Government Monetary and Fiscal Policies Effect on Economic and Social Duality in Iran

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Abstract: Investment in various sectors is an important factor in society growth and development. Whenever the gap of investment between various sectors becomes bigger, duality increases. In this way, governments have very important role for making good decision which are related to increasing investment in all economic sectors in order to eliminate the duality. Thus, this study explores that if government monetary and fiscal policies have effects on economic and social duality in Iran using time series data of 1973-2003. The study model was Seemingly Unrelated Regressions (SUR). The results showed that the government monetary and fiscal policies haven't created the significant difference in investment between agriculture, industry and service sectors. On the other hand, it can be asserted that the government monetary and fiscal policies haven't been causes of the duality between sectors.

Key words: Duality · Monetary policies · Fiscal policies · Iran

INTRODUCTION

Many developing countries have a modern commercial industrial sector inside the traditional agriculture that produces minimum livelihood that creates the dual economic. The result of duality is asymmetry in organization of production in various sectors. In fact differences in organization and production between modern and traditional sectors are one of the most important characteristics in developing countries. In order to find the development process relations, the economic duality which is between modern and traditional sectors should be found and then the amount of fundamental changes should be estimated. Economic duality has been divided into various kinds like social, technological, financial and sectoral duality. Economic duality defines that there are two sectors, one of them is leader with rapid changes and technology intensive and capital intensive and this sector produces income, on the other hand the traditional sector is labor intensive with limited changes [1].

Boeke [2] recognized the concept of economic dualism and observed that a modern capitalist economy and a traditional informal economy often exist side by side in the developing countries. Its manifestations include commercial and peasant farming in agricultural economies,

formal and informal firms in industrial economies and a modern industrial sector and a traditional agricultural sector in a national economy. Boeke [2] believed that the best way to solve the duality problem is gradual growth in agricultural and industrial sector. Therefore he emphasized on gradual transferring in society.

One of the important theories that were introduced about duality is Lewis theory [3] .He divided economic into modern, traditional sector. In brief, Lewis model explains how a modern capitalist sector expands by attracting migrants from a traditional subsistence sector. Profits earned within the capitalist sector are reinvested in new capital stock and this further raises demand for labor. Wages do not rise because the extra demand is met from the subsistence sector. The only role of the subsistence sector in the model is to ensure constant real wages as the capitalist sector expands. The process continues until capital accumulation has caught up with population, so that there is no longer surplus labor [3].

Lewis' second dual economy model replaces the distinction between capitalism and subsistence sectors with a high productivity industrial sector and a low productivity agricultural sector. This version highlights the importance of inter-sectoral terms of trade to economic growth. But it also conveniently dispenses with the institutional dualism of the simpler model. This makes it

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easier to view low productivity in agriculture as simply a temporary and technical problem of mismatch in the allocation of labor and capital between sectors. Differential profit rates should induce investment in agriculture. Differential wages induce movement of labors from agriculture to industry. Markets may be a bit sticky, but factor price equalization and integration of the economy will eventually result [4].

After Lewis, The Fei-Ranis theory about duality emphasized the final outcome of a dynamic process. As labor moves out of agriculture and into industry, its marginal productivity rises above zero (the shortage point) and eventually marginal products of labors in the two sectors become equal (the commercialization point). The labor market is then integrated [4-6]. After that Jorgenson theory assumed that there might have been existence labor surplus in developing countries but marginal product of labor is positive, not zero. This is the main point of his theory. This theory referred to the most important point in the development way is technology coefficient and labor growth rate, which is related to population growth rate [7].

Based above, it is cleared that the level of investment in agriculture, industry and service is a good index for recognition of the amount of duality. Nowadays a lot of studies have been done about duality. Bourguignon and Morrisson [8] suggested in many countries increase in the level of productivity in traditional agriculture may be the most effective way to reduce the inequality and poverty. Chaudhuri [9] in order to provide a possible answer to the urban unemployment problem suggested that an inflow of foreign capital is likely to be welfare improving and may not aggravate the problem of urban unemployment in the given setup. Roy [10] focused on the dualism that exists within the industrial sector and developed a model of informal sector incorporating its linkage with the formal sector. The products of the two sectors are imperfect substitutes as products of informal firms are deemed to be of inferior quality compared to the formal sector product. Also the formal sector producer is the dominant producer whereas the informal producers constitute a competitive fringe. The article results showed which, a policy like cost subsidy in order to increase domestic producer income may not be effective because this kind of policies have positive benefits only if a favorable market condition exists.

Motonishi [11] showed some limited evidence that the variable related to sectoral shifts in the economy, i.e., the agriculture - non agriculture disparity and household income, played a significant role in increasing income

inequality with somewhat smaller magnitude. Financial development had an effect in the opposite direction, which roughly cancels out the effect of education level disparities. Gindling and Terrell [12] studied on wage gap between formal and informal sectors have been persistent in Costa Rica and tested whether increases in minimum wages raise actual wages. Study found they not only raise wages in large urban and rural enterprises(traditionally referred to as formal), but also raise wages of workers covered by minimum wage legislation in what are traditionally regarded as informal sectors where the legislation is often considered not be enforced: small urban and small rural enterprises. Eslami[13] determined the rural regions development degree in Iran and showed that in all rural regions conditions got better in 1986 than 1976 the regional duality increased.

With due attention to the importance of government rules in every aspects of an economy, this study is trying to investigate if government monetary and fiscal policies have had affection on economic and social duality in Iran or not.

MATERIALS AND METHODS

In this study Iran central bank data used for 1973 to 2003 [14] .considering the goal, investment functions in agriculture, industry and service was estimated with Seemingly Unrelated Regressions. The most important reason to usage of this model is that some unknown factors (residuals) which are effective on investment in these 3 sectors are the same and (SUR) model is suitable to estimate these related equations. In this model the coefficient for M equations are estimated. Error terms have whole classical linear regression model characters and error terms of various equations are related with each other. These M equations create Seemingly Unrelated Regressions. T is the number of observations. This system could show with below matrix:

$$Y_m = X_m \beta_m + u_m \qquad m = 1, 2, ..., m$$
and
$$E(u_m) = 0, \quad E(u_m u'_m) = \delta_m I_t$$

And error terms correlation in various equations
$$E(u_m u_m') = \delta_{mp} I_t$$ is and δ_{mp} is error term covariance in equation m with equation p and it can be assumed that it is constant for all observation. Zellner and Theil [15] offered below method for a consistence estimation of

residuals in var-covar matrix [16-17]. Each equation is estimated by OLS and after that residuals are calculated, then δ_{mp} estimator is:

$$\delta_{mp} = \frac{1}{T-K_m} \sum_{t=1}^{T} \hat{u}_{mt} \; \hat{u}_{pt} \quad m, p = 1, 2, ..., m$$

Where, Km is numbers of parameters (11). With this short explanation our equations in this study that have been estimated with SUR model are:

$$I_A = a_{10}T + a_{11}I_A(-1) + a_{12}C_A + a_{13}Oil + a_{14}E_G + a_{15}Liq + \varepsilon_1 \tag{1}$$

$$I_I = a_{20}T + a_{21}I_I(-1) + a_{22}C_I + a_{23}Oil + a_{24}E_G + a_{25}Liq + \varepsilon_2 \tag{2}$$

$$I_S = a_{30}T + a_{31}I_S(-1) + a_{32}C_S + a_{33}Oil + a_{34}E_G + a_{35}Liq + \varepsilon_3 \tag{3}$$

In these equations IA, II and IS are logarithmic investment in agriculture, industry and service sectors respectively.

IA(-1), II (-1), IS (-1) are logarithmic investment in agriculture, industry and service sectors with one order respectively. CA,CI, CS are respectively logarithmic credits in agriculture, industry and service sectors, T is time trend (it is an index for technology), Oil is the logarithmic oil revenues, EG is logarithmic government consumption expenditure (it is an index for fiscal policy), Liq is logarithmic of liquidity (it is an index of monetary policy) and ε_1, ε_2, ε_3 are residuals of equations. All variables changed to constant of 1998. These equations have been estimated by Microfit 4.0 Software.

RESULTS

Unit Root Test: Augmented Dickey – Fuller test (ADF) was used for stationary test of variables. Variables were non-stationary in level but their differences were stationary. Table 1 shows the test results.

After that co-integration between variables in equations (1), (2) and (3) were explored. If the existence of co-integration between variables in each equation can not confirm, there is not the long run relation between variables in equations. In order to test the long run relationship between variables, Engle-Granger method for co-integration was used. The residuals of each equation

Table 1: Result of ADF test

Variable	DF	CV	Variable	DF	CV
IA	-1.48	-2.96	DIA	-7.18*	-2.97
CA	-1.196	-2.96	DCA	-6.36*	-2.97
II	-1.57	-2.96	DII	-3.8*	-2.97
CI	-0.42	-2.96	DCI	-4.456*	-2.97
IS	-1.37	-2.96	DIS	-4.328*	-2.97
CS	-1.32	-2.96	DCS	-5.247*	-2.97
Oil	-2.438	-2.96	DOil	-4.328*	-2.97
EG	-1.394	-2.96	DEG	-5.376*	-2.97
Liq	-0.909	-2.96	DLiq	-3.56*	-2.97

*at 5%

Table 2: Result of co-integration test for each equation

Residual	ADF	CV
Equation(1)	-4.98*	-2.97
Equation(2)	-3.75*	-2.97
Equation(3)	-3.84*	-2.97

*at 5%

Table 3: Result of estimation

Equation	Variable	Coefficient	t statistic
1	T	0.486×10^{-3}	0.03
	IA(-1)	0.11989	0.68
	CA	0.43353	2.24*
	EG	0.29682	0.45213
	Oil	0.28938	2.6866*
	Liq	-3.187	-0.43016
2	T	0.012829	0.9486
	II (-1)	0.36601	2.0339*
	CI	0.77755	0.48866
	EG	0.55635	0.88132
	Oil	0.37553	2.863*
	Liq	-1.7247	-0.68414
3	T	0.0047579	0.74803
	IS (-1)	0.55060	4.4477*
	CS	0.073054	1.0292
	EG	0.20056	0.35864
	Oil	0.087215	1.1497
	Liq	0.57019	0.39466

*at 1%

were stationary. Therefore there are long run relations between variables in each equation. Table 2 shows these results.

Table 2 shows that results of each equation are state in 5% level. Therefore there is a long run relationship between variables in each equation.

Estimation: Table 3 shows the Seemingly Unrelated Regressions (SUR) results. For the variables are logarithmic therefore coefficient of variables are elasticity of investment in each equation.

Table 3 shows R2 in equations (1), (2) and (3) are 0.6, 0.7 and 0.7 respectively and they demonstrate these

equation can be explain by their independent variable well. Considering table 3 although the amount of pervious investment in all sectors has positive affect in their current investment, this coefficient is not significant in agricultural sector. Also despite service sector, liquidity has negative effect on industrial and agricultural investment. Oil revenues have positive and significant effect on agricultural and industrial investment more over the amounts of credit which are given to these 3 sectors have positive effect on their investment, but this variable is significant just for agricultural sector.

In order to investigate how much monetary and fiscal policies effect on regional (which will create social duality) and economic duality t-test was used. Government consumption expenditure and liquidity were selected as indexes for fiscal and monetary policies . However there is no significant difference between a14, a24 and a34 which are refer to government expenditure in agricultural, industrial and services sectors therefore government expenditure did not make sectoral duality. Moreover there is no difference between a15, a25 and a35 which are refer to the liquidity in agricultural, industrial and services sectors therefore government did not make sectoral duality by monetary policies.

In order to test regional duality (which will create social duality) urban and rural activities got divided into two parts. Although in urban areas, industrial and services activities are being done, in rural areas peoples occupations are related to agriculture. Therefore t-test was design as fallow:H0 hypothesis for government fiscal policies is:

$$H0: a14=a24+a34$$

That a14, a24 and a34 are government consumption expenditures coefficients in equations (1), (2) and (3) . If the government consumption expenditures coefficient for agricultural sector wouldn't has significant difference from the sum of these coefficients for industrial and service sector then this result will be proved that government fiscal policies are not causes of social duality between rural and urban areas.

Also H0 hypothesis for government monetary policies is:

$$H0: a15=a25+a35$$

That a15, a25 and a35 are liquidity coefficients in equations (1), (2) and (3) . If the liquidity coefficient for agricultural sector wouldn't has significant difference from the sum of these variable coefficients in 2 other sectors then this result is derived that government monetary policies have not make social.

The calculated t with H0 hypothesis for government fiscal policies was t=0.47 and with H0 hypothesis for government monetary policies got t=0.26. t-test with these hypothesizes aren't significant, then it is vivid that government monetary and fiscal policies aren't causes of social duality between rural and urban areas in Iran.

CONCLUSIONS

According obtained results in this study, it is concluded that government fiscal and monetary policies have not been economic and also duality producers in Iran and if government wants to eliminate the duality, it should continue present policies.

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