

## Stabilization Policies and Macroeconomic Performance in Iran

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**Abstract:** Stabilization policies are trying to control inflation rate ,adjustment in balance of payments and accessing high and stable level of production and employment capacities through monetary, fiscal and regulatory policies by government and monetary authorities Since the success and failure of any stabilization program is a relative matter, then one can conclude that a successful stabilization program is one that achieve its desire targets -such as reducing inflation (stabilizing prices), increase economic growth. In this article, the impact of stabilization program on important macroeconomic variables and therefore macroeconomic performance in Iran has been investigated during 1989-2009. Our findings indicate stabilization programs were not very successful in Iran.

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**Key words:** Stabilization Policies • Economic Growth • Inflation Rate • Iran

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### INTRODUCTION

IMF believes that the economic stabilization policy objectives are to keep the life of the foreign balance of payments in an environment with prices stability and the appropriate economic growth rate [1]. The presence of domestic and foreign disorders in the most of the developing countries such as low economic growth, inflation, deficit of balance of payments and even the government's public budget deficit led these countries to try to achieve the macroeconomic objectives and utilize appropriate tools and policies to bring the objective variables to an optimal level.

One of the most important objectives of the stabilization policies implementation is access to the sustainable economic growth [2]. It can be analyzed that in which situations and what time interval, utilizing the stabilization policies was effective in creating or not creating the appropriate economic growth in the developing countries. On one hand, the concept of the economic stabilization is equivalent to inflation rate decrease. In this regard, policies should be employed which have the most possible effect in realization of the determined objective to control the inflation. Stabilization policies objective is to reduce the inflation rate and stability of the prices' general level through adopting the appropriate monetary and fiscal policies and tools. One of

the stabilization policies duties is to remove the foreign sector's imbalance (balance of payments deficit) by exchange rate policies. The balance of payments deficit is although removed via implementing the demand restricting policies (restrictive fiscal and monetary policies) in low level. The government's public budget deficit reduction is another objective of the stabilization policies. Although in contrast to the above objectives, this one is taken as a subordinate objective, in the demand-side economic policies, this is so effective and important in developing countries.

If it can be moved, as a result of performing stabilization programs, to the considered objectives direction such as reducing inflation (price stability), increasing economic growth rate and reducing problem due to balance of payments and balance of budget, it is possible to say that stabilization program has been successful. In this article, macroeconomic variables orientation is investigated compared to stabilization objectives in Iran.

### MATERIALS AND MTEHODS

One of the most important methods to determine structural orientation proposed by the United Nations Industrial Development Organization (UNIDO) early 1990s known as "Structural Changes Index" is used in this

study [3-4]. This method used at first to determine the added value of industrial groups during various periods, policies and results gained through industrial development programs, is now utilized in all analysis that its aim is to examine structural orientation in vector space. This index allows us to determine variables' procedure's turning degree in the considered time ranges in the form of trigonometry angles and to compare it with the measured index for other periods or areas.

The angle between the two vectors is used to determine the orientation of changes and turning degree. Based on mathematical definition, the angle between the two vectors is one whose cosine equals the two vectors internal product on the product of their length. This equation has been introduced to measure the degree and of industrial structural changes orientation by UNIDO and used as following:

$$\cos \theta = \frac{x'y}{(x'x)^{1/2}(y'y)^{1/2}}$$

This can be used to measure  $\theta$  level, which is the structural changes degree.

If orientation index is calculated between the mid-term plan years and the macroeconomic indices, it is according to the following calculation method:

$$\theta = \text{Arc cos} \frac{x'y}{(x'x)^{1/2}(y'y)^{1/2}}$$

$Y_i$  :  $i_{th}$  mid-term plan year

$X_i$  : The macroeconomic index in  $i_{th}$  year

$Y_{ij}$  :  $i_{th}$  year in  $j_{th}$  mid-term plan

$X_{ij}$  : The macroeconomic index in  $i_{th}$  year in  $j_{th}$  mid-term plan

$$i = 1, 2, \dots, n \quad j = 1, 2, \dots, m$$

The values of  $X_{ij}$  for all macroeconomic indicators have been calculated and its results matrix form will be  $[X_{ij}]_{n \times m}$  that the columns of the matrix indicate the values related to a macroeconomic indicator in a plan:

$$\begin{bmatrix} X_{11} & X_{12} & \dots & X_{1m} \\ X_{21} & X_{32} & \dots & X_{2m} \\ X_{31} & X_{32} & \dots & X_{3m} \\ \dots & \dots & \dots & X_{nm} \\ X_{n1} & X_{n2} & \dots & X_{nm} \end{bmatrix}$$

The above matrix columns as a vector and the columns of plan years matrix  $[y_{ij}]$  as another specified vector can be considered.

$$\begin{bmatrix} Y_{11} & \dots & Y_{1m} \\ Y_{21} & \dots & Y_{2m} \\ \dots & \dots & \dots \\ Y_{n1} & \dots & Y_{nm} \end{bmatrix}$$

Since the plan years increase gradually and permanently, so the correlation between years of the plan (the vector of time) and macroeconomic indicators represents a gradual and stable increase of macroeconomic indicators and in this investigation, is considered as a criterion for the realization of stabilization policy objectives. Hence, the orientation index of each macroeconomic indicator can be calculated as  $\text{Cos}\theta_1$  in the first mid-term development plan:

$$(\cos \theta)_1 = \frac{\sum_{i=1}^n y_{i1} x_{i1}}{(\sum_{i=1}^n y_{i1}^2)^{1/2} (\sum_{i=1}^n x_{i1}^2)^{1/2}}$$

$$\begin{cases} y_i = Y_i - \bar{Y} \\ x_i = X_i - \bar{X} \end{cases}$$

Then, in the form of a general statement, orientation index of  $i_{th}$  macroeconomic indicator can be calculated as  $\text{Cos}\theta_j$  in the  $j_{th}$  mid-term plan.

$$(\cos \theta)_j = \frac{\sum_{i=1}^n y_{ij} x_{ij}}{(\sum_{i=1}^n y_{ij}^2)^{1/2} (\sum_{i=1}^n x_{ij}^2)^{1/2}}$$

$$j = 1, 2, \dots, m$$

In this case,  $\text{Cos}\theta_j$  shows the amount the orientations of one of the intended indicators in the  $j_{th}$  mid-term plan. Above orientation index can be calculated for other government financial and budget ratios in other mid-term plans.

In theses equations, structural changes degree in terms of  $\theta$  is changeable between zero and  $180^\circ$  which in this case,  $\text{Cos}\theta$  will change between 1 and -1. Its structural changes degree can be determined based on  $\theta$  or  $\text{Cos}\theta$ . In this equation, if  $\text{Cos}\theta$  which somehow shows the correlation coefficient between the two vectors is closer to 1, implies the correlation between the two vectors in the various periods.

In this study, macro variables and time (temporal) index have been defined through two vectors X and Y. Since compatible with the stabilization policies, macro variables have to be decreased or increased in the plan years regularly, the angel between the two time vectors having a regular incremental procedure and the mentioned macro variables imply targeting or executing government

policies are in consistent with the stabilization programs. Therefore, if improving a macro variable is considered in the Fund proposed plan, having  $\text{Cos}\theta$  (correlation coefficient) close to 1 and  $\theta$  angle close to zero imply targeting or government's correct execution in line with stabilization policies. So, the mentioned index shows determining macro variables orientations in addition to its intensity well.

Generally, as it is observed in all first-fourth mid-term development plans, macroeconomic variables such as economic growth, inflation rate, budget balance and current account balance, have been predicted with improvement trend. But the trend of each variable among various plans is very important. Since the predictions related to all or some macro-economic variables have not been realized within every plan and predicting the subsequent plans have been designed based on the previous plans performance, many fluctuations are observed in the prediction procedure of variables. For example, it was decided in the first development plan that inflation rate reduce to 8.9% at the end of the plan, While the goal set at the end of the second plan predicted inflation rate 12.4% that was higher than the determined objectives in the first plan [5, 6]. It shows that, the realized inflation is too far from the objectives set of the end of the first plan and this issue has caused despite all considered efforts in the second plan, the inflation rate to be scheduled higher in the end of second plan than the inflation rate at the end of the first plan. If the objectives of each plan regarding inflation rate or other macro-economic variables had been realized, its prediction would have always had a constant trend among all plans and also for 20-year long-term period [5-13].

## RESULTS AND DISCUSSION

As mentioned before about orientation index, the estimated value regarding every one of the variables in mid and long-term plans in Table (1) shows that following the passage of the considered periods, how the trend of these variables changes are [14]. Economic growth orientation index values in the first, second and fourth development plans have been negative and show on the whole, economic growth has had a descending trend within every one of the mentioned plans. The values of this index also imply the further decrease in the first plan relative to the second and fourth plans. But in the third plan, economic growth has generally increased. The calculated between-plans and long-term indices for economic growth indicate reduced economic growth during this period too.

Inflation rate is another macroeconomic variable which got the focus of the most important stabilization policies goal. Inflation rate orientation index shows that except the second development plan, the other mid-term plans haven't had significant success within themselves in reducing inflation rate. However, in the between-plans and long-term plan view, stabilizing general prices level and controlling inflation have generally been successful. Though, the intensity of this success comparing with the determined objectives has been poor in the plan.

Regarding the budget balance, since budget balance items alone cannot illustrate government success in stabilizing budget balance during long-term period; IMF utilizes budget balance to GDP criterion. This index indicates that budget surplus or deficit level has to be analyzed comparing with countries' GDP. In other words, budget deficit level shouldn't be considered identical in small and large economies. Even in an economy, with an increase in GDP during various years, maintaining certain amount of budget deficit or even increasing it so that budget deficit ratio to GDP decreases on the whole, can be viewed as success. The above index orientation except the first mid-term development plan indicates that budget balance ratio to GDP has had a declining trend within every one of mid-term plan, between-plans and even long-term period. Based on the analysis regarding tax revenues in the first and second hypotheses, the most significant causes of budget deficit increase or budget surplus decrease to GDP should be searched in the oil price fluctuations and excessive government expenditures compared with its revenues. This has resulted not realizing of another stabilization plans targets.

Current account balance ratio to GDP is another macroeconomic index which has been analyzed in realizing stabilization plans objectives in this section. The reason to choose this ratio compared with current account balance absolute value is also like what has been explained regarding the budget balance ratio to GDP. In other words, since this study includes a long-term period, economic volume should also be involved in evaluating the indices and the Gross Domestic Production is the most significant variable for showing a country economic volume. Therefore, current account balance has been considered with respect to GDP level in different years and according to IMF suggestion. Though, the calculated orientation index indicates that within every one of the mid-term plans, stabilization plans had no success in foreign sector. But tend of current account balance ratio to GDP has been based on stabilization policies in long-term and even between-plans. The difference in mid-term and long-term plans results is

Table 1: The condition of structural orientations of country mid-term and long-term economic and social development plans based on macroeconomic variables performance

		Period					
		Mid- term plans (inter plan)				Between mid- term plans	
Title		First plan	Second plan	Third plan	Fourth plan	(between-plan)	Long-term 1989-2009
Gross domestic product	$\cos \theta$	-0.60	-0.45	0.34	-0.32	-0.48	-0.26
(Percent change)	$\theta$	127	117	70	108	119	105
Inflation, average consumer prices	$\cos \theta$	0.67	-0.75	0.74	0.35	-0.55	-0.28
(Percent change)	$\theta$	48	138	42	70	123	106
Government budget balance	$\cos \theta$	0.79	-0.40	-0.80	-0.20	-0.91	-0.48
(Percent of GDP)	$\theta$	38	114	143	102	155	119
Current account balance	$\cos \theta$	-0.27	-0.08	-0.91	-0.71	0.94	0.70
(Percent of GDP)	$\theta$	105	95	155	135	21	46

Source: Research calculation

Table 2: The condition of macroeconomic stability in country mid-term and long-term economic and social development plans

		Period				
		Mid- term plans (inter plan)				Long-term 1989-2009
Title		First plan	Second plan	Third plan	Fourth plan	
Gross domestic product (Percent change)	$\mu$	8.22	3.56	5.71	5.09	5.64
	$\sigma$	8.13	2.04	1.59	3.75	4.61
	CV	0.99	0.57	0.28	0.74	0.82
Inflation, average consumer prices (Percent change)	$\mu$	18.79	25.54	14.16	15.37	18.46
	$\sigma$	6.05	13.36	1.99	6.47	8.69
	CV	113.69	341.06	28.14	99.51	160.43
Government budget balance (Percent of GDP)	$\mu$	-1.96	-1.13	-2.16	-4.49	-2.44
	$\sigma$	1.56	2.10	1.98	1.43	2.08
	CV	-0.79	-1.87	-0.91	-0.32	-0.86
Current account balance (Percent of GDP)	$\mu$	-5.92	2.92	4.48	7.50	2.25
	$\sigma$	3.36	3.24	5.12	2.92	6.17
	CV	-0.57	1.11	1.14	0.39	2.75

Source: Research calculation

because at the beginning of mid-term plans, this ratio possessed very favorable conditions that despite its decrease until the end of every one of the plans, it has kept plans means high and this has got a more desirable status in future mid-term plans. Therefore, totally, it can be stated that some appropriate success has been achieved irrespective of import and export goods combination and type and only based on business items value in foreign sector of Iran economy in 20-year period.

To analyze macroeconomic stability level in mid-term and long-term plans, in addition to economic growth average rate as a suitable criterion to determine realization degree of stabilization objectives, the dispersion level and fluctuations of each one of these variables would be a factor to determine it. Hence, two parameters of mean and standard deviation have been calculated for every macroeconomic variable. While criterion of variations

coefficient has been considered to reach a certain result from the above parameters. Because every one of two mean and standard deviation parameters show positive and negative conditions of the variable stability. The variations coefficient is ratio of standard deviation to mean and lower variations coefficient indicates relative stability of that variable. Only about the inflation rate, multiplication of mean and variations coefficient is used. Because both of high inflation rate mean and high dispersion are negative factors in general prices level stability. Regarding the above explanations, the highest economic growth rate mean has happened in the first plan and the lowest fluctuation belongs to the third plan. Then, the calculated variations coefficient shows the highest economic stability in the third plan.

But about the inflation rate, conditions are different. Because high mean and standard deviation is the reason behind price general level instability. Therefore, in

calculating the variations coefficient, multiplication of mean and standard deviation has substituted instead standard deviation ratio to mean. Low level of this criterion will imply more stability of general prices level. Based on this, the third plan with inflation rate mean 14.16% and deviation 1.99 and substitution variations coefficient 28.14 shows the highest stability. The second development plan with the highest inflation rate mean and highest fluctuations at general prices level shows the lowest stability.

Budget balance ratio to GDP in the second plan has the highest mean, but it shows the lowest dispersion in the fourth plan. On the whole, the calculated stability index in the second plan has better conditions compared with the other plans.

Current account balance ratio to GDP has had the highest mean in the fourth plan that in this plan, balance fluctuations have been less than the other mid-term plans. Hence, stability status of this ratio in the fourth plan is more appropriate in comparison with the other mid-term plans. It's noted that although in the first plan the calculated variations coefficient has the lowest value, but this is due to negative balance or deficit in current account balance. Then, if there are positive and negative figures in variations coefficient, the least positive value will be considered.

### CONCLUSION

It can be said that generally among considered macro indices and variables, economic growth plan objectives and expectations due to reforms policy haven't been realized during long-term 20-years period. Concerning inflation rate, it should be stayed that relative success achieved due to the above mentioned policies implementation. Though, providing correct implementation of policies, it had been predicted this success would have been significant. Although one of the reforms policies implementation goals was reducing or removing government budget deficit, preventing Liquidity volume increase and then prices consistency; this issue was not pursued as an objective during the period. However current account balance in long-term based on stabilization policies has gained relative success. Thus according to the stated issues in the research theoretical bases, the effect of reforms policies implementation has been more tangible on inflation in the developing countries and its effect on economic growth is not clear.

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