflects VAT revenue losses due to the application of tax exemptions and reduced VAT rates) and the Compliance VAT Gap (that refers to losses in VAT receipts arising from tax evasion, insolvency and bankruptcy).*

**Key words:** tax, gap, fraud

**J.E.L. classification:** H25, H26

### 1. Introduction

VAT is one of the most important revenue sources for the EU Member States (it is also a resource for the EU budget). A constant European concern is to identify and combat tax fraud in the area of VAT. In this respect, it is important to quantify the VAT Gap, which also contains a tax fraud component.

The estimation of VAT Gap is found in studies such as those produced by the Center for Social and Economic Research (2014-2017) and Reckon LLP (2009) - for EU countries, HMRC (2014) and Thackray (2012) - for the United Kingdom.

CASE (2017) quantifies the VAT Gap (in absolute and relative terms) for the 2011-2015 time period, for the EU-28 member states.

Reckon LLP (2009) measures and analyzes the VAT Gap (in absolute terms and as a share of theoretical VAT liability) in the EU-25 member states other than Cyprus over the 2000-2006 period.

The first part of the article delimits the notions of theoretical, potential and effective VAT, and then the calculation methods for the different types of value-added tax gap (in absolute and relative terms) are presented. The practical part of our study analyzes the 2015 data for the EU-28 member states, from the point of view of the total VAT gap and its components: compliance gap and policy gap (rate gap and exemption gap).

### 2. Theoretical, potential and effective VAT

Theoretical or ideal VAT ( $VAT_t$ ) represents the tax that is obtained by applying a single (standard) VAT rate to the entire final consumption. National accounts express final consumption in market prices (including VAT); furthermore, the theoretical tax may be estimated by applying the legal standard rate ( $t$ ) to the net final consumption, estimated as the difference between gross final consumption (FC) and actual VAT receipts ( $VAT_e$ ), this particular methodology being similar to the one found in OECD (2014).

$$VAT_t = (FC - VAT_e) \times t$$

CASE (2015) estimates net final consumption by deducting effective VAT receipts from the gross final consumption, except for VAT receipts from investments made by exempt sectors that do not directly enter within the production of final goods.

The potential tax refers to the tax that is obtained by applying the legal (standard and reduced) rates on the actual tax base:

$$VAT_p = \sum_i^n VAT_{pi} = \sum_i^n B_i \times t_i$$

where:

$VAT_{pi}$  = the potential tax for the  $i$  rate;

$B_i$  = the tax base for  $i$  rate;

$t_i$  =  $i$  VAT rate;

$i = \overline{1, n}$ ;

$n$  = the number of applied rates.

The tax base of VAT may be expressed as follows (Cuceu et al, 2012, p.300):

$$B = CF_x + CI_{xn} + I_{xn}$$

where:

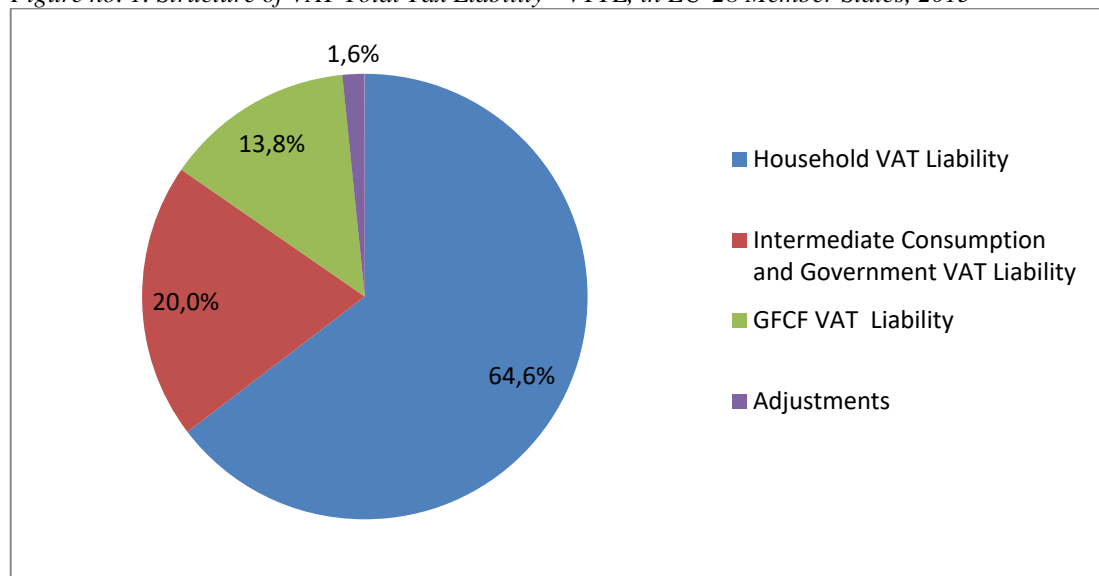
$CF_x$  = the final consumption of taxed goods and services;

$CI_{xn}$  = the intermediary taxed consumption for which the tax cannot be deducted;

$I_{xn}$  = the taxed investments for which the taxes cannot be deducted.

The VAT for household consumption represents only about 65% of the total potential tax. A fairly large share of the total potential tax is held by the tax for the intermediate consumption and that of the government (around 20%), then that of the Gross Fixed Capital Formation (GFCF) (around 14%).

Figure no. 1. Structure of VAT Total Tax Liability - VTTL, in EU-28 Member States, 2015



Source: based on Center for Social and Economic Research (CASE), 2017

The potential tax includes the tax related to the final taxable consumption, but also the tax related to some investment and intermediate consumption components (taxed effectively); on the other hand, the effective tax is the part of the potential tax that is actually collected.

The difference between the theoretical tax and the effectively collected tax is determined by the following factors (Cuceu & Văidean, 2014, p.474-475):

- the difference between the theoretical tax base (the final consumption) and the effective tax base (a part of the final consumption is not taxed, while a part of the intermediary consumption and a part of the investments are taxed);
- the difference between the standard rate (maximum legal rate) and the effective VAT rate (the average VAT rates applied within a certain country, weighted by the tax base for each rate);
- the existing gap between the consumption moment and the moment of collecting its related tax;
- the gap between the moment of collecting the tax and the moment of its repayment;
- the proportion of to be collected VAT suspended because of insolvencies and bankruptcies;
- VAT evasion.

### 3. The VAT Gap in absolute and relative terms

In absolute terms, the Total VAT Gap may be determined as a difference between theoretical VAT ( $VAT_t$ ) and effectively collected VAT ( $VAT_e$ ):

$$Total\ Gap = VAT_t - VAT_e$$

Keen (2013) deals with the decomposition of the C-efficiency Ratio (VAT efficiency based on consumption) in two parts: the compliance gap and the policy gap. Thus, the Total VAT Gap could be expressed by adding up the Policy VAT Gap (indicating VAT revenue losses caused by the use of exemptions and reduced VAT rates) and the Compliance VAT Gap (due to tax evasion, but also due to some other causes such as insolvency, bankruptcies, legal tax optimization):

$$Total\ Gap = Policy\ Gap + Compliance\ Gap$$

$$Policy\ Gap = VAT_t - VAT_p$$

$$Compliance\ Gap = VAT_p - VAT_e$$

where  $VAT_p$  = potential value added tax.

In relative terms, the Total VAT Gap and its components may be expressed as follows:

$$Total\ Gap\ (as\ a\ percent\ of\ VAT_t) = \frac{VAT_t - VAT_e}{VAT_t} = 1 - \frac{VAT_e}{VAT_t}$$

$$Policy\ Gap\ (as\ a\ percent\ of\ VAT_t) = \frac{VAT_t - VAT_p}{VAT_t} = 1 - \frac{VAT_p}{VAT_t}$$

$$Compliance\ Gap\ (as\ a\ percent\ of\ VAT_p) = \frac{VAT_p - VAT_e}{VAT_p} = 1 - \frac{VAT_e}{VAT_p}$$

The relationship between the Total VAT Gap and its components (expressed in relative terms) will be the following:

$$Total\ Gap = 1 - \frac{VAT_p}{VAT_t} \times \frac{VAT_e}{VAT_p} = 1 - (1 - Policy\ Gap)(1 - Compliance\ Gap)$$

The following determinations may be demonstrated:

$$Policy\ Gap = \frac{Total\ _\ Gap - Compliance\ _\ Gap}{1 - Compliance\ _\ Gap}$$

$$Compliance\ Gap = \frac{Total\ _\ Gap - Policy\ _\ Gap}{1 - Policy\ _\ Gap}$$

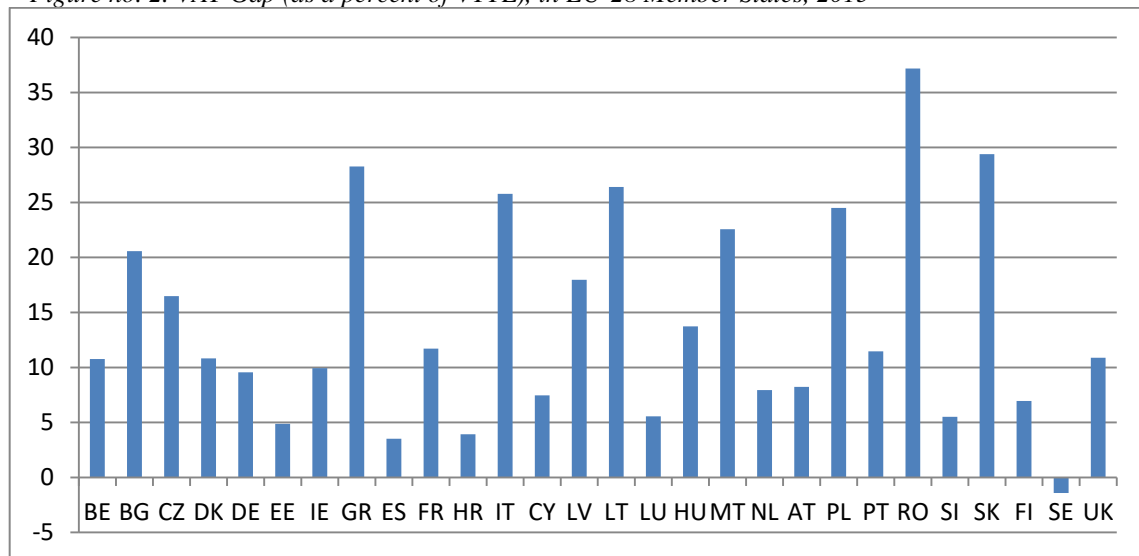
These relationships are similar to the ones found by CASE (2014, 2015).

The Policy Gap may be decomposed within a Rate Gap (due to the use of reduced tax rates) and an Exemption Gap (due to the use of exemptions).

In CASE (2017), the *VAT Gap* concept (in absolute terms) has been measured as the difference between the potential VAT (the VAT Total Tax Liability - *VTTL* – which is the theoretical tax

liability according to the law, estimated using the ESA10 national accounts) and effective VAT (actual revenue collected). So, this study considers the *VAT Gap* notion as the so called Compliance Gap, and not the Total Gap.

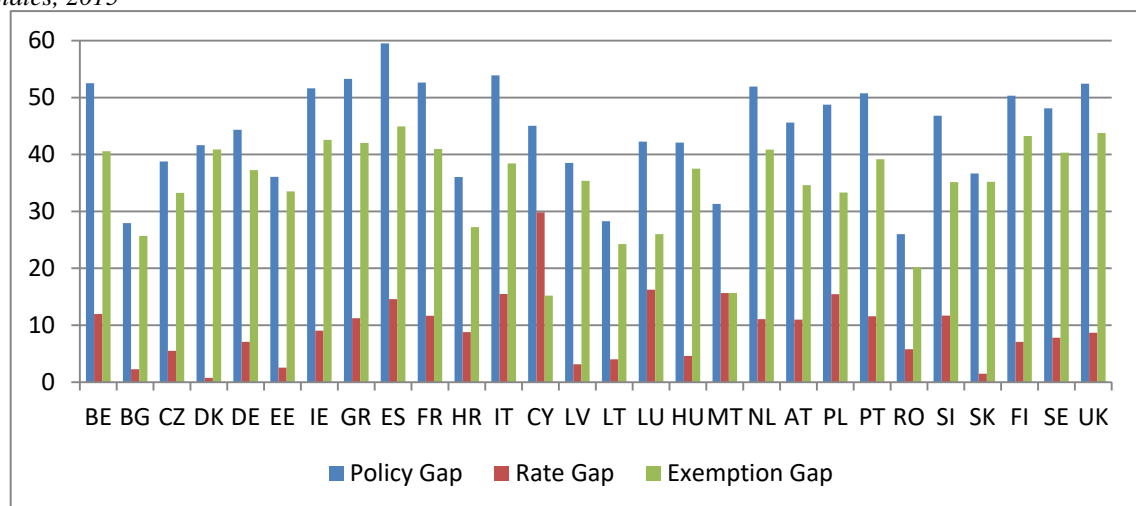
Figure no. 2. *VAT Gap (as a percent of VTTL), in EU-28 Member States, 2015*



Source: based on Center for Social and Economic Research (CASE), 2017

In 2015, the largest VAT gaps (in relative terms) were observed in Romania (37.18%), Slovakia (29.39%) and Greece (28.27%), and the smallest VAT gaps (in relative terms) were registered in Sweden (-1.42%), the EU average being 12.77%.

Figure no. 3. *Policy Gap, Rate Gap and Exemption Gap (as a percent of VAT<sub>t</sub>) in EU-28 Member States, 2015*

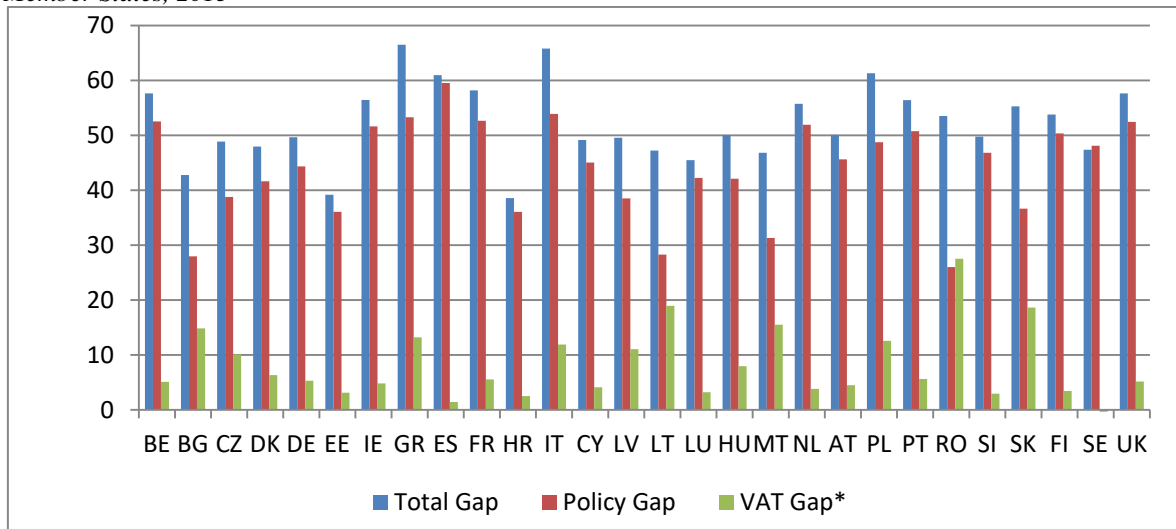


Source: based on Center for Social and Economic Research (CASE), 2017

The largest Policy gaps (in relative terms) were observed in 2015 in Spain (59.53%) and Italy (53.9%), while the smallest Policy gaps (in relative terms) were registered in Romania (25.99%), the EU average being 44.04%. Romania was the one and only country for which the Policy Gap was smaller than the VAT Gap (in relative terms).

Cyprus registered the highest Rate Gap (29.83%), but it also registered the lowest Exemption Gap (15.20%), being the only country for which the Rate Gap exceeds the Exemption Gap. The countries with the lowest Rate Gap were Denmark (0.75%) (it does not apply reduced tax rates) and Slovakia (1.47%) (it applies a reduced tax rate for very few goods and services). The highest Exemption gaps were registered in Spain (44.93%), UK (43.77%) and Finland (43.25%).

Figure no. 4. Total Gap, Policy Gap and VAT Gap\* (VAT as a percent of theoretical VAT) in EU-28 Member States, 2015



Source: based on Center for Social and Economic Research (CASE), 2017

The largest Total gaps (in relative terms) were observed in Greece (66.49%) and Italy (65.78%), while the smallest Total gaps (in relative terms) were registered in Croatia (38.56%) and Estonia (39.19%).

The difference between Total Gap (in relative terms) and Policy Gap (in relative terms) is represented by the weight of the VAT Gap in the theoretical VAT (VAT Gap\*). The highest VAT Gap\* was registered in Romania (27.52%), and the lowest one in Sweden (-0.74%). Romania was the one and only EU member state for which the 2015 VAT Gap\* in relative terms (27.52%) exceeded the Policy Gap in relative terms (25.99%); basically, Romania was the only EU country for which the VAT Gap in absolute terms exceeded the Policy Gap in absolute terms.

#### 4. Conclusions

The Total VAT Gap may be decomposed within a Policy Gap and a Compliance Gap (these can be expressed in both absolute and relative terms). The Policy Gap has two components: Rate Gap (which is due to the use of reduced tax rates) and Exemption Gap (due to tax exemptions). Quantification of the Compliance VAT Gap is important because it also includes a tax fraud component. Romania stands out among the other EU Member States because of its largest Compliance VAT Gap in relative terms (meaning that it registers serious problems in the field of tax collection), but also through its lowest Policy Gap (in relative terms); nevertheless, Romania finds itself among the countries with the largest share of VAT Gap within the theoretical VAT.

#### 5. References

- Center for Social and Economic Research (CASE), Institute for Advanced Studies, 2017. *Study and Reports on the VAT Gap in the EU-28 Member States: 2017 Final Report*, TAXUD/2015/CC/131, Warsaw, 18 September 2017.
- Center for Social and Economic Research (CASE), Institute for Advanced Studies, 2016. *Study and Reports on the VAT Gap in the EU-28 Member States: 2016 Final Report*, TAXUD/2015/CC/131, Warsaw, 23 August 2016.

- Center for Social and Economic Research (CASE), CPB Netherlands Bureau for Economic Policy Analysis, 2015. *Study to quantify and analyse the VAT Gap in the EU Member States 2015 Report*, TAXUD/2013/DE/321, Warsaw, May 2015.
- Center for Social and Economic Research (CASE), CPB Netherlands Bureau for Economic Policy Analysis, 2014. *2012 Update Report to the Study to quantify and analyse the VAT Gap in the EU-27 Member States*, TAXUD/2013/DE/321, Warsaw, September 2014.
- Cuceu I.C., Văidean V.L., 2014. Considerations on VAT Efficiency and VAT Evasion, *Ovidius University Annals, Economic Sciences Series*, Volume XIV, Issue 2, pp.473-478.
- Cuceu I.C., Văidean V.L., Șarlea M., 2012. *VAT Revenues in Romania: An Econometric Approach*, *Ovidius University Annals - Economic Sciences Series*, Volume XII, Special Issue, pp.300-303.
- HM Revenue & Customs (HMRC), 2014. *Measuring tax gaps 2014 edition, Tax gaps estimates for 2012-13*, 16 October 2014.
- Keen M., 2013. *The Anatomy of the VAT*, IMF Working Paper, WP/13/111, May 2013.
- OECD, 2014. *Consumption Tax Trends*, Paris.
- Reckon LLP, 2009. *Study to quantify and analyse the VAT Gap in the EU-25 Member States*, Report 21 September 2009.
- Thackray M., 2012. *The UK Tax Gap*, January 2012.