ASERC Journal of Socio-Economic Studies

Journal homepage: www.ajses.az Volume2, Number 2, (2019) Pages 77-87

THE CURSE OF TRANSFERS? MODELLING FISCAL POLICY EFFECTIVENESS IN AZERBAIJAN

Khatai Aliyev [a, b, c]

[a]UNEC Empirical Research Center / Azerbaijan State University of Economics (UNEC)
Baku, AZERBAIJAN

Email: *khatai.aliyev@unec.edu.az*
[b]Department of World Economy, Baku Engineering University
Khirdalan, AZERBAIJAN

[c]ASERC
Baku, AZERBAIJAN.

ABSTRACT

The article aims to provide a new approach to the modelling of fiscal policy effectiveness in Azerbaijan. It is argued that massive transfer of oil revenues from SOFAZ to state budget after 2008 has sharply declined the impact of budget expenditures over non-oil sector economic performance, so called fiscal policy effectiveness. Research covers 2000Q1-2018Q1 period. Application of various break point tests to the period of 2000Q1-2018Q1 presents existence of break in 2009Q3. Therefore, periods of 2000Q1-2009Q3 and 2009Q3-2018Q1 are taken separately to assess long-run fiscal policy effectiveness in Azerbaijan. Empirical results of various cointegration methods all together supports the proposed claim that fiscal policy effectiveness has decreased significantly in the second period compared to the first. It is argued that the sharp fall is mostly due to the use of easy gained revenues, so called "the curse of transfers". Results of the study are fairly useful for policy officials to consider while preparing budget proposals under the pressure of low oil prices.

Keywords: Fiscal policy effectiveness; Non-oil growth; Oil revenues; Resource curse. Azerbaijan; SOFAZ. ,

[1] This paper was presented at 37th International Scientific Conference on Economic and Social Development - "Socio Economic Problems of Sustainable Development". 14-15 February, 2019, Baku, Azerbaijan.

1. Introduction

To achieve sustainable economic growth performance is one of the main goal of governments in modern economies. Fiscal policy tools are the major channels to stimulate economic growth in the context of Keynesian hypothesis. This may happen through either increasing public expenditures or decreasing tax rates. However, implementation of excessive expansionary fiscal policy can affect fiscal balance and the sustainability of public debt in economies (Afonso and Furceri, 2010). Although the goal is to stimulate economic growth, increasing role of government may affect adversely due to inefficiencies, crowding-out effects, the excess burden of taxation and the distortion of incentive systems (Afonso et al., 2005, 2011). That is why effective use of fiscal tools is essential for successful policy implementation. However, it is a challenging issue which also strongly depends on political-institutional factors (Talvi and Vegh, 2005; Kaminsky, Reinhart and Vegh, 2005; Alesina, Campante and Tabellini, 2008) and corruption level (Dietz, Neumayer, and Soysa, 2007; Andersen and Aslaksen, 2008).

Achieving and maintaining effectiveness of fiscal policy implementation is even more complicated in resource rich economies where there is easy gained resource revenues in the hands of government. Although policymakers can use resource funds to reduce negative impact of resource abundance (Tsani, 2013), elections may lead to increasing natural resource rents to finance public spending in parallel to tax reductions (Klomp and Haan, 2016). There are vast amount of studies in resource curse literature devoted to investigation of the relationship between government efficiency and economic growth (Kenisarin and Andrews-Speed, 2008; Farhadi, Islam and Moslehi, 2015; d'Agostino, Dunne and Pieroni, 2016; Corrigan, 2017; Tarek and Ahmed, 2017; Kim, Wu and Lin, 2018; Hajamini and Falahi, 2018), natural resource dependence and governance efficiency (Jayakar and Martin, 2012; Tsani, 2013; Corrigan, 2014; Van Alstine et al., 2014; Horvath and Zeynalov, 2016; Klomp and Haan, 2016; Aliyev and Gasimov, 2018a) as well as resource endowments and economic growth (Pao and Fu, 2013; Mideksa, 2013; Alexeev and Chernyavskiy, 2015; Gerelmaa and Kotani, 2106; Ouaba, 2016; Ahmed, Mahalik and Shahbaz, 2016; Go, Robinson and Thierfelder, 2016; Ebeke, Mireille and Etoundi, 2017; Arvanitis and Weigert, 2017; Li, Gupta and Yu, 2017).

In resource rich economies, governments provide tax concessions and injects more resource revenues generously to the economy due to their political interests which decreases efficiency and increase dependence from extractive industries (Aliyev and Gasimov, 2018a). This reminds the notion of "paradox of plenty" which could end with being unproductive of even productive expenditures (Devarjan et al., 1996). From this point of view, negative impact of transferred natural resource revenues over fiscal efficiency should not be surprising.

As a resource rich country, Azerbaijan received large amount of oil revenues especially after 2005. The state budget welcomed some portion of resource revenues in the form of taxes and other payments immediately while major part are accumulated in the national sovereign fund, the State Oil Fund of Azerbaijan Republic (SOFAZ). Meanwhile the state budget also received direct transfers from SOFAZ which expanded sharply since 2008 and the increase in budget expenditures are mostly finances by the transfers (Aliyev and Gasimov, 2018b). How this changed the impact of budget expenditures over non-oil sector is disputable.

In the context of "paradox of plenty" approach, here, it is argued that fiscal policy effectiveness sharply decreased after 2008 due to excessive fiscal expansion backed by the transfers. Previous studies on Azerbaijan did not consider possibility of break point, just estimated the strength of short and long-run causality from public expenditures to non-oil economic growth (Hasanov, 2013a, 2013b; Aliyev et al., 2016; Dehning et al., 2016; Aliyev and Nadirov, 2016; Aliyev and

Mikayilov, 2016; Hasanov et al., 2016; Hasanov et al., 2018; Mukhtatov et al., 2018; Jabrayilova and Aliyeva, 2018; Abbasov and Aliyev, 2018; Hasanov et al., 2019). Only Dehning et al. (2016) have made an attempt to differentiate the impact as before-and-during the oil boom by employing a dummy interaction term. However, fiscal policy efficiency does not immediately respond to oil boom, operates with some lag. Therefore, this approach is a new one which will give more information about fiscal policy effectiveness during 2000Q1-2018Q1 in Azerbaijan.

2. Literature review

The impact of fiscal policies over economic growth has always been a hot topic in both research and policy context. However, different studies end with sometimes conflicting outputs regarding the role of public expenditures in stimulating economic growth. A meta-analyses done by Nijikamp and Poot (2004) on the effects of fiscal policies over long-run economic growth show that among 41 studies, 17% show positive, 29% represent existence of negative relationship while more than half of those are inconclusive. The issue has been at the focus of various scholars in Azerbaijan especially after 2005 when oil boom launched accompanied by sharp expansionary fiscal policy. Note that the ratio of real budged expenditures to real GDP volume during 2000Q1-2018Q1 period in total is 53.86% (see Table 1). This is a substantial amount which always brings the question "how much effective" to the minds. As mentioned in Wijnbergen (2008), transfers to highly volatile public expenditures may have negative outcomes. Meanwhile, tax exemptions in the country (Zermeno, 2008) can lead to a major fiscal risk.

Before, Koeda and Krammarenko (2008) have evaluated the impact of scaled-up fiscal policy scenario over Azerbaijan's non-oil GDP growth on the basis of a neo-classical growth model for 2007-2012. According to vector autoregression (VAR) modelling results, authors underline that the fiscal scenario exposure risks for economic growth sustainability of the country.

Employing autoregressive distributed lagged bound testing (ARDLBT) and Johansen cointegration methods over 1998Q4-2012Q3 period, Hasanov (2013a) finds significant triggering role of public expenditures on Azerbaijan's non-oil economic growth. Similarly, Hasanov (2013b) reveals "spending effect" while analysing Dutch Disease symptoms in the target economy.

Employing various cointegration techniques, Aliyev et al. (2016) also finds strong positive causality from public expenditures to non-oil sector performance in Azerbaijan. Similar findings have been achieved also in Aliyev and Nadirov (2016) and Aliyev and Mikayilov (2016). Afterwards, Hasanov et al. (2018) employ ARDL, FMOLS, DOLS and CCR cointegration methods as well as error correction models over the period of 2000Q1-2016Q4 and reveals strong positive impact of budget expenditures.

Unlike all other previous studies, Dehning et al. (2016) apply a different logical approach to analysing fiscal policy effectiveness in Azerbaijan by employing ARDLBT approach. Assuming that oil boom has affected the effectiveness negatively according to "paradox of plenty" hypothesis by Devarjan et al. (1996), authors includes a dummy variable – equal 1 after the launch of oil boom (2005) and 0 before 2005. This approach is similar to the research methodology employed in this research at some level. However, Dehning et al. (2016) estimates impact of disaggregated public expenditures, and including dummy can show only average impact of boom after 2005. Nevertheless, it does not mean that oil boom had immediate negative impact over fiscal policy effectiveness.

3. Background

To understand the main trend in fiscal policy implementation process of Azerbaijan, it is noteworthy quickly overview dynamics of the state budget indicators during the investigation

period. Clearly observed that fiscal tendency has been sharp expansionary after the launch of oil boom until 2013, which turned to be slight contractionary later.

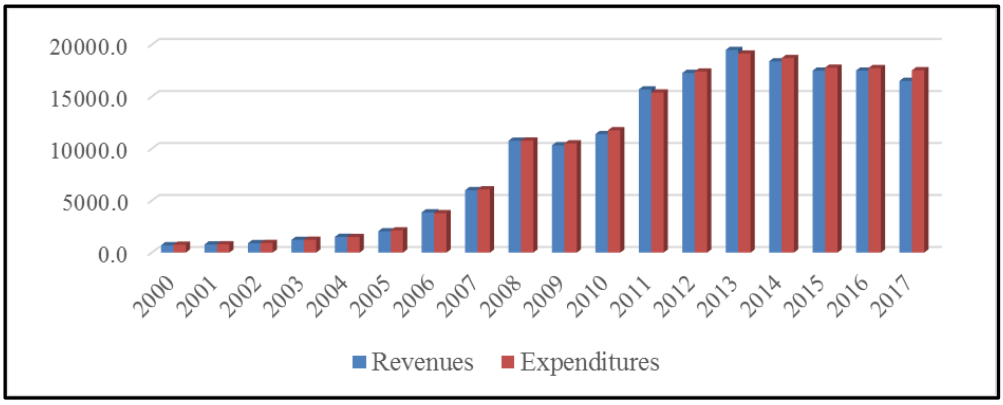

Figure 1: Dynamics of state budget indicators (million AZN) (Adapted from "Statistical Database" by the State Statistical Committee of the Republic of Azerbaijan (2018, December). Retrieved from https://www.azstat.org/MESearch/search?departament=10&lang=en)

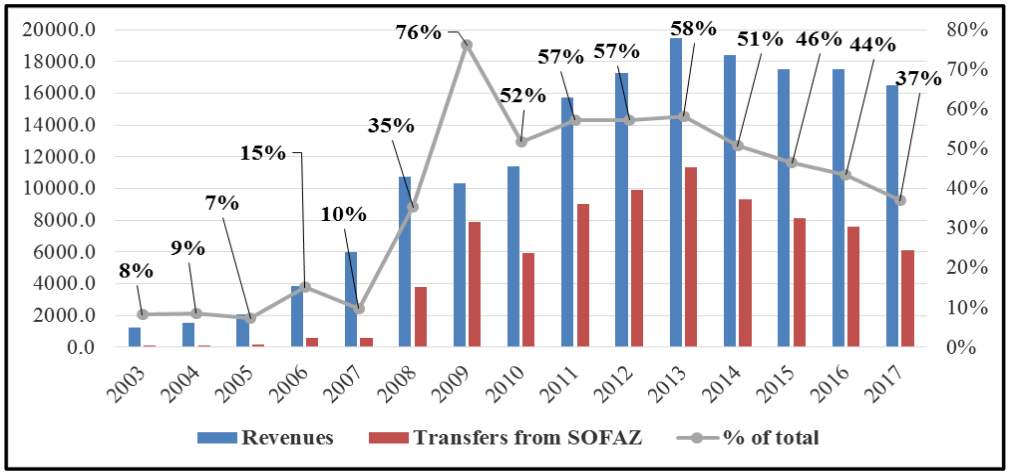

Figure 2: Share of SOFAZ transfers in total budget revenues (Adapted from "Statistical Bulletin" by Central Bank of Azerbaijan (2018, December). Retrieved from https://www.cbar.az/page-40/statistics-bulletin?language=en , "Reports archive: quarterly statements" by State Oil Fund of the Republic of Azerbaijan (2018, December). Retrieved from and http://www.oilfund.az/index.php?page=hesabat-arxivi&hl=en_US)

However, substantial change in amount of public expenditures has not been due to revenues from sustainable sources. Indeed, expenditures are mostly financed by natural resource related revenues in the form of direct transfers from SOFAZ as well as tax revenues from oil&gas sector (see Musayev and Aliyev (2017) for detailed description of dependence). Figure 2 displays how the share of direct transfers from SOFAZ in total budget revenues has changed overtime.

It is clearly observed that the share has been so small before 2008 when has climbed to 35% and 76% in the following years respectively. Reminding sharp expansionary tendency, change in shares also should be considered as substantial increase in volume of transfers. Thus, volume of transfers has been increased approximately 6.5 time in 2008 and 2.07 times in 2009 compared to the previous year.

Reminding "paradox of plenty" issue (Devarjan et al., 1996), it can be expected that effectiveness of budget expenditures to stimulate non-oil economic growth has declined significantly which stands at the center of this research. Results of Dehning et al. (2016) supports this expectation. Therefore, a break in the model after 2008-2009 should not be unexpected.

4. Data and Methodology

The study covers 2000Q1-2018Q1 period. ***GDP*** is the dependent variable which stand for the amount of total quarterly non-oil&gas output in the country. ***BE*** displays total state budget expenditures for each corresponding quarter. Another independent variable, ***nt_rev*** represent total amount of budget revenues left after subtracting the amount of direct transfers from SOFAZ. In other words, ***nt_rev*** show quarterly amount of non-transfer budget revenues. Remaining two indicators included as control variables are ***oprc*** and ***oprn*** denote average quarterly oil price in world market and average oil production amount in the economy for each quarter. Note that *GDP*, *BE* and *nt_rev* are measured as million AZN, converted to real values according to Consumer Price Index (CPI) method at 2000Q4 prices. *Oprc* is in USD and *oprn* is calculated as thousand barrel per day. Descriptive statistics of the variables are given in the table 1.

Table 1: Descriptive statistics of variables

Variables	No. of obs.	Mean	Minimum	Maximum	Std. dev	Sum
GDP	73	1926.76	514.95	3617.65	921.62	140653.1
BE	73	1037.82	141.58	2914.85	697.36	75760.63
Nt-revenue	73	598.34	149.39	985.46	262.73	43679.07
Oprc	73	62.63	19.30	121.10	29.57	-
Oprn	73	693.52	274.00	1066.00	275.98	50626.86

Source: *Author's own completion*

To determine if there are breaks in regression models, Bai-Perron tests (Bai and Perron, 2003), Quandt-Andrews unknown breakpoint test (Andrews, 1993), and Chow Breakpoint Test (Chow, 1960) are employed for robustness.

To estimate long-run association, Fully Modified Least Squares (hereafter FMOLS) developed by Phillips and Hansen (1990), Dynamic Least Squares (hereafter DOLS, Stock and Watson, 1993), Canonical Cointegrating Regression (hereafter CCR) of Park (1992), and Autoregressive Distributed Lag Bounds Testing (ARDLBT) Approach (Pesaran et al. 2001) are employed. Note that FMOLS is corrected for endogeneity and serial correlation effects while DOLS is corrected for potential simultaneity bias among regressors, and CCR allows to provide asymptotically efficient estimators (Narayan and Narayan, 2004). To identify existence of cointegration relationship in the estimated models by FMOLS, DOLS and CCR, Engle-Granger (Engle and Granger, 1987) and Philips-Ouliaris (Phillips and Ouliaris, 1990) tests are employed.

First of all, order of integration of variables is determined by employing three different unit root tests - Augmented Dickey Fuller (hereafter ADF, Dickey and Fuller, 1981), the Phillips-Perron (hereafter PP, Phillips and Perron, 1988), and Kwiatkowski-Phillips-Schmidt-Shin (hereafter KPSS, Kwiatkowski et al., 1992). Note that ADF and PP tests the null hypothesis of "there is unit root problem". In contrary, the null hypothesis is "series are stationary" in KPSS.

5. Empirical Results

Empirical output of the research should start with defining the break dates as this takes the biggest role in the research hypothesis. Results of various breakpoint tests are presented in table 2. Tests altogether identify only 2009Q3 as the break date. Therefore, the period before-and-after 2009Q3 is taken separately as the adopted methodology.

Table 2: Breakpoint test results

	Number of breaks	F-statistic	Scaled F-statistic	Break date	
				Sequential	Repartition
Bai-Perron tests of L+1 vs. L sequentially determined breaks	0 vs. 1*	13.672	95.703	2009Q3	2009Q3
	1 vs. 2	2.029	14.206		
Bai tests of breaks in all recursively determined partitions	0 vs. 1*	13.672	95.703	2009Q3	2009Q3
	1 vs. 2	2.029	14.206		
*Quandt-Andrews unknown breakpoint test***					
	Value	Prob.			
Maximum LR F-statistic	13.672	0.0000	2009Q3		
Maximum Wald F-statistic	95.703	0.0000	2009Q3		
Chow Breakpoint Test: 2009Q3					
F-statistic	13.672	0.0000	2009Q3		

Note: ** Significant at the 0.05 level; Bai-Perron (2003) critical values are used; Trimming 0.15, Max. breaks 5, Sig. level 0.05;*
*** Probabilities calculated using Hansen's (1997) method; Trimming 0.15.*

Due to estimation of different models, existence of unit root in series for 2000Q1-2009Q3 and 2009Q3-2018Q1 periods is also examined separately. For the first period, PP and KPSS find all variables I(1) without trend while ADF is inconclusive for *oprn*. When trend is included, ADF finds *oprc* stattionary at level and others I(1). Despite of small confusion, it is possible to conclude that all variables are I(1) for the first period.

Table 3: The unit root tests results

	Variable	The ADF test			The PP test			The KPSS test	
		Level	k	First difference	k	Level	First difference	Level	First difference
2000Q1-2009Q3									
Intercept	*GDP*	1.793	3	-10.45***	2	-1.931	-12.938***	0.698**	0.228
	BE	1.885	3	-7.477***	2	-1.666	-20.777***	0.644**	0.161
	Nt_rev	-1.236	0	-6.360***	0	-1.160	-6.416***	0.631**	0.107
	Oprc	-1.229	2	-4.573***	3	-1.306	-5.925***	0.618**	0.174
	Oprn	0.528	0	-1.187	4	0.829	-5.229***	0.674**	0.287
Trend and intercept	*GDP*	-0.189	3	-11.12***	2	-4.54***	-13.829***	0.153**	0.218***
	BE	-0.988	3	-4.603***	4	-3.868**	-21.689***	0.185**	0.157**
	Nt_rev	-1.961	0	-6.294***	0	-1.961	-6.345***	0.104	0.104
	Oprc	-4.11**	1	-4.435***	4	-2.245	-5.696***	0.096	0.173**
	Oprn	-1.735	0	-6.000***	1	-1.593	-7.261***	0.174**	0.263***
2009Q3-2018Q1									
Intercept	*GDP*	-1.953	4	-3.169**	3	-4.27***	-17.308***	0.698**	0.248
	BE	-1.495	3	-9.464***	2	-5.85***	-21.562***	0.227	0.182
	Nt_rev	-2.391	4	-9.451***	2	-6.25***	-30.841***	0.409*	0.304
	Oprc	-1.021	0	-4.598***	0	-1.230	-4.598***	0.368*	0.213
	Oprn	-1.041	0	-6.071***	0	-0.934	-6.134***	0.633**	0.115
Trend and intercept	*GDP*	-2.249	4	-11.79***	2	-5.41***	-18.404***	0.124*	0.146**
	BE	-1.945	3	-9.632***	2	-5.92***	-21.532***	0.171**	0.127*
	Nt_rev	-2.345	4	-9.233***	2	-6.68***	-30.093***	0.099	0.175**
	Oprc	-1.896	0	-4.524***	0	-1.978	-4.5241***	0.146**	0.157**
	Oprn	-2.201	0	-5.956***	0	-2.259	-6.0057***	0.129*	0.095

Notes: ADF, PP and KPSS denote the Augmented Dickey-Fuller, Phillips-Perron and Kwiatkowski-Phillips-Schmidt-Shin tests respectively. Maximum lag order is set to 4 and optimal lag order (k) is selected based on Schwarz criterion in the ADF test; ***, ** and * indicate rejection of the null hypotheses at the 1%, 5% and 10% significance levels respectively; The critical values are taken from MacKinnon (1996) and Kwiatkowski-Phillips-Schmidt-Shin (1992) for the ADF, PP and KPSS tests respectively.

For the second period, alternative unit root test results creates some level of confusion. According to ADF test results, all variables are I(1) regardless the trend factor. PP test concludes

that *GDP*, *BE*, and *Nt_rev* are stationary at level. Considering KPSS results, only *BE* is stationary at level when trend is not included. It is possible to take ADF results for the upcoming empirical stages. However, employing ARDLBT approach which allows also to work with combination of I(0) and I(1) series will remove any doubtness over the results due to order of integration confusion.

Next stage in the empirical estimation process is to test for existence of cointegration or long-run association among the variables. Table 4 tabulates Engle-Granger and Phillips-Ouliaris cointegration test results for FMOLS, DOLS, and CCR as well as bounds test outcomes for ARDLBT.

Both employed cointegration tests provide strong evidence about existence of long-run relationship in the estimated models by FMOLS, DOLS and CCR for the first period. Confidence level is always greater than 99% in all cases. Nevertheless, test results indicate weak cointegration for the models of the second period. Null hypothesis of "*no cointegration*" is rejected only at 10% level of significance. Because confidence level is greater than 90%, it is possible to decide that cointegration also exists in the models by FMOSL, DOLS and CCR for the second period. For ARDLBT, estimated F-statistic value is greater than both Pesaran et al. (2001) and Narayan (2005) critical values at 1% significance level. This means cointegration exists in the estimated model by ARDLBT for both periods. Therefore, we can proceed with interpretation of long-run equations which are tabulated in Table 5. Note that residual diagnostics are checked in all estimated models. Residuals are not serially correlated and homoscedasticity assumption is maintained. Meanwhile, there is no functional form misspecification problem.

Table 4: Results of the cointegration tests

	Engle-Granger Cointegration test		**Phillips-Ouliaris Cointegration test**	
	Tau-statistic	*z-statistic*	*Tau-statistic*	*z-statistic*
		2000Q1-2009Q3		
FMOLS	-7.682 ***	-46.427 ***	-7.666 ***	-49.443***
DOLS	-7.682 ***	-46.427 ***	-7.666 ***	-49.443***
CCR	-7.682 ***	-46.427 ***	-7.666 ***	-49.443***
		2009Q3-2018Q1		
FMOLS	-4.662 *	-26.145*	-4.712*	-25.307*
DOLS	-4.662 *	-26.145*	-4.712*	-25.307*
CCR	-4.662 *	-26.145*	-4.712*	-25.307*

F-bounds test for ARDLBT

The sample F-statistic	Sig. level	Pesaran et al. (2001) critical values ($n = 1000, k = 4$)		Narayan (2005) critical values ($n = 35, k = 4$)	
		Low bound	Upper bound	Low bound	Upper bound
2000Q1-2009Q3: F_W = 8.0838	1%	3.29	4.37	4.09	5.53
	5%	2.56	3.49	2.95	4.09
2009Q3-2018Q1: F_W = 10.6435	10%	2.2	3.09	2.46	3.46

Notes: *Null hypothesis for both tests is: variables are not cointegrated; ***, ** and * indicate significance of the coefficients at 1%, 5% and 10% significance level respectively; Optimal lag length is selected based on the Schwarz criterion taking 4 lags as a maximum; p-values are MacKinnon (1996) p-values for tau-statistic.*

Results of all cointegration methods supports the research hypothesis that there is sharp fall in fiscal policy effectiveness after the launch of massive direct transfers from SOFAZ. Thus, findings reveal that the impact of budget expenditures over non-oil economic growth has been substantially large in the first period compared to after 2009Q3. According to empirical results,

1% increase in the volume of total budget expenditures has triggered economic growth during 2000Q1-2009Q3 by 0.77-1.13%, in average, holding other factors fixed, which all are statistically ($p\ value < 0.01$) and economically significant. Compared to the first period, the impact of 1% increase in the second period has been just around 0.16-0.19%, neither economically, nor statistically significant ($p\ value > 0.10$). Only FMOLS result display weak significance ($0.05 < p\ value < 0.10$).

Table 5: Long-run equations

Independent variables	**FMOLS**		**DOLS**		**CCR**		**ARDLBT**	
	1st period	*2nd period*	*1st period*	*2nd period*	*1st period*	*2nd period*	*1st period*	*2nd period*
log(BE)	0.777***	0.166*	1.127***	0.169	0.825***	0.169	0.797***	0.185
log(nt_rev)	-0.026	0.243	-0.129	0.595*	-0.053	0.332	-0.127	1.11***
log($oprc$)	-0.108	-0.012	-0.182*	-0.063	-0.107	-0.026	0.022	-0.078
log($oprn$)	-0.38***	-1.13***	-0.714***	-0.770**	-0.42***	-1.029***	-0.41***	0.261
C	5.249***	12.86***	6.005***	8.299***	5.337***	11.62***	5.471***	1.001
@seas(1)	-0.040	-0.19***	-0.199***	-0.26***	-0.035	-0.184***	-0.25***	-0.20***
@seas(4)	-0.095*	-0.016	0.197***	-0.042	-0.104*	-0.024***	0.032	-0.054
Sample (adjusted)	*2000Q2-2009Q3*	*2009Q3-2018Q1*	*2000Q2-2009Q3*	*2009Q3-2018Q1*	*2000Q2-2009Q3*	*2009Q3-2018Q1*	*2000Q4-2009Q3*	*2009Q3-2018Q1*
No. of observ.	*38*	*35*	*38*	*35*	*38*	*35*	*36*	*35*
R-squared	*0.892*	*0.858*	*0.968*	*0.892*	*0.890*	*0.844*	*0.944*	*0.949*

Note: ***, ** and * indicate significance of the coefficients at 1%, 5% and 10% significance level respectively;

Considering revenue related channel of fiscal policy, the coefficient of *nt_rev* allows to have an idea. Logically and theoretically, the impact should be negative in the context of tax multiplier issue. For the first period, the impact is always found to be negative as expected, but statistically insignificant ($p\ value > 0.10$). However, for the second period, results reveal "positive" causality from between non-transfer budget revenues to non-oil economic growth. Clearly, this outcome is due to large share of oil sector in generation of non-transfer budget revenues (see Musayev and Aliyev, 2017). Meanwhile, large tax concessions are applied to specific sector of the non-oil sector, for example, agriculture (see Aliyev and Gasimov, 2017) In other words, tax channel has not played a substantial discouraging role in the second period.

6. Conclusion

Fiscal policy implementation in Azerbaijan is strongly linked to the performance of natural resource sector. Share of oil related revenues in the state budget is substantially large. Especially, there is sharp increase in amount of direct transfers from SOFAZ to the state budget after 2008. In this context, the article investigates Azerbaijan's fiscal policy effectiveness and attempts to reveal how the increase in amount of direct transfers affected effectiveness of budget expenditures in terms of stimulating non-oil sector growth over 2000Q1-2018Q1.

Because employed break point test results indicate existence of break at 2009Q3, before-and-after the break date is considered separately by employing 4 cointegration techniques: FMOLS, DOLS, CCR, and ARDLBT. Results from all used methods support each other and show the large fall in fiscal policy effectiveness after 2009Q3 compared to previous period. It is found that the impact of public expenditures over non-oil economic growth in Azerbaijan has been economically and statistically significant within the first (2000Q1-2009Q3) period while neither

statistically nor economically significant after 2009Q3, in average. More precisely, long-run response of non-oil sector growth to 1% increase in amount of total budget expenditures is 0.77-1.13% within the first period while it is just around 0.16-0.19% in the second one. The change is substantially large.

What is the major reason? Note that the impact of oil price fluctuations and production amount is considered and these indicators are included to the model as control variables. Therefore, "Dutch Disease" effect should not be an influential factor behind fiscal policy effectiveness change. Reminding institutional effects of resource abundance, the major can be the fall in governance quality which was triggered by direct transfers of "easy gained revenues" from SOFAZ to the state budget, in other words, curse of transfers.

The research makes very strong contribution to the existing literature with its new approach to analyse fiscal policy effectiveness in Azerbaijan. Policy officials and responsible institutions should carefully analyse expected effectiveness of public spending while preparing budget proposals and determining volume of direct transfers from SOFAZ for the next year.

REFERENCES

Abbasov, J. A., and Aliyev, K. (2018). Testing Wagner's Law and Keynesian Hypothesis in Selected Post-Soviet Countries. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *66*(5), pp.1227-1237.

Afonso, A., Schuknecht, L., and Tanzi, V. (2005). Public sector efficiency: an international comparison. *Public choice*, *123*(3-4), pp.321-347.

Afonso, A., Schuknecht, L., and Tanzi, V. (2010). Income distribution determinants and public spending efficiency. *The Journal of Economic Inequality*, *8*(3), pp.367-389.

Afonso, A., and Furceri, D. (2010). Government size, composition, volatility and economic growth. *European Journal of Political Economy*, *26*(4), pp.517-532.

Ahmed, K., Mahalik, M. K., and Shahbaz, M. (2016). Dynamics between economic growth, labor, capital and natural resource abundance in Iran: An application of the combined cointegration approach. *Resources Policy*, *49*, pp.213-221.

Alexeev, M., and Chernyavskiy, A. (2015). Taxation of natural resources and economic growth in Russia's regions. *Economic Systems*, *39*(2), pp.317-338.

Alesina, A., Campante, F. R., and Tabellini, G. (2008). Why is fiscal policy often procyclical?. *Journal of the european economic association*, *6*(5), pp.1006-1036.

Aliyev, K., Dehning, B., and Nadirov, O. (2016). Modelling the Impact of Fiscal Policy on Non-Oil Gdp in a Resource Rich Country&58; Evidence from Azerbaijan. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *64*(6), pp.1869-1878.

Aliyev, K., and Mikayilov, C. (2016). Does the budget expenditure composition matter for long-run economic growth in a resource rich country? Evidence from Azerbaijan. *Academic Journal of Economic Studies*, *2*(2), pp.147-168.

Aliyev, K., nd Nadirov, O. (2016). How fiscal policy affects non-oil economic performance in Azerbaijan?. *Academic Journal of Economic Studies*, *2*(3), pp.11-30.

Aliyev, K., and Gasimov, I. (2017). Retrospective of Economic and Trade Policies Focused on Agricultural Development: Case of Azerbaijan. In *Establishing Food Security and Alternatives to International Trade in Emerging Economies* (pp. 177-195). IGI Global.

Aliyev, K. and Gasimov, I. (2018a). Testing resource curse triangle hypothesis: extractives dependence, governance quality and economic growth. *ASERC Journal of Socio-Economic Studies*, 1(1), pp.3-21.

Aliyev, K., and Gasimov, I. (2018b). Fiscal policy implementation in Azerbaijan before, during and after the oil boom. *Contemporary Economics*, *12*(1), pp.81-93.

Andersen, J. J., and Aslaksen, S. (2008). Constitutions and the resource curse. *Journal of Development Economics*, *87*(2), pp.227-246.

Andrews, D. W. (1993). Tests for parameter instability and structural change with unknown change point. *Econometrica: Journal of the Econometric Society*, pp.821-856.

Arvanitis, Y., and Weigert, M. (2017). Turning resource curse into development dividends in Guinea-Bissau. *Resources Policy*, *53*, pp.226-237.

Bai, J., & Perron, P. (2003). Critical values for multiple structural change tests. *The Econometrics Journal*, *6*(1), 72-78.

Chow, G. C. (1960). Tests of equality between sets of coefficients in two linear regressions. *Econometrica: Journal of the Econometric Society*, pp.591-605.

Corrigan, C. C. (2014). Breaking the resource curse: Transparency in the natural resource sector and the extractive industries transparency initiative. *Resources Policy*, *40*, pp.17-30.

Corrigan, C. C. (2017). The effects of increased revenue transparency in the extractives sector: The case of the Extractive Industries Transparency Initiative. *The Extractive Industries and Society*, *4*(4), pp.779-787.

d'Agostino, G., Dunne, J. P., and Pieroni, L. (2016). Government spending, corruption and economic growth. *World Development*, *84*, pp.190-205.

Dietz, S., Neumayer, E., and De Soysa, I. (2007). Corruption, the resource curse and genuine saving. *Environment and Development Economics*, *12*(1), pp.33-53.

Dickey, D. A., and Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: Journal of the Econometric Society*, pp.1057-1072.

Dehning, B., Aliyev, K., and Nadirov, O. (2016). Modelling'productivity'of budget expenditure items before-and-after the oil boom in a resource rich country: Evidence from Azerbaijan. *International Journal of Economic Research*, *13*(4), pp.1793-1806.

Deverajan, S., Swaroop, V. and Zou, H. (1996). The composition of public expenditure and economic growth. *Journal of Monetary Economics*, 37, pp.313-344.

Ebeke, C. H., and Etoundi, S. M. N. (2017). The Effects of Natural Resources on Urbanization, Concentration, and Living Standards in Africa. *World Development*, *96*, pp.408-417.

Engle, R. F., and Granger, C. W. (1987). Co-integration and error correction: representation, estimation, and testing. *Econometrica: journal of the Econometric Society*, pp.251-276.

Farhadi, M., Islam, M. R., and Moslehi, S. (2015). Economic freedom and productivity growth in resource-rich economies. *World Development*, *72*, pp.109-126.

Go, D. S., Robinson, S., and Thierfelder, K. (2016). Natural resource revenue, spending strategies and economic growth in Niger. *Economic Modelling*, *52*, pp.564-573.

Gerelmaa, L., and Kotani, K. (2016). Further investigation of natural resources and economic growth: Do natural resources depress economic growth?. *Resources Policy*, *50*, pp.312-321.

Hajamini, M., and Falahi, M. A. (2018). Economic growth and government size in developed European countries: A panel threshold approach. *Economic Analysis and Policy*, *58*, pp.1-13.

Hansen, B. E. (1997). Approximate asymptotic p values for structuras-change tests. *Journal of Business & Economic Statistics*, *15*(1), pp.60-67.

Hasanov, F. (2013a). The Role of the Fiscal Policy in the Development of the Non-Oil Sector in Azerbaijan. *Hazar Raporu*, 4, pp.162–73.

Hasanov, F. (2013b). Dutch disease and the Azerbaijan economy. *Communist and Post-Communist Studies*, 46, pp.463-480.

Hasanov, F., Mikayilov, C., Yusifov, S., and Aliyev, K. (2016). Impact of Fiscal Decentralization on Non-Oil Economic Growth in a Resource-Rich Economy. *Eurasian Journal of Business and Economics*, *9*(17), pp.87-108.

Hasanov, F., Mammadov, F., and Al-Musehel, N. (2018). The Effects of Fiscal Policy on Non-Oil Economic Growth. *Economies*, *6*(2), p. 27.

Hasanov, F, Mikayılov, C, Yusifov, S., Aliyev, K. and Talishinskaya, S. (2019). The role of social and physical infrastructure spending in development of tradable and non-tradable sectors in Azerbaijan *Contemporary Economics*, 13(1), pp.79-98.

Horváth, R., and Zeynalov, A. (2016). Natural resources, manufacturing and institutions in post-Soviet countries. *Resources Policy*, *50*, pp.141-148.

Jayakar, K., and Martin, B. (2012). Regulatory governance in African telecommunications: Testing the resource curse hypothesis. *Telecommunications Policy*, *36*(9), pp.691-703.

Jabrayilova, M. and Aliyeva, A. (2018). Modelling the return to public expenditures on education: the case of Azerbaijan. *ASERC Journal of Socio-Economic Studies*, 1(1), pp.60-72.

Kaminsky, G. L., Reinhart, C. M. and Végh, C. A. (2005). When it rains, it pours: procyclical capital flows and macroeconomic policies. In *NBER Macroeconomics Annual 2004*, Volume 19, MIT Press, pp.11-82.

Kenisarin, M. M., and Andrews-Speed, P. (2008). Foreign direct investment in countries of the former Soviet Union: Relationship to governance, economic freedom and corruption perception. *Communist and Post-Communist Studies*, *41*(3), pp.301-316.

Kim, D. H., Wu, Y. C., and Lin, S. C. (2018). Heterogeneity in the effects of government size and governance on economic growth. *Economic Modelling*, *68*, pp.205-216.

Klomp, J., and de Haan, J. (2016). Election cycles in natural resource rents: Empirical evidence. *Journal of Development Economics*, *121*, pp.79-93.

Koeda, J. and Kramarenko, V.K., 2008. *Impact of government expenditure on growth: The case of Azerbaijan* (Vol. 8). International Monetary Fund.

Kwiatkowski, D., Phillips, P. C., Schmidt, P., and Shin, Y. (1992). Testing the null hypothesis of stationarity against the alternative of a unit root: How sure are we that economic time series have a unit root?. *Journal of econometrics*, *54*(1-3), pp.159-178.

Li, B. G., Gupta, P., and Yu, J. (2017). From natural resource boom to sustainable economic growth: Lessons from Mongolia. *International Economics*, *151*, pp.7-25.

MacKinnon, J. G. (1996). Numerical distribution functions for unit root and cointegration tests. *Journal of applied econometrics*, *11*(6), pp.601-618.

Mideksa, T.K. (2013). The economic impact of natural resources. *Journal of Environmental Economics and Management*, *65*(2), pp.277-289.

Mukhtarov, S., Gasimov, I. and Rustamov, U. (2018). Evaluation of fiscal policy impact on economic growth: the case of Azerbaijan. *ASERC Journal of Socio-Economic Studies*, 1(1), pp.82-90.

Musayev, A., and Aliyev, K. (2017). Modelling Oil-Sector Dependency of Tax Revenues in a Resource Rich Country: Evidence from Azerbaijan. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *65*(3), pp.1023-1029.

Narayan, S., and Narayan, P. K. (2004). Determinants of demand for Fiji's exports: an empirical investigation. *The Developing Economies*, *42*(1), pp.95-112.

Narayan, P. K. (2005). The saving and investment nexus for China: evidence from cointegration tests. *Applied economics*, *37*(17), pp.1979-1990.

Nijkamp, P. and Poot, J., 2004. Meta-analysis of the effect of fiscal policies on long-run growth. *European Journal of Political Economy*, *20*(1), pp.91-124.

Ouoba, Y. (2016). Natural resources: Funds and economic performance of resource-rich countries. *Resources Policy*, *50*, pp.108-116.

Pao, H. T., and Fu, H. C. (2013). The causal relationship between energy resources and economic growth in Brazil. *Energy Policy*, *61*, pp.793-801.

Park, J. Y. (1992). Canonical cointegrating regressions. *Econometrica: Journal of the Econometric Society*, pp.119-143.

Pesaran, M. H., Shin, Y., and Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, *16*(3), pp.289-326.

Phillips, P. C., and Hansen, B. E. (1990). Statistical inference in instrumental variables regression with I (1) processes. *The Review of Economic Studies*, *57*(1), pp.99-125.

Phillips, P. C., and Ouliaris, S. (1990). Asymptotic properties of residual based tests for cointegration. *Econometrica: Journal of the Econometric Society*, pp.165-193.

Phillips, P. C., and Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, *75*(2), pp.335-346.

Stock, J. H., and Watson, M. W. (1993). A simple estimator of cointegrating vectors in higher order integrated systems. *Econometrica: Journal of the Econometric Society*, pp.783-820.

Talvi, E. and Vegh, C. A. (2005). Tax base variability and procyclical fiscal policy in developing countries. *Journal of Development economics*, 78(1), pp.156-190.

Tarek, B. A., and Ahmed, Z. (2017). Institutional quality and public debt accumulation: an empirical analysis. *International Economic Journal*, *31*(3), pp.415-435.

Tsani, S. (2013). Natural resources, governance and institutional quality: The role of resource funds. *Resources Policy*, *38*(2), pp.181-195.

Van Alstine, J., Manyindo, J., Smith, L., Dixon, J., and AmanigaRuhanga, I. (2014). Resource governance dynamics: The challenge of 'new oil'in Uganda. *Resources Policy*, *40*, pp.48-58.

Wijnbergen, S. V. 2008. *The Permanent Income Approach in Practice: A Policy Guide to Sustainable Fiscal Policy in Azerbaijan.* Washington: World Bank.

Zermeno, M. 2008. *Current and Proposed Non-Oil Tax System in Azerbaijan.* IMF Working Paper, pp. 1-19.