How can We Measure the VAT Fraud and Evasion? Case of Albania

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Abstract:

Taxation is one of the most important fiscal instruments which in many case is used to recover the economy performance of a country. It is the main budget revenue and its role in decreasing budget deficit is undisputed. The intensity of the instrument efficiency is depended although by the level of tax evasion in the country. At this point, knowing the level of tax evasion from one side is one of the most important topics that fiscal policy could work and from the other side improving the tax administration system is a purpose for public financial stability. The focus of the paper will be only on the value added tax (VAT) as the main tax revenue component in Albania with about 37 % of total tax revenue. In the absence of a comprehensive analysis between VAT that should have been paid by all taxpayers and real VAT collected, the divergence between them could be considered as VAT evasion, or known as VAT gap, which will be our objective measurement. Calculations will be based on the data from the national accounts (Supply-Use Tables), more concretely on the use side of the economy. All the variables of final demand are treated at a very detailed level specifying the VAT ratio by product and the threshold level for each component of final use. Estimations are done for year 2011 as the latest year where the Supply Use Tables are available for Albania.

Keywords: VAT fraud, Supply-Use tables, Tax gap

1.   Introduction

The tax system is one of the most important fiscal policies of a country. Its primary objective is to ensure the collection of tax revenues based on administrative regulations and to improve based on legislative system. It is especially important to make coordination between administrative and legislative systems because very good tax legislation, if not accompanied by proper applicability of the administrative system is intended to lead to an unsatisfactory efficiency. Likewise if legislation leaves room for the possibility of abuse by administrative system it would have an unsatisfactory efficiency too. At this point it can be referred to Oliver Wendell Holmes who wrote:

"When the law draws a line, a case is on one side of it or the other, and if on the safe side is none the worse legally that a party has availed himself to the full of what the law permits. When an act is condemned as evasion, what is meant is that it is on the wrong side of the line ..." Bullen v. Wisconsin (1916), 240. US. 625 at p. 630.

Consistent coordination of tax policy and tax administration can lead to the achievement of the objectives required. But the level of tax collection as a ratio of total taxes to be collected in the literature is known as the tax gap[1]. The tax gap could come because of the possibilities that leave the legislative part to taxpayers to avoid taxes that lead to tax evasion. Tax evasion and avoidance distort the economic system because some economic units could benefit from this situation and make no fair competition in the market. This situation in the long run could lead to similar behavior by other economic units operating in the same market or otherwise in their bankruptcy. Also tax evasion and avoidance of tax liabilities reflect the effectiveness of the tax system. Good knowledge of the phenomena can help to improve the country tax system from both sides, legislative and administrative one. Although there are controversies existing about the

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[1] Definition: The tax gap is the difference between tax liability in any year and the amount of tax that is paid voluntary and on time.

definition of tax evasion, the complexity of the entire tax system as well as the intensity of government regulation have been empirically identified as the major causes of encouraging such illegal activities.

Also the tax gap has a direct impact on the economy. Low level of tax collection leads to the inability to reduce the state deficit in the current period and debt in the long run. Also low level of tax collection mean less public investment, less contractions to private businesses, less employment and therefore less economic growth. All these multiplicative effects become more and more significant as longer will be the decrease in the overall tax burden. It means that fiscal consolidation requires the approval for strong consolidation measures on the expenditure side of the government. The tax system consists of a set of taxes, but in all countries the value added tax is the main item. The first idea for VAT can be found back in time to Von Siemens, a German businessman, in the 1920s. But for the first time this tax has been applied in France in 1948.

Empirical studies have shown interlinks between the VAT performance of a country and its level of development. The revenue gains from VAT are likely to be higher in an economy with higher level of per capita income, lower share of agriculture, and higher level of literacy (Ebrill et al. 2001). VAT proves to be an efficient tool for revenue collection. Its performance has direct impact on fiscal mobilization, macroeconomic stability, and economic development.VAT generates significant revenue more than one fifth of world total tax revenue, and has been introduced in about 140 countries. It is the main source of revenue in many countries and plays an important role in ensuring public finance stability. In this context, its treatment as a separate situation has a particular interest. In this paper, the focus will be specifically in the VAT gap assessment.

2.   Estimation of VAT fraud

Why is so important to measure the VAT fraud? The VAT system in the last decades has been under different attacks by fraudsters, whom have posed the most serious threat to the functioning of the entire system (Šemeta, 2011). The typical mechanism of deduction has itself become a source of sophisticated international frauds (Keen and Smith, 2007). Although tax authorities have fought hard to stop the phenomenon, it still contend a high part which various from country to country. The fight against VAT fraud is supported by many legislative directives and in general consistent with the long-run objectives of the economy. Tax gap includes a large number of transactions and activities that should be taxed, but for various reasons, have not been taxed.

To estimate the tax gap is not a proper way on which can rely. In these conditions there are developed several methods to estimate it, which range from direct estimations based on surveys to sophisticated dynamic econometric models. All these methods have advantages and disadvantages (Schneider, 2000a and 2000b; Schneider and Enste, 2000; Lippert and Walker, 1997; Feige, 1989). According to Schneider (2000a) and Thomas (1992), these approaches can be groups:

- Macroeconomic approaches where are many sub-methods used. These methods can be based on the discrepancies between income and expenditure statistics (MacAfee, 1980; Del Boca, 1981); the official and actual labour force (Contini, 1981); the monetary approach based on the Fisher quantity equation (Feige, 1979; 1996); the popular currency demand method measuring the correlation between the currency demand and the tax pressure (Tanzi, 1982); the physical input method observing relations between (official and unofficial) GDP and electricity consumption (Kaufmann and Kaliberda, 1996; Johnson, Kaufmann and Schleifer, 1997; Lacko, 1998),
- Dynamic models which consider various macroeconomic determinants for creating a shadow economy and attempt to explain their effects in the development of production, labour and money markets simultaneously (Aigner, Schneider and Ghosh, 1988; Schneider, 2000a; Frey and Weck-Hannemann, 1984).
- Micro approaches based on data collected from surveys among taxpayers and tax auditing (Isachsen, Klovland and Strom, 1982; Mogensen, Kvist, Körmendi and Pedersen, 1995), which in many literatures are known as bottom-up methods.

All methods have advantages and disadvantages, but in all cases the method applied depends on the possibilities and availability of the data. In case of VAT fraud all of methods can be applied but in many cases the estimation from different approaches has the advantage of comparisons as it is difficult to point out which of them is the best one.

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In order to estimate VAT gap it is important to know where and how is created VAT fraud. The essential element of the fraud is the purchase of goods, which enables the fraudster to buy without paying VAT to the supplier and, at the next step, to keep the entire amount of VAT debited to its counterparty. Other forms of fraud are schemes like carousels on imports under customs transit, the fraudulent use of VAT warehouses and under-invoicing of imports. These schemes are much more risky because they involve huge volumes of international trade; they are fast, agile and difficult to detect using standard tools.

2.1. Top down approach

Top-down methods in many cases are referred as indirect approaches since for the estimation of tax gap are used data not necessarily related directly with tax process. Based on these information's is estimated theoretical tax which then is compared with the actual tax revenue. These estimations could be done for all tips of taxes separately to provide a better summed up value. The estimation of VAT fraud in the top down approach base on national accounts data is more used because of the information that can be found in the supply-use tables (SUT) of National Accounts. For this calculation relevant statistics are adopted at the VAT base. That tables have two main components; all suppliers of a country whom can be domestic producers or foreign producers entering in the country in form of imports and the users of a country which can be household, government, or in form of investments, exports or changes in the inventory. More concretely the SUT consists on the components as shown in table 1.

Table 1: Supply Use Tables

Activities (NACE) / Products (CPA)	Output by Activities (NACE)					Total	Imports CIF	Adjustments	Adjustments	Total Supply at market prices	Inputs by Activities (NACE)					Total	Final Demand					Total Use at market prices
	1	2	...	m-1	m	Total					1	2	...	m-1	m	Total	Household consumption	Government Consumption	Gross Fix Capital Formation	Changes in Inventories	
1							Domestic Production by Products	Import Vector	Trade and Transport Vector	Taxes and Subsidies on Product Vector							Total of intermediate consumption by products	Exports					
2			Output Matrix											Intermediate Consumption Matrix at Market Prices									
...																						
...																						
...																						
...																						
n-1																						
n																						
Total	Total Output by Economic Activities at Basic Prices										Total Intermediate Consumption by Economic Activities											
											Gross Value Added											
											Component of Income											

Source: authors work

SUT offer the most detailed portrait of an economy at product levels so knowing all tax regime of the country and the products where the tax has been applied it is possible to estimate the tax fraud based on those tables. In particular, the statistics and data on private consumption, intermediate consumption and investment of central and local governments apparently play the most important role for the assessment for VAT gap estimation.

As can be seen from the matrixes the possibilities for estimating the size of the tax gap are directly dependent on the availability of detailed data. In case of VAT, it is important that tax vector to be treated by product and by categories (mostly as a matrix). At those conditions the corresponding VAT rate can be correctly assigned to the respective product, where it has been applied. This is particularly important if there are several VAT rates in the system of the country, or different exceptions are done from the general rules. The problem with this approach is related mostly with National Accounts data. If the estimations of different components of the use side are not correct, automatically it will affect the

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VAT value. In the same time as one part of the economy is non observed economy, it means that estimation of this part in National Accounts will have a direct statistical discrepancy in VAT fraud. As higher is the non-observed economy and the assumptions done in National Accounts as higher are even doubts for VAT fraud estimated.

2.2.   Bottom up approach

The bottom-up approach is based on the uses of micro data for individuals and enterprises. The estimations are done firstly at elementary level and then are summed up for the hull economy and population. Of course on all steps are stored on the statistical concepts by groups of taxpayers with the same characteristics. In other words this method is based on a survey which includes a random sample of taxpayers for all categories which are analyzed and then extrapolated to the entire population. At this point is clear that the quality of results will be highly related with the sample size, the statistical criteria's applied, and knowledge's of the system from the respondent elements. The results of such analysis cannot be fully extrapolated to all taxpayers or to the economy as a whole because their impact would be overestimated. While a random sample can be considered representative, in this particular case the sample is not representative because it focuses on a selected group of taxpayers.

This method compared with the previous one has the advantage that is based on more accurate information but from the other side it has much statistical estimation which of course has their error margins. In general can be said that indirect method based on the expenditure side of GDP calculation usually are taken to indicate the trend in tax evasion rather than its level (Keen and Smith, 2007). Direct methods are used mainly to get an idea of the level of tax evasion and to check top-down estimates. Despite the method used, availability and completeness of data are a major issue in estimating VAT frauds. Another problem in the estimation is linked to the inconsistent nature of frauds. Tips of frauds change over time because of legislation and auditing targets, so bottom-up methods inevitably soon become outdated. Moreover, since data are not taken "randomly" and come from tax audits that are planned on the basis of tax risk indicators, any statistical inference can easily end up in an overestimated of VAT frauds. A proper estimate is even more difficult in the case of acquisition frauds. In this case the fraudster reduces the prices for final consumers in order to crowd out competitors.

3.   Case of Albania

At this part of the paper the focus will be given in the estimation of VAT gap in case of Albania for year 2011. The estimations are based only on the top down approach, more concretely on the methods based on national accounts data. The restrictions only in one method becomes because there are no available micro data from taxpayers. Also it is important to mention that estimations are done only for the year 2011 as the latest supply-use table publication for Albania.

SUT in Albania have a short history even that analysis at a detailed level of commodity flows have been developed since the late 1930's (Wassily Leontief estimated the first Input-Output Tables (IOT) for USA for the period 1919-1929). IOT are the consequence of SUT but needs as condition that SUT to be balanced. Anyway SUT tables are still a challenge for many developing economies. In Albania SUT are published for the first time in February 2015[1] and consist of three years (2009-2011) of estimations. As those tables are a new product of National Accounts of Albania and furthermore VAT gap estimation is a new theoretical phenomenon for Albania too, it has a significant interest for policymakers and economics to be analyzed and evaluated. The contribution of the paper consists on the fact that this is the first study based on the SUT data for the estimation of VAT gap in Albania. Even more the importance becomes more significant taking in consideration the level of high non observed economy that exists in Albania. Referring the latest data found for the year 2007, it was at around 32.9 %[2] of GDP, which was much higher than OECD weighted average value of 17.2 %[3]

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[1] Institute of Statistics, (2015): "Supply Use and Input-Output Tables in Albania: 2009-2011";

[2] F. Schneider, A. Buehn, C. E. Montenegro (2010): " Shadow Economies All over the World, New Estimates for 162 Countries from 1999 to 2007", Policy Research Working Paper 5356, pg 23, Table 3.3.3;

[3] F. Schneider, A. Buehn, C. E. Montenegro (2010): " Shadow Economies All over the World, New Estimates for 162 Countries from 1999 to 2007", Policy Research Working Paper 5356, pg 4, par 2;

of official GDP over 162 countries between years 1999 and 2006/2007. If the analyze will be expand a bit more with foreign trade statistics other conclusions comes out. The biggest imported countries for Albania are Italy, Greece and Turkey, which do at around 47%[1] of total imports of Albania. Those three countries have a level on non observed economy at around of 26-30%[2] of GDP. At this situation Albania is opened to the risk of exported informality and VAT fraud.

As our focus will be on VAT fraud estimation, the first step has to do with the legislation specifications in Albania for economic subjects that are under VAT regime and the ratios of VAT by products. In the same time it is important to identify all the transactions which are subject to non-deductible VAT. Based on the low of taxation in Albania for VAT regime in 2011 there are four main categories as are shown in table two.

Table 2: VAT system in 2011 in Albania

VAT ratio	Category
20 %	Standard ratio
10 %	Medicines
0 %	Exports
Exemptions	Medical services
	Financial services
	Education
	Books, newspapers, etc
	Casinos, Gambling

Source: Low No.7928 date 27.4.1995, "For value added Taxes", changed (last change date 16.12.2010)

Most of the products are under 20 % regime, a very small group is under 10 % and there are some categories which are exempt from VAT as are shown in the table 2. As it can be seen large areas of economic activity are exempt or outside the scope of VAT. The effective exemption of much of the public sector and of services in the public interest is a clear weakness of the VAT regime. The last group is related with exports which, as in many countries, are at ratio of 0 %.

Before explaining the estimations done, it is important to make a general description about the history of VAT implementation in Albania and some descriptive statistics related with VAT level in report with GDP and total tax revenue. VAT has been implemented for the first time in fourth quarter of 1995, replacing turnover tax that was before[3]. In graph 1 are shown some comparisons from where we can see that VAT has been for more than 10 years at interval 7% to 10% of total GDP. Related with the latest progress it can be seen that the trend is negative compared with GDP for period 2010-2014 and positive compared with total tax revenue.

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[1] http://www.instat.gov.al/media/194299/tab_4_.xlsx;

[2] F. Schneider, A. Buehn, C. E. Montenegro (2010): " Shadow Economies All over the World, New Estimates for 162 Countries from 1999 to 2007", Policy Research Working Paper 5356, pg 27, Table 3.3.6.

[3] Source: Low No.7928 date 27.4.1995, "For value added Taxes", changed, Neni 60;

Graph 1: VAT, Total Tax revenue and GDP growth
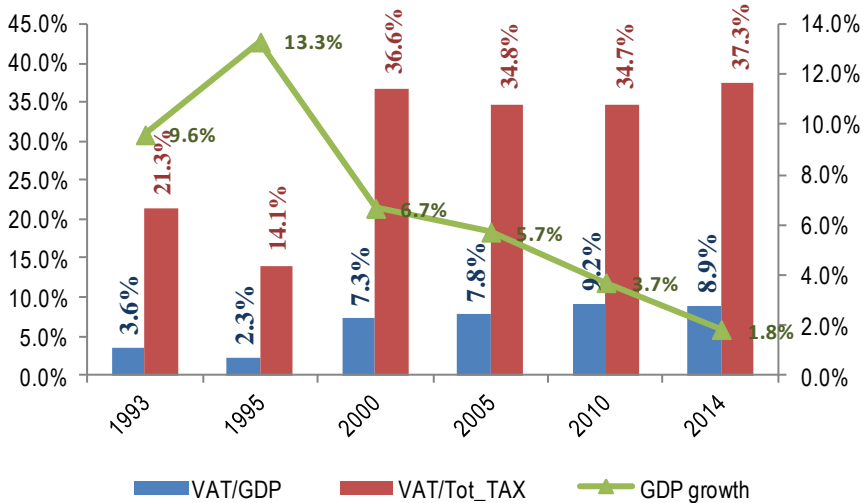
Source: Institute of Statistics and Ministri of Finance

If refer to annual VAT changes analyzes from graph 2 can be seen that the biggest changes are 2012 and 2013 where the trend is negative even that the GDP growth has been positive. In 2014 it can be seen that value has started to increase again but even that the trend is positive the absolute value is still lower than 2011.

Graph 2: VAT values (annual % changes)
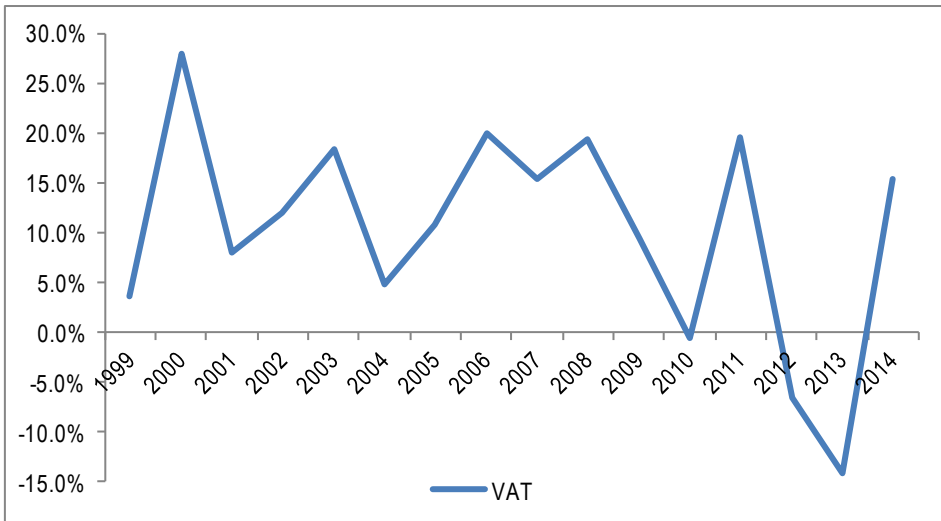
Source: Institute of Statistics and Ministri of Finance

As was mention above the estimation of VAT gap will be focused only in the top-down approach based on national accounts data. Based on top-down approach all components of use side are treated in individual level using the most

detailed information possible. Final household consumption is treated as wholly subject to non-deductible VAT, whereas other categories of uses are broken down in order to determine a rate of non-deductibility. The VAT is calculated in the light of all current legislation and rules governing VAT for the period of study. In case of Albania the estimations are a bit easier as there are only four categories and at most of the product is applied 20 % ratio of taxation. It is important to mention that VAT on medicines has been decided to be 10 % in 2010 but in 2013 this category again has been exempted from VAT system as it was before 2010 year. As we are referred to the year 2011 it is important to take in consideration even that category. To estimate VAT fraud firstly for each CPA2-digit[1] is taken household and government consumption and is specified the category if is exempt or not. In the second case for each product is specified the VAT ratio and in the same time has been calculated the ratio of threshold. The threshold ratio has been estimated as shown in equation 1.

$$th_{r_i} = 1 - \frac{VAT_{T_i}}{Tot_{T_i}} \quad (eq.1)$$

Where:

i – is respective Nace[2] activity at two digit level

th_r – threshold ratio for i Nace activity at two digit code

VAT_T – turnover for enterprises on VAT system on each Nace activity at two digit code

Tot_T – turnover for total enterprises on each Nace activity at two digit code

This estimation is very important to be done in Albania because by law, all subjects that have an annual turnover less than 5 million lekë are not on VAT system referring year 2011. The VAT registration threshold is applied to small businesses. Despite the disadvantages of exemption, substantial registration thresholds are probably a price worth paying for avoiding disproportionate administrative and compliance costs for small businesses. There may also be a case for applying simplified flat-rate schemes to small businesses. However, the case for some other small business regimes currently in operation seems less compelling. Optional schemes invite traders to see which option is better for them by calculating their liabilities under both scenarios, potentially combining maximum effort by the trader as they make the calculations and maximum revenue loss for government.

In the next step is estimated GFCF and inventory in exempted sectors. First of all is necessary to mention that the biggest part of GFCF, except construction, consists on machinery and equipment which are mostly imported in Albania. For these purpose from total GFCF imported are linked those that are done from enterprises which are under VAT system and the difference has been considered as GFCF for the other group of enterprises. For construction has been used the information from SBS[3], from which has been taken the part of new buildings for apartments ore houses. For these category is paid VAT so it has been taken in consideration the other part of construction like roads or engineering works are excluded from the estimation. The next category of the use side has to do with estimation of imputed taxes in exempt categories. For these purpose are taken only small enterprises which are supposed not to be on VAT system and has been estimated Intermediate Consumption over Output ratio at each Nace 2 digit level. The aggregated values are shown in table three. In the first row is the total consumption of household and government taken from the use table of National Accounts data and in the second one is the value for exempt part from household and government consumption. In the third row are estimations for Gross Fix Capital Formation and the last group have to do with Final Consumption Expenditure included in VAT system.

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[1] CPA is the European Classification of Products by Activity

[2] Is the nomenclature of economic activities in the European Union (EU) used even in Albania

[3] Structural Business Survey

As was mention before there are two categories to be estimated, with 20 % and with 10 %, each of them has been treated separately and the results is about 145,424 million lekë. For year 2011 the total value of VAT decelerated from Ministry of Finance was 136,242 million lekë, so the difference can be considered as VAT gap.

Table 3: Main components of VAT gap estimations for year 2011

	(million lekë)	(million euro)	(million dollar)
Total Household and Government Consumption	1,166,834	8,315	11,562
Exempted Consumption	-527,780	-3,761	-5,230
GFCF in exempted sectors	93,242	664	924
Inputs used in exempted sectors	141,624	1,009	1,403
Final Consumption and Expenditure included in VAT	873,918	6,227	8,660
20% VAT	145,194	1,035	1,439
10% VAT	230	1.6	2.3
Theoretical VAT	145,424	1,036	1,441
Total excluded VAT	728,495	5,191	7,219
VAT collected	136,242	971	1,350
VAT gap	9,182	65	91
VAT gap as % of Theoretical VAT	6.31%	6.31%	6.31%
VAT gap as % of VAT collected	6.74%	6.74%	6.74%

Source: authors work

Based on those results the VAT gap can be expressed as:

$$VAT_{gap} = VAT_{es} \text{-} VAT_{co} = 145,424 - 136,242 = 9,182 \quad \text{(eq.2)}$$

Where:

VAT_{es} – VAT estimated

VAT_{co} – VAT collected

At the same time could be estimated VAT gap in percentage of total VAT collected or Theoretical VAT as shown in equation 3:

$$VAT_{gap(\%\_co)} = \frac{VAT_{gap}}{VAT_{co}} = \frac{9,182}{136,242} = 6.7\% \quad \text{(eq.3)}$$

$$VAT_{gap(\%\_th)} = \frac{VAT_{gap}}{VAT_{th}} = \frac{9,182}{145,424} = 6.3\% \quad \text{(eq.4)}$$

From the results the uncollected VAT was around 6.7 %. This estimation of course has its limitations. First of all it has been done only for one year and is used only one method for estimation. These boundaries become from data restrictions but it will be with interest to be compared in the future with other years and methods. With interest are even comparisons with other macroeconomic indicators like GDP, Tax Revenue and Tax offices and customs which give a more specific view of the VAT gap with different components of state budget incomes.

Table 4: Comparisons of VAT gap with some of the main aggregates for year 2011

	(million lekë)	(million euro)	(million dollar)
GDP at current Prices	1,300,624	9,268	12,888
Tax Revenue	315,397	2,247	3,125
Tax offices and customs	242,077	1,725	2,399
Theoretical VAT	145,424	1,036	1,441
VAT collected	136,242	971	1,350
VAT gap	9,182	65	91
VAT gap as % of GDP	0.71%	0.71%	0.71%
VAT gap as % of Tax Revenue	2.76%	2.76%	2.76%
VAT gap as % of Tax offices and customs	3.79%	3.79%	3.79%

Source: authors work

From the table can be seen that VAT gap as % of GDP at current prices is at around 0.7% for year 2011. If this value will be compared with EU countries, it stays inside the interval of the countries. Referring the estimations for 2011 the lowest VAT gap country in EU was Sweden with 0.2% of GDP followed by Malta with 0.3 % of GDP and the highest was Romania with 7.9% of GDP[1]. The interval of EU countries is very wide and it is a bit difficult to make more deeply comparisons without knowing the VAT system of each country.

Conclusions

Taxation is one of the most important fiscal instruments and in many countries it is the main budget revenue item. It generates significant revenue, more than one fifth of world total tax revenue, and has been introduced in about 140 countries. In Albania VAT has been implemented for the first time in fourth quarter of 1995, replacing turnover tax that was before. It has been for the last 10 years at interval of 7 to 10 % of total GDP.

The estimation of VAT gap was based only on the top-down approach based on national accounts data, more specifically on supply use tables. Based on top-down approach all components of use side are treated in individual level using the most detailed information possible. From the results the uncollected VAT in Albania, or VAT gap, was around 6.7 % of total VAT collected for year 2011. Comparing this estimation with total GDP at current prices the VAT gap as % of GDP is at around 0.7%. This value compared with EU countries, stays inside the interval which lies from 0.2% of GDP in Sweden to 7.9 % of GDP in Romania referring year 2011.

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[1] TAXUD/2012/DE/316, Final Report: "Study to quantify and analyze the VAT Gap in the EU-27 Member States", FWC No. TAXUD/2010/CC/104, Table C.10 – VAT Gap as a share of GDP, 2000–2011 (%);

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