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Research paper

The Strategies to Overcome the Stagflation in Moqavemati Economy Based on System Dynamics Approach

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Abstract

Moqavemati economy is an economic approach in which the economic structures and polices are designed so that in the most difficult conditions and most stresses, economic system act flexible and less fault accrued in progress way. Therefore, designing economical system based on the pattern of Moqavemati economy to solve economic problems and prevent their recurrence is essential. One of the problem that countries are faced with which is investigated in the study is stagflation that as an internal momentum caused removal of economic stability and the system shows inappropriate responds to the changes. Thus, the economic system design should be done so that the probability of this occurrence in different economic conditions reduce and drop to zero. In this study, a literature review on the problem of stagflation in local and foreign literature is done richly and completely. The study method applied in the paper, is system dynamics which has been used as managerial study method to analyze and model comprehensively and systematically Iran's economy. The results derived from the study indicate the implementation of the five proposed policy annual reduction of 5% of oil revenues in the budget, an annual increase of 20% of non-oil exports, and adjusting the exchange rate on an annual basis by 15% and appropriate with expected inflation, an annual increase of 20% of construction projects and reducing the coefficient of increasing liquidity to the number 3, that all are based on the general policies of resistive economic causes the system to be stabilized and despite the different changes and shocks, it will be deviated from its main way when facing with stagflation and will continue to its way.

Keywords: *Moqavemati economy, stagflation, system dynamics*

1. Introduction

Moqavemati economy is the economic approach in Islamic Republic of Iran in which the economic structures and polices are designed so that the most difficult conditions and most stresses, economic system act flexibly and strongly and less fault accrued in progress way.

One of the issues that the country is faced with which is happened every years once and can consider it as an internal shock is stagflation issue, therefore, it is essential to investigate it with Moqavemati economy approach and under this pattern and practical solutions based on local conditions of the country to get out of them presented until in addition to solve the problem of stagflation in the country economy as internal possible shock, economic structures designed so that the occurrence of such issue even in most difficult condition reduce and reach to zero.

downturn and inflation, including economic problems that different countries at some point of time are faced with and to solve and eliminate some strategies are taken which has been derived from how to deliver this tow phenomena and generally economic condition dominated on that country.

In a simple defining these tow economic issues, downturn meaning reducing economic growth and inflation means continues increasing the public level of prices when these two issues are occurred simultaneous, it changes to stagflation. Simultaneous occurrence of downturn and inflation creates exceptional circumstances that the adoption of usual policies to address each of these problems, further exacerbate another: consequently, the economy entered a vicious circle that exiting is impossible with sectional strategies.

However, given that economic conditions is such that the phenomenon of stagflation gripped the country in recent years, according to economists theories, it hit nocks the country economy every few years like an internal shock which is derived from the root problems of the economy, it is essential to investigate its dimensions by studying that comprehensively and by using modeling based on system dynamics method, despite modeling the problem of stagflation based on the current conditions of the economy in Iran, the policies presented to get out of this vicious circle in the Moqavemati economy pattern.

2. Theoretical literature topic background

In the continuation of theoretical literature, the discussion is studied based on three topics of Moqavemati economy, stagflation and system dynamics method which is used in this issue.

2.1 Moqavemati economy

Islamic Republic of Iran with regard to the situation imposed against it, after the victory of Islamic Revolution has always been faced with abundant threats and sanctions and military hard war against the Islamic Republic in the first decade has been replaced with the semi-rigid economy in the fourth decade of the revolution and always during the years after the revolution victory, economic sanctions against Iran has increased day by day. Therefore, despite the sanctions imposed against Iran, it is essential for Iran to design the country economy so that be able to resist against sanctions and can change these limits to opportunities. Moqavemati economy is the result of this type of mentality and attitude to the economic that fight with the dominative economy. (Dehghan and Shafieian, 2012) With this introduction there is need to study the Moqavemati

economy first. in the definition of Moqavemati economy state that Moqavemati economy is the economy by carefully and knowledgably investigating the future identifies all the future enemy opportunities to attack on country economy and applies appropriate strategies in different levels (Sasani, 2012)
Moallemi (2012) also states that the resistive economic model is an Islamic model that determines the quality of interaction and economic links with foreign countries so that is the supervisor of internal situation of the country's economy and covers the weaknesses and in the other hand, with rely on the strength points of the internal economy, advocates the nation's violated rights from the aggressor countries and is the background of human guidance.
A Moqavemati economy is not the economy that dominates on foreign shocks: but is an economy that can accommodate itself with world economy inevitable changes such as work market changing, business competition and consumer demands substitution. (Christopherson et.al, 2010)
Economy flexibility is a new term that valuable efforts have been done in the terms of conceptual and methodology and evaluation system and its quantifying and can call it equivalent with Moqavemati economy concept.
Thus, a system is flexible when in the face with external shocks can maintain the function, structure, and feedbacks and thus its identity. (Walker, 2006)
In another definition of Hill (2011), the economy flexibility is the ability to cure the withdrawal of economic growth due to external shocks and return to the previous track.
So we can say that economic design and economy policy based on country's local conditions and goals in making the economy flexible that can keeps on its coherent movement despite external and internal shocks, is the point that is emphasized in Moqavemati economy: therefore, we should deal with investigating the stagflation issue and eradicating it from the Iran local economy as an internal shock.

2.2 stagflation

Through newer foreign studies with stagflation subject, James Devine in an article titled stagflation deals with factors making stagflation in USA during 1950 to 1998. He states that inflation is structural in most society and is due to hidden inflation that shows itself in crisis situations, as well as he considers the interest rate as a factor influencing inflation making accounts the interest rate due to use production capacities. The results also indicated that the cause of the stagflation incident in America's economy has been fluctuation of interest rates and inflation yields during the stagflation years. This is due to the popularity of credit money and increasing labor costs in the non-agricultural sectors. (Devine, 2002)
Barsky and Kilian (2002) in an article titled as "an explanation of monetary for great stagflation of decade 70", corresponds to the roots of stagflation in the decade to rising oil prices, considers monetary fluctuations generally due to the creation of stagflation.
in his article state that neither reducing real wage flexibility nor improving monetary policies against oil shocks, none of them are not acceptable reason for inflation from 1980 to yet. What is the cause to prevent the creation of stagflation is banks concern with controlling inflation instead of unemployment that is its main purpose and has caused improving the monetary policies situation (Kilian, 2009)
Berthold and Grandler (2012) in an article on the theme of "revival stagflation in global, has considered stagflation as a problem on the supply side of the economy. Therefore, they imply that if the total supply in the economy remain unchanged, stagflation will be created any way.
Through rather new internal studies with this subject, Komeyjani and Naghdi (2009) concerned with analyzing the mutual relationship between production and inflation in Iran's economy by using self-regression removal models and fault-correction removal models. In this study, in which data of 1974 to 2005 has been used, the results show that the root of inflation in Iran is not just monetary and chronic being the inflation in Iran relates to real variables namely production and in this article production. Based on the results of this study, the relationship between inflation and production is long-term, while the relationship in the services sector has short-term than the industry and agriculture sectors, this means that the inflation-removal amount for the service sector due to increased production in the short term in Iran's economy is more and faster than the other sectors. On the other hand, based on the results of the services sector than to other manufacturing sectors, itis more sensitive against inflation.
Shakeri (2012) considers the roots of stagflation in the curve movement of total supply to the left side that simultaneously increases prices and reduces the level of production.
Khani et.al (2013) consider four factors including balance of payments, oil revenues, the government's budget deficit and the volume of liquidity as main factors affecting on stagflation and by nonlinear error correction shows that the change in each of these factors, in different levels has different effect on stagflation different levels.
Shakeri (2013) with the analysis of macroeconomic variables and their possible influence of sanctions, considers the international sanctions as main cause of stagflation in Iran's economy. In this study, a continuation of double-digit inflation during the past four decades with the relatively limited growth of growth domestic product (GDP), has been considered as the cause of the stagflation in Iran's economy. Shakeri recommends that in these circumstances, first, the currency rate should not be used as a means of the government budget alignment tool any way. Second, monitoring the financial institutions and private banks performance must be increased. Thirdly, measures to be taken for exchange only be used for actual trading. Fourth, if the sanctions get more severity, exchange resources allocated between the needs of production, basic commodities and medicine with prioritizing. Also, the budget deficit through budget discipline, be clear and costs and use of resources in the bank remedy be restructured.
HazeriNaeyri and Hosseininasab (2014) examined the effects of energy subsidies bearings modification on inflation and GDP. The results show that the increase in energy bearing prices without revenue redistribution significantly decreases total production, employment rate and an increase in the rate of inflation. On the other hand, the package of government support and redistribution of income derived from the reform of energy prices under different scenarios to producers and consumers has compensated a significant part of the increase in production costs, and reducesthereduction percent in total production and employment. In contrast, the increased liquidity resulting from this redistribution would increase demand pressures and more inflation rate.
Bastanifar and Mirzaei (2014) in a study to estimate the period of stagflation incident in the Iran's economy during 1979 and 2010 by the Haan and Sumner's method, based on the pattern of Berthold and Grandlerhave estimated the factors influencing the onset of stagflation in Iran's economy that the results show that, firstly, Iran's economy has challenged with stagflation during 1979 to 1994 and 2005 to 2010. Secondly, stagflation is not merely a monetary phenomenon and is linked to low productivity of labor. Third, the main reason for stagflation associated with monetary authorities in Iran, is not liquidity volume, but the politics of realistic money that in the framework of the new classical school through a phenomenon incident of inconsistency leads to long periods of stagflation in Iran's economy. The way out strategy of stagflation in Iran's economy is inflation expectations reduction by the government with regard to decision-making and decision-making strategies of decision-making institutions in Iran. Also, the anti-inflation policies on the supply side of the economy and localization of three approaches rule, law and popularity are the other proposals.
With regard to the conducted studies, although a good conceptual framework about stagflation phenomenon is seen, there is an issue: that the conducted studies couldn't see the stagflation and its impacts comprehensively and present policies appropriate with reducing negative impacts of stagnation and inflation and have had a separated look to these tow phenomena. As if in none of these studies

stagflation has not been considered as internal shock that is created once in few years and it is essential to fight with this fundamentally. In this area, in addition the need to study with this look, using system dynamics approaches can be appropriate.

2.3 system dynamics approaches

Using system dynamics approaches to investigate the economy issues and its analysis specially for Iranians is historical. For example, Mashayekhi (1998) in a study has reviewed the design of a dynamical system model for analyzing and investigating the dynamics of government financial structure and public services on the country's progress in terms of oil revenues in four countries, and states that the decrease in oil revenues, creates the financial crisis in the public sector. Also, in this study, the solutions are proposed for creating stability in the system based on the model.
Also, Alvani et.al (2011) in a study has dynamically modeled the economic system in Iran during 1989 to 2009, and predicting its changes by 2019 using the system dynamics method, and has considered the reason with this approach the multivariate nature and system dynamics of economy. He argued that the economic system is a complex system in which different variables with different relationships are affective on it. Modeling in this study has been done around four main variables of GDP, savings, investment and inflation.
Farzin et.al (2012) also explores the effect of foreign direct investment on economic growth by combining methods of dynamic and econometric systems, and evaluated the economic factors affecting the attraction of foreign direct investment and the effect of this factor on economic growth by designing and simulating a systematic model, which the results of his research confirmed the positive and significant effect of foreign direct investment on economic growth, suggesting that with a 1 percent change in investment, economy growth of 0.16 would increase. In this study, using econometric coefficients, the model of the dynamic system is projected and its future is predicted to 2025 horizon.
According to the economic studies carried out using the system's dynamics method, it seems that the vacancy of a coherent and up-to-date study to examine the phenomenon of stagflation in a comprehensive and holistic manner, and considering its effects on the Iranian economy, using the system dynamism model is seen and it is necessary to provide the appropriate monetary, financial, and structural policies totally and partly to solve this problem as a domestic shocks, with regard to the current condition, after fully recognizing this phenomenon.

3. Research Methodology

Modeling the stagflation issue with system dynamics model in this study was conducted in five stages. At the first stage which is the issue framework, to design the stagflation model, this issue has been defined and key variables which should be applied in its processing were recognized associated with time horizon. Then, the objectives resulted from stagflation design model using system dynamics model were expressed and discussed.
In the second step to formulating a dynamic hypothesis, the assumptions governing the issue and dynamic hypotheses have been proposed. At this stage, to map the model, model boundary diagrams, cause and effect and the state of the flow drawn and modeling method was explained based on them. In the third stage to formulate simulation model of stagflation issue, data used in this study was studied and model simulation method in using software {Vensim} and its details along with methods to validate the model have been described.
In the fourth stage to test the model, first the results of the model on two main variables of stagflation, namely GDP and inflation were estimated and the results were validated using three main ways that will be explained in the considered location until the model accuracy be evaluated.
In the fifth step also to design and evaluate policy, scenarios for the next ten years of Iran's economy has been designed and policies intended to get out of stagflation based on the proposed model has been presented and by using it, the future of predictive models and policy result has been analyzed.
In order to avoid prolongation of discussion, some steps required by this section discussion willbe discussed as follows:

3.1 Dynamic model theory

Two variables of economic growth and inflation as the main variables of stagflation issue have been take place in model and there are other relationships between economic variables into the model, including the variables of accumulation, flow, auxiliary and exogenous, given to the relations of the two variables.
Economic growth variable of the growth domestic product (GDP) to show the recession is obtained. So economic growth variable in the model is defined as follows: Economy growth variable from growth domestic product has been obtained to present stagnation. Therefore, economy growth11 variable in model has been defined as follows:

$$\text{GDP growth} = \frac{\text{GDP(t)} - \text{GDP(t} - 1)}{\text{GDP(t} - 1)}$$

GDP according to the literature has been defined in the form of a function of consumption (C), investment (I), government expenditure (G), exports (X) and imports (M): (Shakeri, 2012)
GDP = C + I + G + X – M
Inflation (P_0) by formula quantity theory of money, considering the stability of the velocity of cash flow of following relationship has been located in model in which the inflation is equal with liquidity growth (M_0) minus economic growth (Y_0) is measured: (Shakeri, 2012)
$P_0 = M_0 – Y_0$
According to these tow formula, dynamic assumption placed in the model which is defined as the original model layer is as follows:

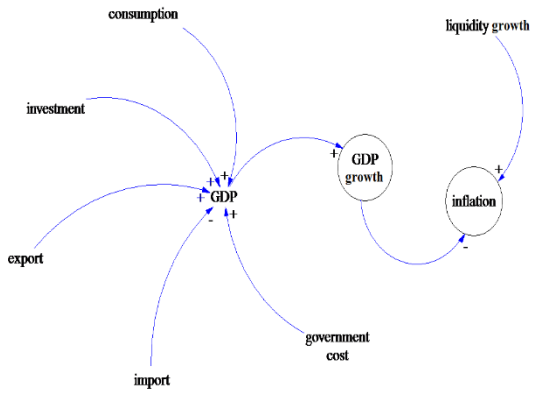


Figure 1: model dynamic theory

The lines shown in the figure above show the relationship between the variables and the positive and negative signs along the lines, also shows the type of relationship between the two variables. Plus sign means that as (decrease) variable in the beginning of the line increases, the bottom line variable increases (decreases). Minus sign also means that as the variable (decrease) in the beginning of the line increases, end of the line variable decreases (increase).

3.2 Border model

The border model shows the tables of variable rate, accumulation, auxiliary and exogenous which has been used in the model.
Rate variable is the variable which is defined at a specified interval. The number of license plate cars per day, the number of production per month, or the amount of extracting water of the pool at any minute are the rate variables. In contrast, accumulation is a variable

which is definable at a given moment. The number of Iran's population at one time or volume of water at the moment. Auxiliary variable is variable which is used between different components of a system. Exogenous variable also is a variable whose value is determined outside the model and models components have no effect on it.

Table 1: Variables

stock variables	flow variables	auxiliary variables	exogenous variables
Monetary base	Monetary base growth	Liquidity	Multiplier Rate
Stock investment	Current cost rate	Liquidity growth	Import $
Current cost	Investment	Inflation	non-oil export $
		GDP growth	Currency Rate
		GDP	Number of barrel
		Oil export	Price per barrel
		Oil revenue	Construction cost
		Government revenue	
		Deficit	
		Non-oil export	
		Export	
		Government cost	
		Import	
		Consumption	
		Tax	
		saving	

3.3 How to model the stagflation issue

In this part of the study, the model designed for stagflation issue in which was displayed in the previous section, in the state-flow diagram will be described and explained during the four sections.
The first part of the model is related to investment and consumption section which has been shown in the following figure:

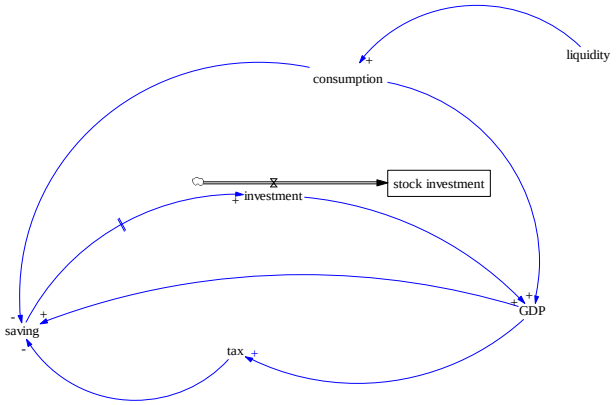


Figure 2: Investment and consumption sector in model

Saving is obtained according to the three-part formula to determine the national income from the following relationship which this relationship has entered in the model: (Shakeri, 2012)
Saving = GDP – tax – consumption
Also, a part of saving with a one-year delay has become investment and investment also as rate variable will become the Stock investment as accumulation variable.
In another part of the model in this figure, a part of the GDP will have changed to tax that according to the researches center report of Islamic Republic parliament, this amount is equal with 7%. Also, the consumption according the extrapolation of existed statistics, has located as the amount of liquidity in the model every year.
The second part of model corresponds to liquidity which has been shown in the following figure:

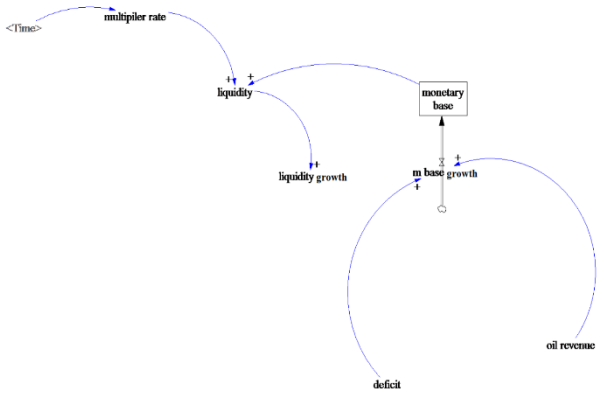


Figure 3: Liquidity part on model

In Iran's economy during the last thirty years, the monetary base due to government deficit and also government oil revenues to Rial has been created by the central bank. Therefore, in model, the growth of the monetary base as rate variable in every year is equal with the combination of oil revenue changed at Rial and government budget deficit which will become the accumulation variable which has been monetary base. Also, multiplication of base monetary and multiplier rate also is the cause of liquidity and liquidity growth which is obtained from the amount of increase in liquidity of current year to the last year.
The third part of the model relates to government budget which is shown in the figure below:

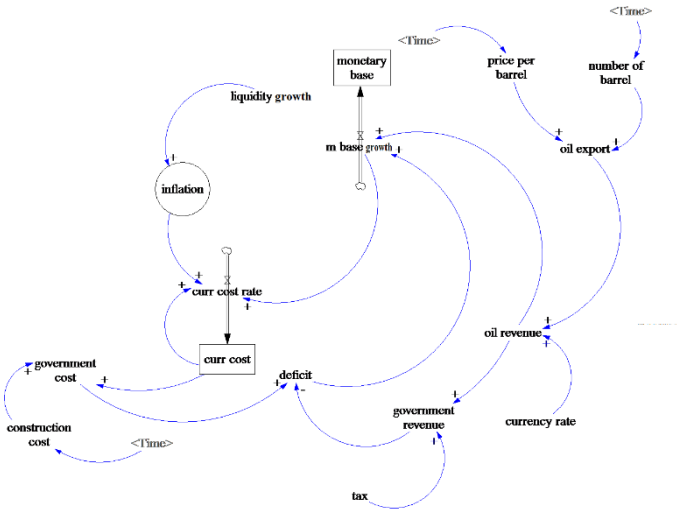


Figure 4: Government budget part on model

Government budget consists of two parts the government revenues and expenditures that can be seen in the model. Major government spending on current costs as stock variable and construction costs as an exogenous variable. Annual growth rate of current costs which shows the annual increase amount of the government current cost depends on the inflation rate due to increased staff costs and the growth rate of the monetary base, since a part of the monetary base to spending in the increase the government current costs and increase the number and wage of employees.
The government major revenues are obtained from tax and oil revenues that the oil revenue at Rial is obtained from number of exported oil barrels in the price of each oil barrel at exchange rate. The government budget deficit also is achieved from the difference between government costs and government revenues. The fourth part of model is related to import-export which is shown in the following figure:

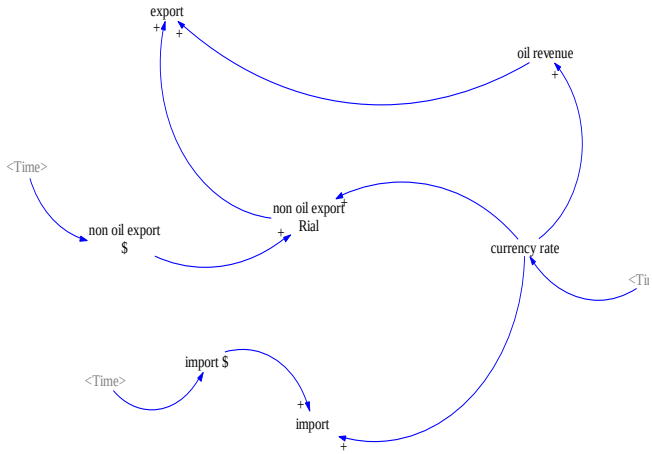


Figure 5: Export and import in model

Imports in dollar and non-oil exports in dollar, has been considered as tow exogenous variables in the model. Generally, imports have been achieved from the multiplication of import dollar value at the exchange rate and export of the sum of non-oil and oil exports.

3.4 model simulation software

The simulation model of stagflation issue, with implementation of the state-flow diagram in software {Vensim} Version 5 has been done. In this process, by entering the data and the relationship between variables and designing the model in software, the simulation is done and the results has been obtained which will be shown in the next sections.

Vensim is visual simulation software for dynamics systems that enables us to conceptualize, document, simulate and analyze as well as optimization of this model. The software provides an appropriate environment that enables us to design the simulation model using different diagrams by utilizing its tools. The software is shown in the following figure associated with designed model:

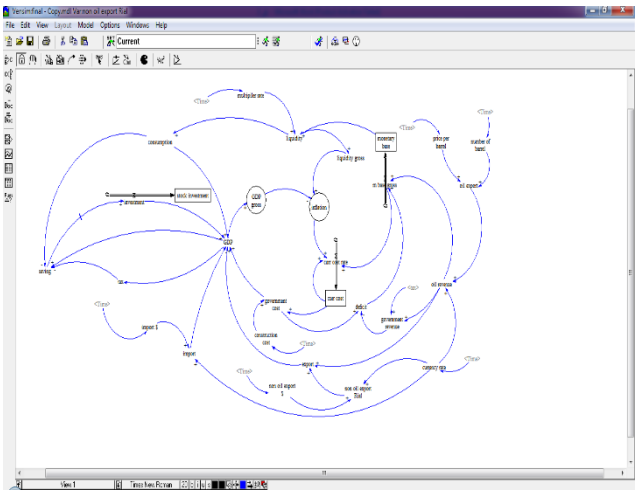


Figure 6: Vensim software environment

3.5 model validation method

To validate the model behavior, the three indicators of validation mentioned in the Sterman book's business dynamics is used. (Sterman, 2000)

The three indicators that each of them shows any kind of estimation error of model including:

R^2	Coefficient of determination; the fraction of the variance in the data "explained" by the model (dimensionless). r = correlation coefficient between model and data series	$R^2 = r^2$; $r = \frac{1}{n}\sum \frac{(X_d - \bar{X}_d)}{s_d}\frac{(X_m - \bar{X}_m)}{s_m}$ $\bar{X} = \frac{1}{n}\sum X$; $s = \sqrt{\frac{1}{n}\sum (X - \bar{X})^2}$
MAPE	Mean Absolute Percent Error (dimensionless)	$MAPE = \frac{1}{n}\sum \frac{\lvert X_m - X_d \rvert}{X_d}$; (multiply by 100 for %)
MAE/Mean	Mean Absolute Error as a fraction of the mean (dimensionless)	$MAE/Mean = MAE/\bar{X}_d$; (multiply by 100 for %)

Determination coefficient which is shown with the R2, indicates the possibility amount of correlation between tow data which is the approximate results of considered parameter in future based on mathematical model defined according existing data. In fact, this coefficient states that whenever the model has been able to portray the truth; it is the most important reviewed indicator. MAPE is also another indicator which is used to measure the accuracy error and the accuracy of the model in estimating the actual process. MAE also shows the forecasting error rate of the model and its proximity to the actual values.

4. Research Results

In this study, model results about to variable GDP and inflation has been simulated and compare with the actual results; then by using three described indicators in pervious section. The results will be validated and analyzed.

Statics and data used in the model are the statistics of economic growth at the expense of the base year 1996, inflation taken from the prices index, the official dollar rate, the multiplier derived from the monetary base and liquidity, construction costs and oil exports from time series site of the central bank has been selected. The statics related to non-oil exports and imports has also selected from the site of Commerce Chamber, Industries and Agriculture of Tehran. World oil prices has also selected through valid oil price websites.

Production static of GDP and actual inflation associated with GDP and model inflation which has obtained after model simulation and operation has been recognized in the following table: (1996 is equal with 1385 Hijri in Iran)

Table 2: Model results in production variable

Year	Model production (Billion Rial)	Actual production (Billion Rial)	Model inflation (percent)	Actual inflation (percent)
1996	205248	246699	26	23
1997	24711	292187	17	17
1998	283238	329514	20	18
1999	359255	436093	23	20
2000	453498	580751	14	12
2001	546689	673191	10	11
2002	628316	907344	15	15
2003	773565	1116400	14	15
2004	924341	1442056	17	15
2005	1196156	1803405	16	10
2006	1754912	2198350	13	11
2007	2344820	2825516	18	18
2008	2709374	3333235	25	25
2009	3352125	3543574	9	10
2010	4198188	4300531	13	12

Diagram comparison of actual production and estimated production by model is recognized in the following figure:

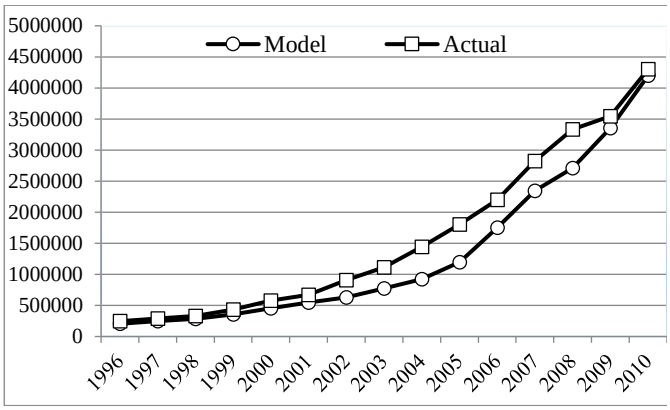


Figure 7: Model actual and estimated data diagram in production variable (Billion Rial)

Model validation result for production variable by using three suggested indicators include:
R2 = 0.988
MAPE = 0.196
MAE/MEAN = 0.161
The first value namely determination coefficient whose amount is estimated 0.988 shows that the value is about 99% for production variable can indicates the reality. The second value shows that the model error in process estimation is equal to 20%, which is acceptable as well. The third value also shows that the error model to predict the future is equal to16%. These values suggest that the model in estimating reality had good results.
Comparing the graphs of actual inflation and inflation estimated by the model is specified in the following figure:

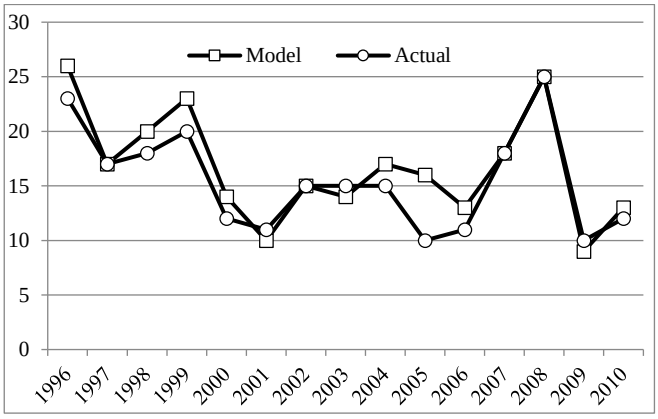


Figure 8: Model actual and estimated data diagram in inflation variable (%)

Validation results of model simulation on the inflation variable and its comparing with actual value shows that they have been able to estimate the inflation and identifies the fluctuations.
Model validation result for inflation variable using three suggested indicators includes:
R2 = 0.907
MAPE = 0.131
MAE / MEAN = 0.116
The first value namely determination coefficient whose amount is estimated 0.907shows that the value is about 91% for production variable can indicates the reality. The second value shows that the model error in process estimation is equal to 13%, which is acceptable as well. The third value also shows that the error model to predict the future is equal to11%. These values suggest that the model in estimating reality had good results.
In the final stage of the modeling, to design and evaluate the policy, the scenarios for the next ten years of Iran's economy is suggested, the policies necessary to get out of stagflation condition based on the model is purposed and by using it, the future of prediction model and thus policy is analyzed. Then some few main variable of model after policies implementation is analyzed in the term of sensitivity and the amount of model strength in their uncertainty condition is investigated.

4.1 future scenario planning

To provide policy out of the stagnation based on the system dynamics model which is designed for this issue, it is necessary to design a scenario for model exogenous variables in future to forecast the model future during 2011 to 2020 and evaluate the results of offering policies. Two of the exogenous variables which has been selected from seven exogenous variables in the model, is imports and global oil price. Other five variables, are used in the provision of proposed policies. Given to impossibility of economy growth without importing and commerce exchange with world countries and also with regard to the economy volume globalization, it is forecasted that in the normal manner with regard to the past, the import increases about 5% per years, therefore, import variable in dollar for 2011 and 2020 is as follows:

Table 3: Import scenario to estimate the model future

Year	Import (Billion dollar)
2011	58.5
2012	61.4
2013	64.5
2014	67.3
2015	71.1
2016	74.6
2017	78.4
2018	82.3
2019	86.4
2020	90.7

World oil price with regard to the recent interactions, during the next ten years is fixed and the fee is considered $120.In the last part of this season, the sensitivity analysis of the results driven from model future will be conducted using two different scenarios and tow variables of import and global oil price to evaluate the sensitivity of offering policies than these tow variables and possible changes.

4.2 proposed policies

Five exogenous variable of stagflation that delivers policy occurs around them is composed of oil export (per barrel), non-oil exports (US $), currency (Rial), construction projects (Billion Rial) and the multiplier.
Therefore, five policies has been suggested as follows: Annual reduction of 5% from oil revenues in the country total budget expenditure Annual increase of 20%of non-oil exports Adjusting the exchange rate annually 15% equivalent to expected inflation Annual increase of 20% in construction projects Reducing the multiplier rate to the number 3 The numbers employed in the policies has been achieved in a form that the values using the system as quickly as possible and with the least economic pressure has improved and achieving it economically is also feasible, and obtained and utilized using the test in the model.
The five policies and the reason for adopting itis examined as follows:

1- An annual reduction of 5% for oil revenues at the expense of the country total budget: oil revenues, given that has entered the budget so far and has become the ongoing costs of government are the important factor in creating stagflation in Iran's economy. To reduce economy dependency to the oil revenues, it is necessary to decrease that range of incomes which get in the country total budget during ongoing years and to use oil revenues in the economy development strategies and internal and external investment. Therefore, one of the proposed policies in

model is annual decrease of 5% for income equivalent of oil revenue per barrel in the expense of budget which is the important policy of Moqavemati economy.

2- Annual increase of 20% of non-oil exports: non-oil exports as the engine driving the country and activation of actual part of economy, can prevent the stagflation in the long-term through job creation and economic growth as well as global market, and by entering the exchange as well as strengthening the supply side of the economy, reduce the economy vulnerability and by stabilizing the internal economy fluctuations caused by global conditions, achieve to economic strength. Therefore, one of the proposed policies in model is annual increase of 20% for non-oil export that must be done by smoothing the path of export and supporting the progressive areas and economical locomotives that have economical and strategic benefit.

3- Adjustment the exchange rate on an annual basis of 15% equivalent to inflation: fixing the exchange rate and the lack of adjustment with inflation causes in addition to reduced exports and domestic production power due to increased imports, fluctuations in the global economic cause the rate at critical junctures faced with many variations and with regard to the dependence on the supply side of the economy to imports, these shocks will cause stagflation. Therefore, in order to prevent the occurrence of these events, it is necessary to adjust the exchange rate with expected inflation an annual basis. So one of the policies proposed in the model is adjusting the exchange rate on an annualized basis of 15%.

4- Annual increase of 20% for construction projects: to improve economical and constructive infrastructure in the country that leads to improved productivity condition and its flexibility, it is necessary to increase the construction projects in the country, but this issue is done from the path apart from country budget and the government only has the leading role. This policy causes in addition to job creation, improved and stable productive and economical infrastructures increase and also demand side of the economy strengthen. Thus, one of the model proposed policies is the annual increase of 20% for construction projects

5- Reducing the multiplier rate to the number 3: Given that now the financing supplement of banks is more in the areas of non-creative activities and the bank transfer the liquidity which create in the economy to the sections other than the production, it is necessary to reduce the banks power that miniaturize the supply side of economy and internal production and cause inflation and liquidity through another path like specialized Funds devotes to the creative and progressive areas. A look to other countries shows that in the downturn and inappropriate condition, liquidity creation is preferred than multiplier. The evidence of such sample is USA economic system that conducted the liquidity creation volume through monetary base and reduced the multiplier coefficient after the crisis 2008. Therefore, one of the policies proposed in the model, is reducing the multiplier by less than 3 years. After arriving to the economic stability and also the improvement condition of the banking system, we can decide on changing coefficient.

4.3 forecasting the future of the model

According to the five proposed policy, the variables which are used to estimate the future of the model during 2011 to 2020 for the exogenous variables are in the table below:

Table 4: Values of proposed policies

Year	Non-oil exports (Million dollars)	Oil exports (Million ba-	Construction costs (Billion	Multiplier	Oficial dollar (Rial)
2011	3185	721	255414	4	11850
2012	38230	685	306496	3.9	13630
2013	45876	651	367796	3.8	15680
2014	55051	618	441355	3.7	18030
2015	66061	587	529626	3.6	20740
2016	79273	558	63551	3.5	23850
2017	95128	530	762662	3.4	27430
2018	114154	503	915194	3.3	31540
2019	136985	478	1098233	3.2	36270
2020	164382	454	1317880	3.1	41720

The results of using these values in forecasting the future of the model for economic growth variables and inflation is specified in the following figures:

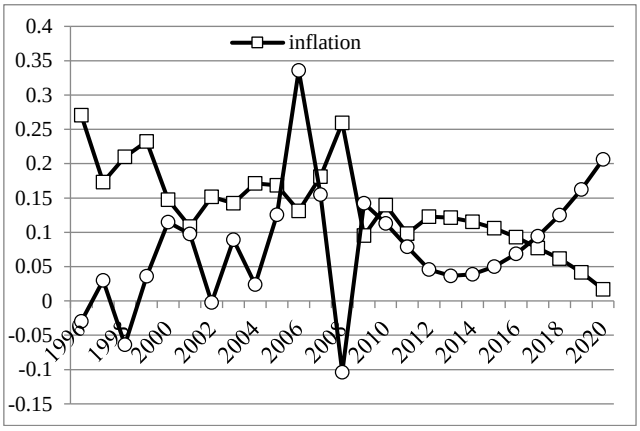


Figure 9: Forecasting the future of the model on inflation and economic growth variables

The results show that for economic growth variable, after a period of decline, a continuous upward trend started and continues. In fact, it can be said that the effect of reducing oil revenues in budget and also multiplier is first declined but over time this change institutionalizes in system and become a positive factor.

We see an increase and a stable process for inflation variable. Again, it can be said that the effect of reducing liquidity growth given that still the production has not reached to its optimal value, effects on the supply side of economy associated with the effect of reducing economic growth and leads to reduce the supply and downturn and inflation but then this effect has changed and will lead to lower inflation.

Therefore, the results of proposed polices can be effective in improving the Iran's economic condition and getting out of the error period of stagflation and crating the Moqavemati economy and be useful. In fact, it can be said that creating discipline in decision-making and performance based on systematic program according to the Moqavemati economy has been effective in maintaining economy stable and creating a dynamic and strong Moqavemati economy.

5. Conclusion and suggestions

In this study, we tried to examine the stagflation issue as an internal shock systematically and review the country economy holistically and comprehensively and review the components impact and its variables on the behavior of the system: therefore, system dynamics method is used. The results of designed model for its issue and

validation show that the designed model can estimate the values and predict the future well.

In this model, five policies of annual reduction of 5% for oil revenues in the budget, an annual increase of 20% for non-oil exports, adjusting the exchange rate on an annual basis by 15% and in line with expected inflation, annual increase of 20% for construction projects and reducing the multiplier rate of liquidity to the number 3 on the implementation and future models based on these five policy has been predicted, results show that models has been predicted based on these five policies: the results show that the model after the implementation of these policies, faces with stability and can get out of stagflation by reducing inflation and increasing economic growth.

In fact, the results indicate that the implementation of proposed policies can be efficient in improvement of Iran's economic condition and getting out the error period of stagflation and creating the Moqavemati economy. It can be said that discipline creation in decision-making and performance based on an appropriate plan on the basis of Moqavemati economy, has been efficient in making a stable economy, reducing the fluctuations and creating a dynamic and strong Moqavemati economy.

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