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# IMPACT OF VALUE ADDED TAX ON GDP GROWTH: THE CASE FOR UZBEKISTAN

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**Abstract**

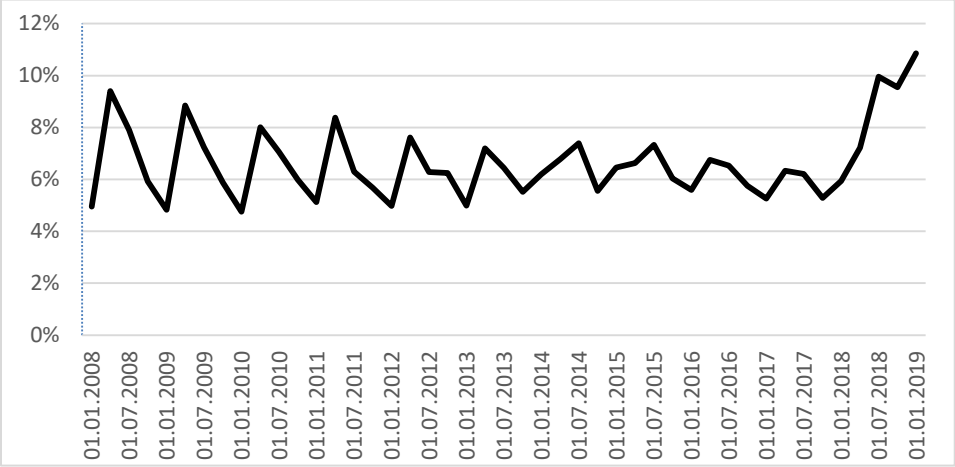
*The Value Added Tax (VAT) is considered a specific type of indirect tax, levied in each phase of production and distribution of goods and services. The history of adoption of VAT in Uzbekistan consists about 27 years. In this article, we examine the impact of Value Added Tax on economic growth of Uzbekistan. Following the model used by Gatawa et al (2016) in their investigation of the impact of value added tax and economic growth in Nigeria; this study adopts a modified version of the model. After controlling the lagged effects and possible endogeneity of the variables, the results indicate that positive shocks in VAT collections positively influence the GDP growth. The obtained results are similar to the findings of the previous studies on this issue.*

*Keywords: VAT, C-efficiency ratio, Taxation, Uzbekistan*

## INTRODUCTION

The history of adoption of VAT in Uzbekistan goes back to the 1990$^{th}$ when Uzbekistan started market-based reforms. Initially VAT rate was set at 30%, then in 1993-1994 it was reduced by 25%. After four years rate was decreased to 20% and since then it has not been changed. Figure 1 depicts quarterly VAT collections to GDP ratio over the past decade in Uzbekistan. From Chart 1, VAT collections in terms of GDP had been decreasing to 5 % until 2017. And in 2018 World Bank paper indicated that there is significant gap between increased revenue by VAT in Uzbekistan and the revenue that should be increased.

Figure 1. VAT to GDP share from 2008 to 2019




Source: the Ministry of Finance of the Republic of Uzbekistan – created by the author.

If we look at the Table 1 at the bottom, we can see that Uzbekistan is at the lowest level in terms of C-Efficiency ratio, which shows that VAT has not been not levied efficiently until 2018. As indicated in the table that C-Efficiency ratio of Uzbekistan is equal to 0.49, which is in the middle compared to other countries.

To address these problems, in 2019 new government has carried out tax reforms and the main goal of this reform is to increase the efficiency of VAT. Thus, the impact of VAT on Economic Growth of Uzbekistan will be explored. The main question this paper addresses is how VAT influences on GDP growth because VAT accounts for the greatest share of overall government revenue. It is used to consist of almost one third of total government budget. As a result of recent Tax Reforms VAT to GDP ratio climbed to 11% in contrast to 5% that was before tax reform.

Table 1. Uzbekistan: Comparison of VAT with the Commonwealth Independent Countries

| Country | Per capita GDP USD | Standard VAT rate % | Turnover Threshold USD (000s) | VAT Revenue % of GDP | C-Efficiency |
|---|---|---|---|---|---|
| Armenia | 3690 | 20 | 110 | 8 | 0.48 |
| Azerbaijan | 4098 | 18 | 118 | 7 | 0.46 |
| Belarus | 5585 | 20 | None | 8 | 0.54 |
| Georgia | 4123 | 18 | 41 | 11 | 0.72 |
| Kazakhstan | 8585 | 12 | 180 | 2 | 0.24 |
| Kyrgyz Republic | 1140 | 12 | 115 | 8 | 0.56 |
| Russia | 10248 | 18 | None | 5 | 0.41 |
| Tajikistan | 819 | 18 | 58 | 13 | 0.52 |
| **Uzbekistan** | **2128** | **20** | **None** | **6** | **0.49** |

Source: Michielse et al (2018)

This paper consists of six chapters. The first chapter introduces the significance, the objective and the structure of the study. The second chapter provides an overview of VAT in Uzbekistan. The third chapter looks at the review of previous literature and discussion of empirical findings. The fourth chapter presents the data, methodology and model specification. The fifth chapter describes the regression results and the final chapter highlights the main findings of this thesis and draws a relevant policy implication.

**Value Added Tax in Uzbekistan**

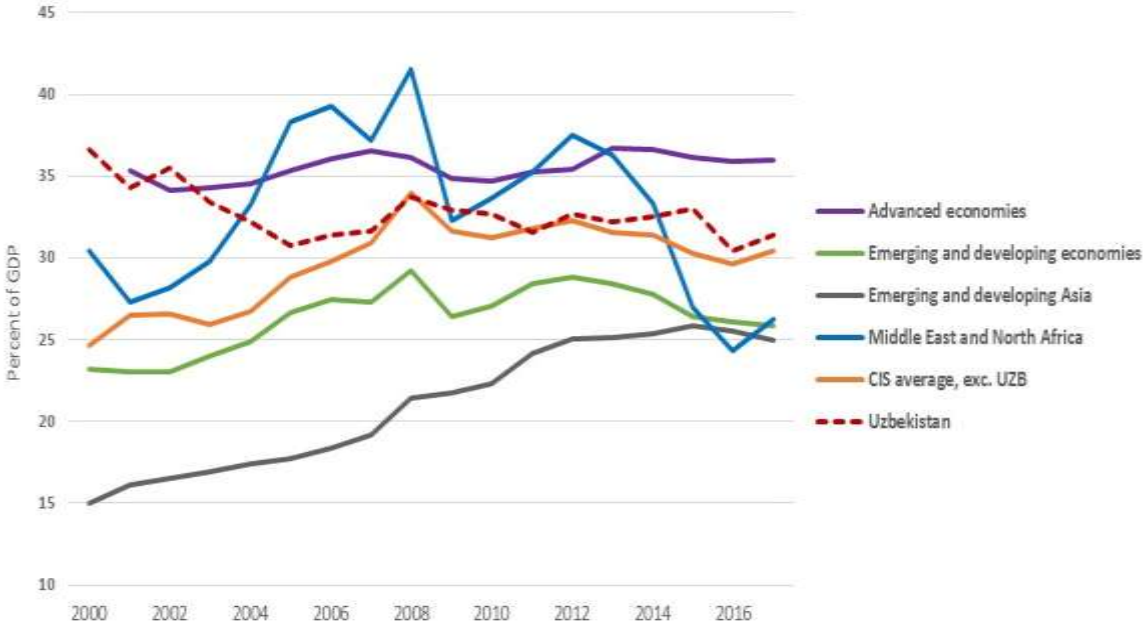
Tax is considered one of the main levers of government for the stable development of the country. The basic purpose of tax system is to increase revenue for the government for spending on public expenditures.

At present, the tax system of Uzbekistan is developing in accordance with the course of reforms in the country and the elements of the modern tax system, the administrative and institutional capacity has been developed by successive steps. This tax reform was compromised to save government revenues in the early years of independence.

The main provisions of the current tax system of Republic of Uzbekistan were laid within the framework of the main complex of tax reforms introduced in the 90s. These particular reforms prevented major financial crises and made it possible to support major government spending over the past decade. Early tax reforms were mainly aimed at the fiscal role of taxation and the underestimation of the regulatory, social and incentive role of taxation.

During this period, Tax and Tax related legislations have been amended and refined. These changes created complexity and ambiguity in managing, implementing and enforcement of normative acts in taxation. Thus, Uzbek government launched an inquiry to review the tax code. As a result, the tax code was completely reviewed, and a new tax code was implemented from 1st of January 2008. The purpose of Tax Code was to encourage a fairer tax system, decrease the tax burden on business, develop saving and investment, make common tax procedures and support country's economic development. Moreover, government paid more attention on improvement of revenue collection (see Figure 2).

Figure 2. Total government revenue as percent of GDP



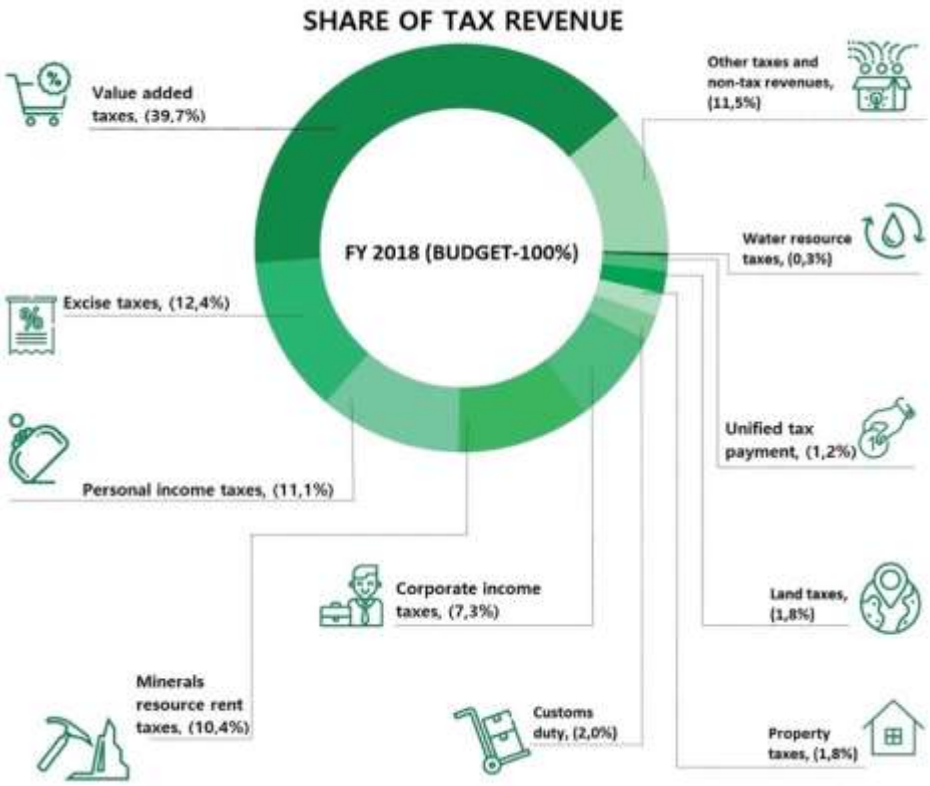

Source: IMF, World Economic Outlook and MoF

Even though total government revenue as a percentage of GDP in Uzbekistan decreased slightly like other countries over time, Figure 1 clearly shows that in terms of tax collection, Tax system of Uzbekistan had been better than average of the Commonwealth of Independent States (CIS).

It can be seen from this Figure 3 that VAT accounts for the greater proportion of the main part of tax revenues to the budget, with 39.7% of total budget.

The Value Added Tax (VAT) is considered a specific type of indirect tax, levied in each phase of production and distribution of goods and services. The history of adoption of VAT in Republic of Uzbekistan consists about 27 years. Initially the rate of VAT was 30%, then in 1993-1994 it was reduced by 25%, after four years it was decreased again by 20% and since then it has not been changed, in addition, with zero rate, VAT exemption also applicable. However, empirical evidence indicates that there is significant gap between increased revenue by VAT in Uzbekistan and the revenue that should be increased.

Figure 3. Revenue Structure of the Government Budget in Uzbekistan, 2018




Source: Budget for Citizens 2018, publication of Ministry of Finance of Uzbekistan.

Moreover, in VAT system exists exemptions and exceptions. For example, VAT does not levy agricultural products; the reason is that their taxation by VAT may lead to increase the price of some raw materials used in the production process. Some people cannot agree with this argument, because a concrete quantitative analysis that shows a relationship with VAT and price level does not exist. Such kind of facts break the “VAT chain”.

In 2019 tax reforms have been carried out in Uzbekistan, including taxation of small business with VAT. Particularly, taxpayers who have annual turnover more than 1 bullion sums ($125000) started paying VAT. The results are excellent: more than 30 thousand firms became VAT payer’s contrary to 17 thousand firms what expected. Thanking to the new taxpayers more than 7 000 billion sums (2.2% of GDP) revenues of budget will be received.

Table 2. Uzbekistan: International Comparison of VAT, 2015

| Country | Per capita GDP USD | Standard VAT rate % | Turnover Threshold USD (000s) | VAT Revenue % of GDP | C-Efficiency |
|---|---|---|---|---|---|
| Armenia | 3690 | 20 | 110 | 8 | 0.48 |
| Azerbaijan | 4098 | 18 | 118 | 7 | 0.46 |
| Belarus | 5585 | 20 | None | 8 | 0.54 |
| Georgia | 4123 | 18 | 41 | 11 | 0.72 |
| Kazakhstan | 8585 | 12 | 180 | 2 | 0.24 |
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| **Uzbekistan** | **2128** | **20** | **None** | **6** | **0.49** |

Source: IBFD, LCU converted into USD using WEO average annual exchange rate, Revenue data from the IMF GFS

If we look at the Table 2 above, we can see that Uzbekistan is at the lowest level in terms of C-Efficiency ratio[1], which means that VAT does not levy efficiently. As indicated in the table that C-Efficiency ratio of Uzbekistan is equal to 0.49, which is in the middle compared to other countries.

Figure 4. VAT rates versus VAT productivity

| *VAT rate, unweighted averages* | |
|---|---|
| Emerging and Developing Europe | 20% |
| ***Uzbekistan*** | 20% |
| Advanced Economies | 18% |
| CIS | 17% |
| World | 16% |
| Sub-Saharan Africa | 16% |
| Latin America and the Caribbean | 15% |
| Middle East and North Africa | 14% |
| Emerging and Developing Asia | 10% |

| *VAT productivity, unweighted averages* | |
|---|---|
| CIS | 0.48 |
| Emerging and Developing Europe | 0.47 |
| Latin America and the Caribbean | 0.44 |
| Advanced Economies | 0.39 |
| World | 0.39 |
| Emerging and Developing Asia | 0.38 |
| Sub-Saharan Africa | 0.35 |
| ***Uzbekistan*** | 0.30 |
| Middle East and North Africa | 0.21 |

Source: Extracted from Geerten et al (2018).

As figure 4 illustrates that the VAT rate in Uzbekistan is at the top with Emerging and Developing countries in Europe however, in terms of VAT productivity with 0.30 that it is lagging behind than most countries in the world.

[1] C-Efficiency ratio shows country's VAT performance to the private consumption in the economy and the value 1 indicates that there is no productivity gap

## LITERATURE REVIEW

Author explored some theoretical and empirical evidence on the role of VAT in economy of a country. A common opinion on this topic is based on two narratives. While one pays attention on the influence of VAT on economic growth of a country, the other narrative assumes that the effects of VAT on the economy is dramatic.

Gatawa, Aliero and Abdullahi (2016) empirically surveyed effect of Value Added Tax on the economic growth of Nigeria. During study they used Johensen's co-integration test (1988) with secondary data starting from 1994 to 2014 and also the data was divided by on a quarterly basis. Also, came to the conclusion that Value Added Tax positively contributed to economic growth of a country.

Using panel data with 103 developing countries with over 1980-2008 period Ebeke and Ehrhat (2011) analyzed uncertainty of tax revenues in African countries and their outcomes and remedies. They explored that whether or not the introduction of value added tax play an important role in developing countries would be successful in case of balancing tax revenues. By examining countries, they found that countries who used value added tax system faced 50% less instability of tax revenue rather than in countries where system was not introduced.

In another study that covered 14 advanced countries with quarterly periods from the second quarter in 1980 (1980 Q2) to the third quarter in 2010 (2010 Q3), Miki (2011) tried to estimate the impact of value added tax rate change on economic growth and aggregate consumption. During study he found three type of trend which how the rate of value added tax change influenced on economic growth and aggregate consumption. The first trend was that before the upsurge of the value added tax rate, the aggregate consumption and economic growth went up (or went down). Second trend was that once the increase of value added tax rate performed then the aggregate consumption and economic growth lessened (enlarged). The last trend was that they increased slowly after substantial weakening (expanding).

Moreover, Mohammed Alizadeh and Masoume Motallabi (2015) analyzed the impact of Value Added Tax on the amount of current government and construction government in Iran's economy. Using ARDL model with time series statistic covered over the period 2008-2014. They concluded that positive correlation between Value Added Tax and the size of current and construction government and also, they found out that Value Added Tax effects more on the size of construction government than the size of current one.

On the other hand, many studies have shown that Value Added Tax affected negatively or stayed natural. Particularly, Ga'briel P,. Reiff A. (2006) estimated the relationship of change in VAT rate with consumer price index in Hungary and analyzed on the basis of store-level price quotas utilizing for the consumer price index calculation of the CSO. They found that

consequences of expanding Value Added Tax rate might lead to increase prices of goods and services over the months while decreasing of Value Added Tax rate cause smaller effect of prices of goods and services.

Hossein G.K. and Mohd N.Z. (2015) examined the impact of Value Added Tax on economic growth in developing countries. They used GMM panel for analyzing the data and analyzed the impacts of Value Added Tax on economic growth of 19 developing countries over the 1995 to 2010 period. They concluded that Value Added Tax influenced negatively on capital accumulation growth in the level.

Ahmad E., Lockwood B., Singh R. (2005) explored financial results of the Chinese Value Added Tax reform and according to their conclusion *"China's system of indirect taxes will create considerable revenue losses for the provincial governments. Extension of the right to deduction of VAT on fixed assets creates a considerable loss of VAT revenue for the central government as well. Extension of the scope of VAT to services increases VAT revenues for both the central and provincial governments but dramatically decreases the BT revenue for the provincial government"*.

On the basis of national accounts data Nam C.W., Parshe R., Schaden B. (2001) analyzed tax evasion on Value Added Tax in selected countries. They divided their study into two parts. First, exploring aspects and Value Added Tax analysis second, supposing connection between Value Added Tax and tax evasion by using of several countries encountered. Outcomes of this study described that Value Added Tax performance did not impact inflation rate and subtraction of Value Added Tax influences on trade deficit depended on change of prices of exportable and importable goods. Ultimately, the result revealed that there was negative and considerable correlation between Value Added Tax rate and the number of tax evasion.

## ECONOMETRIC METHODOLOGY

### Data and Design

The study is based on quarterly time series data covering the period from the last quarter of 2007 to the last quarter of 2018 due to the data availability. Relevant macro data for the study are obtained from the State Committee of the Republic of Uzbekistan on Statistics and the Ministry of Finance of the Republic of Uzbekistan.

### Model Specification

Following the model used by Gatawa et al (2016) in their investigation of the impact of value added tax and economic growth in Nigeria; this study adopts a modified version of the model.

Only VAT is included into our model, because of its dominant role in the government budget.. The modified version of the model is specified as follows:

$$GDP\ growth_t = \alpha + \beta_1 VAT\ growth_t + \beta_2 X_{it} + \varepsilon$$

Where: **GDP growth$_t$** = growth rate of real GDP; **VAT growth** = growth rate of Value Added Tax receipts; $X_{it}$ = controlled variables include growth rate of Gross Investment and CPI (proxy for Inflation). These factors are included in the model due to their importance to economic growth in Uzbekistan and they also are used as control variables in most previous studies related to growth;

$\alpha$ = constant term;

$\varepsilon$ = error term;

Unit root test were conducted for all variables and thus, VAT growth and all other controlled variables were differenced on the first order while GDP growth remain stationary without taking its first difference.

**RESULTS AND DISCUSSIONS**

First, we employed standard OLS method to find out relationship between dependent and explanatory variables. The results indicate that VAT is positive, but insignificant. However, this model might have endogeneity problem due to the omission of the lagged effect. Therefore, further modification was applied.

Table 3. OLS estimation without lagged values

Dependent Variable: GDP
Method: Least Squares
Date: 07/02/19 Time: 23:29
Sample (adjusted): 2008Q1 2018Q4
Included observations: 44 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(GVAT) | 0.004735 | 0.008400 | 0.563657 | 0.5761 |
| D(CPI) | -0.132923 | 0.191429 | -0.694371 | 0.4915 |
| D(CAPITAL_FORMATI | 0.156045 | 0.144153 | 1.082498 | 0.2855 |
| C | 0.058336 | 0.002975 | 19.60871 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.041966 | Mean dependent var | 0.058223 |
| Adjusted R-squared | -0.029887 | S.D. dependent var | 0.019431 |
| S.E. of regression | 0.019719 | Akaike info criterion | -4.927934 |
| Sum squared resid | 0.015554 | Schwarz criterion | -4.765735 |
| Log likelihood | 112.4146 | Hannan-Quinn criter. | -4.867783 |
| F-statistic | 0.584053 | Durbin-Watson stat | 1.162521 |
| Prob(F-statistic) | 0.628958 | | |

Since VAT are collected at the end of each quarter, lagged values of variables were included into the model in order to control lagged effects of them. According to the information criteria test (Akaike Information Criteria), the optimal lag length 4 was chosen. The results of OLS suggest that the past two lags of change in VAT growth rate are significant in explaining the real GDP growth, which is in line with our hypothesis.

Table 4. OLS estimation with lagged values

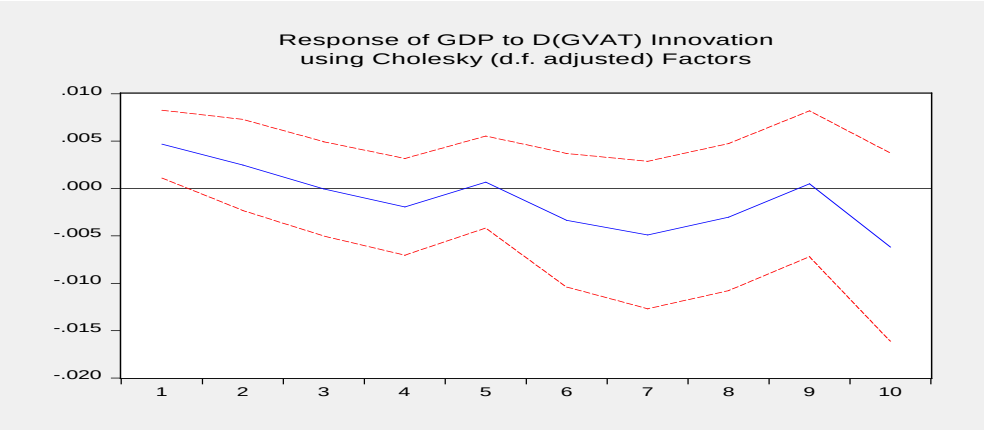
Dependent Variable: GDP
Method: Least Squares
Date: 07/02/19 Time: 23:42
Sample (adjusted): 2009Q1 2018Q4
Included observations: 40 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| GDP(-1) | -0.146600 | 0.146456 | -1.000986 | 0.3288 |
| GDP(-2) | 0.267884 | 0.142333 | 1.882093 | 0.0745 |
| GDP(-3) | 0.218039 | 0.136358 | 1.599022 | 0.1255 |
| GDP(-4) | 0.123583 | 0.128362 | 0.962764 | 0.3472 |
| D(GVAT) | 0.037175 | 0.023023 | 1.614678 | 0.1220 |
| D(GVAT(-1)) | 0.087700 | 0.041828 | 2.096697 | 0.0489 |
| D(GVAT(-2)) | 0.098296 | 0.041411 | 2.373676 | 0.0277 |
| D(GVAT(-3)) | 0.064341 | 0.039599 | 1.624829 | 0.1199 |
| D(GVAT(-4)) | 0.020340 | 0.023853 | 0.852710 | 0.4039 |
| D(CPI) | 0.109578 | 0.162844 | 0.672904 | 0.5087 |
| D(CPI(-1)) | 0.373759 | 0.166044 | 2.250967 | 0.0358 |
| D(CPI(-2)) | 0.390928 | 0.191927 | 2.036862 | 0.0551 |
| D(CPI(-3)) | 0.117403 | 0.210654 | 0.557326 | 0.5835 |
| D(CPI(-4)) | 0.460301 | 0.306874 | 1.499968 | 0.1492 |
| D(CAPITAL_FORMATION) | 0.015750 | 0.098135 | 0.160491 | 0.8741 |
| D(CAPITAL_FORMATION( | 0.049436 | 0.095931 | 0.515327 | 0.6120 |
| D(CAPITAL_FORMATION( | 0.132198 | 0.094927 | 1.392633 | 0.1790 |
| D(CAPITAL_FORMATION( | -0.091578 | 0.096110 | -0.952842 | 0.3520 |
| D(CAPITAL_FORMATION( | -0.028899 | 0.092308 | -0.313075 | 0.7575 |
| C | 0.027818 | 0.009226 | 3.015041 | 0.0068 |

| | | | |
|---|---|---|---|
| R-squared | 0.757121 | Mean dependent var | 0.055577 |
| Adjusted R-squared | 0.526385 | S.D. dependent var | 0.016007 |
| S.E. of regression | 0.011016 | Akaike info criterion | -5.872147 |
| Sum squared resid | 0.002427 | Schwarz criterion | -5.027708 |
| Log likelihood | 137.4429 | Hannan-Quinn criter. | -5.566825 |
| F-statistic | 3.281338 | Durbin-Watson stat | 2.177616 |
| Prob(F-statistic) | 0.005616 | | |

However, to control possible endogeneity issue, Vector Autoregressions (VAR) was applied. Then, impulse response functions were derived from VAR in order to see the dynamic response to the shocks of the variables. The impulse response function shows that GDP positively responds to the increase in VAT collection.

Figure 5. Impulse response function of GDP growth to VAT shock




## CONCLUSION

In this paper we explored the impact of VAT on GDP growth in the Republic of Uzbekistan. The data covers the period from 2007 to 2018 on a quarterly basis. After controlling the lagged effects and possible endogeneity of the variables, the results indicate that positive shocks in VAT collections positively influence the GDP growth. The obtained results are similar to the findings of the previous studies on this issue.

Since the VAT is considered to be the tax with less distorting effect according to the theory, the appropriate implementation of the VAT in Uzbekistan might be useful in improving the economic performance of the country. Specifically, the policy makers might consider to increase the efficiency of VAT collection.

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