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The Interactions of Instability of Monetary and Fiscal Policies in the Iranian Economy by the MSVAR Approach

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Abstract

The coordination of monetary and fiscal policies, given the financial crises that have occurred in the last decade, has increased more than ever and has led countries considers coordinating economic policies to deal with the adverse effects of these crises. The implementation of any economic policy is accompanied by instabilities that can affect each other. Accordingly, the present article examines the interaction effects of monetary and fiscal policy instabilities in the Iranian economy. For this purpose, using the Markov-Switching Vector Auto Regression Model (MSVAR) during the period 1978-2017, the interaction effects of monetary and fiscal policies were investigated. The instability of the variables of tax revenues, government expenditures, interest rates and broad money was estimated using the Hadrick-Prescott filter. The results showed that government size instability in regimes of zero and one has a negative effect on interest rate instability. Interest rate volatility in regimes one and two has a significant effect on government-size instability. Also, the size instability of the government did not have a significant effect on the instability of the volume of broad money, but the instability of the broad money in the regime two had direct effects on the instability of the size of the government. The instability of tax revenues in the regime two had direct and significant effects on the instability of interest rates, while the instability of interest rates did not have a significant effect on the instability of tax revenues. Also, the instability of tax revenues in regimes of zero and one had a direct and significant effect on the instability of broad money and the instability of the broad money in the regimes two had direct and significant effects on the instability of tax revenues. Accordingly, in the Iranian economy, the instability of monetary and fiscal policies affects each other under regime conditions.

Keywords: Monetary policy instability, financial policy instability, Markov Switching Vector Auto-Regressive (MSVAR).

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1. Introduction

The coordination of monetary and fiscal policies plays a key role in the process of macroeconomic variables, including price stability and economic growth. Sargent and Wallace (1981) showed that monetary policy without the necessary coordination with fiscal policies does not have the power to maintain price stability. The importance of monetary and fiscal policy coordination has increased after the financial crises of the last decade, and countries are trying to adopt coordinated policy combinations to deal with the adverse effects of crises. Coordination of monetary and fiscal policies means that policies do not reinforce each other's positive effects or at least neutralize each other's effectiveness (Tavaklian et al., 1398). But the uncertainty of these policies makes it difficult to make the necessary and appropriate forecasts and measures. Therefore, in this paper, the interaction between the instability of monetary and fiscal policies in Iran is investigated using the MSVAR approches.

2. Literature Review

According to the different nature of the monetary and fiscal policies purpose and the priorities of monetary and financial authorities, these policies can work in the opposite direction. On the other hand, the tools of these policies are different and may typically affect more than one goal. Although each policy instruments helps policymakers to achieve the desired values for each monetary or fiscal policy goal, it is possible that they will interfere with achieving their desired values (Tavaklian et al., 2017). Bamidel et al (2011), the most important challenges of monetary and fiscal policy coordination are the lack of appropriate channels for effective relation between monetary and financial authorities, lack of commitment to monetary and fiscal policy coordination procedures by officials, inconsistency of the goals of monetary and financial authorities, the lack of proper financial markets, the degree of financial dominance, the method of financing the government budget deficit and differences in the timing of the impact of monetary and fiscal policies. Effective coordination between monetary and fiscal policies helps policymakers achieve desirable economic policy goals (Lauren and Piedra, 1998). Ahangari and Tamnaeifar (2017) showed that the response of monetary policymakers to the increase in government budget deficit to increase liquidity and the response of financial policymakers to increase liquidity to reduce government budget deficit is formed. Madah and Talib Beidakhti (2015), using MS model, showed that in the period 1981-1985, both policymakers did not have a consistent behavioral interaction with each other. Using the MS in New Zealand, Wesselbaum (2014) showed that in a Non-adaptive system, monetary policy does not respond to changes in government debt. Ceviket et al (2014) used MS model in Europe to show that fiscal policy in the Czech Republic, Estonia, Hungary, and Slovenia has shifted between active and passive financial systems.

3. Research Method

The interaction effects of monetary and fiscal policy instability have been investigated using the MSVAR method by integration of (Kuncoro and Sebayang, 2013 and Ahangari and Tamnaeifar, 2017) studies.

Model 1 showes the relationship between government size instability (VLGOV) and interest rate instability (VLIR), Model 2 Government size instability and liquidity instability (VLM2) correlation, Model 3 tax revenue instability (VLTAX) and interest rate instability correlation and Model 4 shows the relationship between tax revenue instability and liquidity instability. The monetary policies and fiscal instability was esimated by the Hadrick-Prescott filter method. Variables time series are collected from Central Bank and WDI (2019) databases.

$$VLGOV_t = \beta_0 + \sum_{p=1}^{n} \beta_i VLGOV_{t-p} + \sum_{p=1}^{n} \alpha_i VLIR_{t-p} + \varepsilon_t$$
$$VLIR_t = \beta_0 + \sum_{p=1}^{n} \beta_i VLGOV_{t-p} + \sum_{p=1}^{n} \alpha_i VLIR_{t-p} + \varepsilon_t \quad (1)$$

$$VLGOV_t = \beta_0 + \sum_{p=1}^{n} \beta_i VLGOV_{t-p} + \sum_{p=1}^{n} \alpha_i VLM_{t-p} + \varepsilon_t$$
$$VLM_t = \beta_0 + \sum_{p=1}^{n} \beta_i VLGOV_{t-p} + \sum_{p=1}^{n} \alpha_i VLM_{t-p} + \varepsilon_t \quad (2)$$

$$VLTAX_t = \beta_0 + \sum_{p=1}^{n} \beta_i VLTAX_{t-p} + \sum_{p=1}^{n} \alpha_i VLIR_{t-p} + \varepsilon_t$$
$$VLIR_t = \beta_0 + \sum_{p=1}^{n} \beta_i VLTAX_{t-p} + \sum_{p=1}^{n} \alpha_i VLIR_{t-p} + \varepsilon_t \quad (3)$$

$$VLTAX_t = \beta_0 + \sum_{p=1}^{n} \beta_i VLTAX_{t-p} + \sum_{p=1}^{n} \alpha_i VLM_{t-p} + \varepsilon_t$$
$$VLM_t = \beta_0 + \sum_{p=1}^{n} \beta_i VLTAX_{t-p} + \sum_{p=1}^{n} \alpha_i VLM_{t-p} + \varepsilon_t \quad (4)$$

4. Empirical Results

The ADF unit root test showed that the variables are stationary. The optimal lags of variables were determined using Schwartz-Bayesian criteria is one and the number of regimes was determined 3 according to the maximum likelihood ratio. Thus, the effects of monetary and fiscal policy instability on each other are shown in Tables. (1,2,3 and 4)

Table 1: Results of MSI (1) VAR (1) Interaction of VLGOV and VLIR (Model. 1)

Regimes_2		Regimes_1		Regimes_0		Regimes/Variables
The dependent variable: VLGOV						
Prob	Coefficient	Prob	Coefficient	Prob	Coefficient	
0.000	0.167	0.001	0.254	0.969	-0.0006	C
0.338	-0.152	0.190	0.328	0.000	0.669	VLGOV(1)
0.013	0.796	0.026	-1.358	0.884	0.043	VLIR(1)
The dependent variable: VLIR						
0.014	0.064	0.223	-0.051	0.646	-0.005	C
0.989	-0.001	0.026	-0.394	0.001	-0.281	VLGOV(1)
0.745	0.060	0.095	0.647	0.010	0.424	VLIR(1)
99.867						log-likelihood
277.70(0.000)						Linearity LR-test Chi^2

Table 2: Results of MSI (3) VAR (1) Interaction of VLGOV and VLM (Model. 1)

Regimes_2		Regimes_1		Regimes_0		Regimes/Variables
The dependent variable: VLGOV						
Prob	Coefficient	Prob	Coefficient	Prob	Coefficient	
0.000	0.314	0.203	-0.028	0.863	0.008	C
0.089	-0.191	0.000	1.056	0.277	0.324	VLGOV(1)
0.003	3.666	0.589	0.160	0.926	-0.044	VLM(1)
The dependent variable: VLM						
0.588	0.007	0.000	-0.038	0.006	0.062	C
0.139	-0.058	0.106	-0.078	0.319	0.113	VLGOV(1)
0.280	0.417	0.027	0.274	0.060	0.437	VLM(1)
102.377						log-likelihood
292.60(0.000)						Linearity LR-test Chi^2

Table 3: Results of MSI (3) VAR (1) Interaction of VLTAX and VLIR (Model. 3)

Regimes_2		Regimes_1		Regimes_0		Regimes/Variables
The dependent variable: VLTAX						
Prob	Coefficient	Prob	Coefficient	robP	Coefficient	
0.157	0.063	0.005	-0.068	0.731	-0.011	C
0.002	0.870	0.000	0.648	0.363	-0.181	VLTAX(1)
0.281	0.552	0.543	-0.135	0.416	-0.298	VLIR(1)
The dependent variable: VLIR						
0.004	0.081	0.004	-0.038	0.079	-0.032	C
0.057	0.258	0.560	-0.041	0.239	0.129	VLTAX(1)
0.084	0.515	0.000	0.580	0.025	-0.495	VLIR(1)
79.633						log-likelihood
184.71(0.000)						Linearity LR-test Chi^2

Table 4: Results of MSI (3) VAR (1) Interaction of VLTAX and VLM (model. 4)

Regimes_2		Regimes_1		Regimes_0		Regimes/Variables
The dependent variable: VLTAX						
Prob	Coefficient	Prob	Coefficient	Prob	Coefficient	
0.393	-0.026	0.556	-0.021	0.106	0.070	C
0.352	0.204	0.006	0.435	0.010	0.926	VLTAX(1)
0.020	1.154	0.107	1.137	0.180	-0.588	VLM(1)
The dependent variable: VLM						
0.000	0.056	0.000	-0.072	0.219	0.012	C
0.100	0.109	0.259	0.040	0.014	0.220	VLTAX(1)
0.001	0.647	0.022	0.445	0.016	0.283	VLM(1)
103.51						log-likelihood
201.61(0.000)						Linearity LR-test Chi^2

The results of Table (3) show that VLIR in regimes one and two has a negative and direct effect on VLGOV, respectively. The VLGOV in zero and one regimes has a negative impact on VLIR. Also, the results of Table (2) show that the VLM in the regime two has direct and significant effects on the VLGOV. According to the results of Table (3) in all three regimes, VLIR do not have a significant effect on the VLTAX in the two regimes of zero and one, but in the regimes two have a direct and significant effect. The results of Table (4) show that the VLM in the regime two has direct and significant effects on the VLTAX. The VLTAX in the zero regime has a direct and significant effect on the VLM.

5. Concluding Remarks

The results obtained from models estimation showed that in Iran, the instability of monetary and fiscal policies under the regime conditions affect each other.

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