

Outcome of Macroeconomic Instability

(A Case for Iran)

Majid Sameti

Dept. of economics, University of Isfahan

Isfahan, Iran

E-mail: p_sameti@gmail.com

Rahim Dallali Isfahani

Dept. of economics, University of Isfahan

Isfahan, Iran

E-mail: dallali@ase.ui.ac.ir

Hassan Karnameh Haghighi (Corresponding author)

Dept. of economics, University of Isfahan

Isfahan, Iran

E-mail: Karnameh@yahoo.com

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Abstract

There is no unique threshold between stability and instability for each macroeconomic variable. Rather, there is a continuum of combinations of levels of key macroeconomic variables, including growth, inflation, fiscal deficit, current account deficit, and international reserves, that together can indicate macroeconomic instability. The combination of these factors can make it relatively easy to identify a country in a state of macroeconomic instability or stability. In this paper we investigate the macroeconomic instability and its outcome in Iran by a self-made index and filtering algorithms (KLR). The result shows that, in the years in which the macroeconomic instability has increased, the economic growth has been affected and decreased. It seems that the macroeconomic instability is a serious barrier against the economic growth of the country.

Keywords: Macroeconomic Instability, Filtering Algorithms KLR, Iran

JEL Classification: E31, E40, E47

1. Introduction

In this study we are interested in an empirical assessment of the role of instability of the macroeconomic environment on economic growth. Iran is an interesting case study since the Iranian economy registered a low and volatile economic growth rate between the 1990s and 2008, mainly due to an endemic problem of macroeconomic instability.

The paper is organized as follows. Section 2 provides background information on the causes of macroeconomic instability. Section 3 and 4 Explain concept of macroeconomic instability and outcomes of macroeconomic instability. Section 5 investigates macroeconomic instability and it's outcomes in Iran by a self-made index and filtering algorithms (KLR). Finally, Section 6 concludes the paper.

2. Causes of Macroeconomic Instability

2.1 Keynesian View

According to Keynesian view, instability in the economy arises from two sources: (1) significant changes in investment spending, which changes aggregate demand, and occasionally, (2) adverse aggregate supply shocks, which change aggregate supply. Keynesian macroeconomics focuses on aggregate spending and its components. Recall that the basic equation underlying aggregate expenditures is $C_a + I_g + X_n + G = GDP$. That is, the aggregate amount of after-tax consumption, gross investment, net exports, and government spending determines the total amount of the goods and services produced and sold. In equilibrium, $C_a + I_g + X_n + G$ (aggregate expenditures) is equal to GDP (real output). Any change in one of the spending components in the aggregate expenditures equation shifts the aggregate demand curve. This, in turn, changes equilibrium real output, the price level, or both. (Disputes over Macro Theory and Policy, 2005)

Investment spending, special, is subject to wide “booms” and “busts.” Significant increases in investment spending get multiplied into even greater increases in aggregate demand and thus can produce demand-pull inflation. In contrast, significant declines in investment spending get multiplied into even greater decreases in aggregate demand and thus can cause recessions. The second source of macroeconomic instability arises on the supply side. Occasionally, such external events as wars or an artificial supply restriction of a key resource can boost resources prices and significantly raise per unit production costs. The result is a sizable decline in a nation’s aggregate supply, which destabilizes the economy by simultaneously causing cost-push inflation and recession. (Disputes over Macro Theory and Policy, 2005)

2.2 Monetarist View

Monetarists (Like classical economists) argue that the price and wage flexibility provided by competitive markets would cause fluctuations in aggregate demand to alter product and resource prices rather than output and employment. Thus the market system would provide substantial macroeconomic stability were it not for government interference in the economy. The problem, as monetarists see it, is that government has promoted downward wage inflexibility through the minimum-wage law, pro-union legislation, guaranteed prices for

certain farm products, pro-business monopoly legislation, and so forth. The free-market system is capable of providing macroeconomic stability, but, despite good intentions, government interference has undermined that capability. Moreover, monetarists say that government has contributed to the economy's business cycles through its clumsy and mistaken attempts to achieve greater stability through its monetary policies (Disputes over Macro Theory and Policy, 2005).

Monetarists say that inappropriate monetary policy is the single most important cause of macroeconomic instability. An increase in the money supply directly increases aggregate demand. Under conditions of full employment, that increase in aggregate demand raises the price level. For a time, higher prices cause firms to increase their real output, and the rate of unemployment falls below its natural rate. But once nominal wages rise to reflect the higher prices and thus to restore real wages, real output moves back to its full-employment level and the unemployment rate returns to its natural rate. The inappropriate increase in the money supply leads to inflation, together with instability of real output and employment. Conversely, a decrease in the money supply leads to deflation, together with instability of real GDP and employment. Monetarists view changes in the money supply as the main cause of instability in the economy. For example, they say that the Great Depression occurred largely because the central bank allowed the money supply to fall by nearly 40 percent during that period. (Disputes over Macro Theory and Policy, 2005).

2.3 Real-Business-Cycle View

Third view of the cause of macroeconomic instability is that business cycles are caused by real factors that affect aggregate supply rather than by monetary, or spending, factors that cause fluctuations in aggregate demand. In the real business-cycle theory, business fluctuations result from significant changes in technology and resource availability. Those changes affect productivity and thus the long-run growth trend of aggregate supply.

An example: Suppose output per worker (productivity) declines because of a large increase in oil prices, which makes it prohibitively expensive to operate certain types of machinery. That decline in productivity implies a reduction in the economy's ability to produce real output. The result would be a decrease in the economy's long-run aggregate supply curve. Conversely, a large increase in aggregate supply caused by, say, major innovations in the production process would shift the long-run aggregate supply curve rightward. Real output would increase, and money demand and money supply would both increase. Aggregate demand would shift rightward by an amount equal to the rightward shift of long-run aggregate supply. Real output would increase, without driving up the price level. In the real-business-cycle theory, macroeconomic instability arises on the aggregate supply side of the economy, not on the aggregate demand side, as Keynesian and classic economists and monetarists usually claim. (Disputes over Macro Theory and Policy, 2005)

2.4 Coordination Failures

Fourth view of macroeconomic instability is coordination failures. Such failures occur when people fail to reach a mutually beneficial equilibrium because they lack a way to coordinate

their actions.

An example to macroeconomic instability (recession): Suppose that individual firms and households expect other firms and consumers to cut back their investment and consumption spending. As a result, each firm and household will predict a reduction of aggregate demand. Firms therefore will cut back their own investment spending, since they will predict that their future production will be excessive. Households will also reduce their own spending (increase their saving), because they predict that they will experience reduced work hours, possible layoffs, and falling income in the future. Aggregate demand will indeed decline and the economy will indeed experience a recession in response to what amounts to a self-fulfilling prophecy. Moreover, the economy will stay below a full-employment level of output because, once there, producers and households have no individual incentive to increase spending. If all producers and households would agree to increase their investment and consumption spending simultaneously, then aggregate demand would rise, and real output and real income would increase. Each producer and each consumer would be better off. However, this outcome does not occur because there is no mechanism for firms and households to agree on such a joint spending increase. In this case, the economy is embedded unemployment equilibrium because of a coordination failure. With a different set of expectations, a coordination failure might leave the economy in inflation equilibrium. In this view, there are a number of such potential equilibrium positions in the economy, some good and some bad, depending on people's mix of expectations. Macroeconomic instability, then, reflects the movement of the economy from one such equilibrium position to another as expectations change. (Disputes over Macro Theory and Policy, 2005)

3. Explanation of Macroeconomic Instability

Macroeconomic stability exists when key economic relationships are in balance; for example, between domestic demand and output, fiscal revenues and expenditure, and savings and investment, as well as the balance of payments these relationships, however, need not necessarily be in exact balance. Imbalances such as fiscal and current account deficits or surpluses are perfectly compatible with economic stability provided that they can be financed in a sustainable manner.

There is no unique threshold between stability and instability for each macroeconomic variable. Rather, there is a continuum of combinations of levels of key macroeconomic variables, including growth, inflation, fiscal deficit, current account deficit, and international reserves, that together can indicate macroeconomic instability. The combination of these factors can make it relatively easy to identify a country in a state of macroeconomic instability (for example, large current account deficits financed by short-term borrowing, high and rising levels of public debt, double-digit inflation rates, and stagnant or declining GDP) or stability (for example, current account and fiscal balances consistent with low and declining debt levels, inflation in the low single digits, and rising per capita GDP). However, there is a substantial gray area in between where countries enjoy a degree of stability, but where macroeconomic performance could clearly be improved. (Devarajan, Swaroop and Zou, 1997)

The macroeconomic instability is the opposite point of macroeconomic stability. According to the definition presented by the Riot Researches Institution, “Macroeconomic Stability” describes a situation of national economy in which the vulnerability caused by the foreign shocks has reached a minimum. The Norwegian Agency for Development Corporation also defines the short run fluctuation in the macroeconomic variables such as the gross domestic product, inflation, budget deficit as the macroeconomic instability. In this viewpoint, the macroeconomic instability can weaken the potential long run growth through decrease of tendency to investment. (Norwegian Agency for Development Corporation, n.d.)

According to the Maastricht Principles, the macroeconomic stability is measured by five variables: low and stable inflation (the upper limit of inflation 3%), low long run interest rate (limited to the range of 9%), the low proportion of national debt to gross domestic product (the upper limit of debt is 60% of the gross domestic product), the low annual budget deficit (the upper limit of deficit is 3% of gross domestic product), and stable exchange rate (fluctuation of the exchange rate up to 2/5%).

4. Outcomes of Macroeconomic Instability

Macroeconomic stability is the cornerstone of any successful effort to increase private sector development and economic growth. Cross-country regressions using a large sample of countries suggest that growth, investment, and productivity are positively correlated with macroeconomic stability (Easterly and Kraay, 1999). Although it is difficult to prove the direction of causation, these results confirm that macroeconomic Instability has generally been associated with poor growth performance. Without macroeconomic stability, domestic and foreign investors will stay away and resources will be diverted elsewhere. In fact, econometric evidence of investment behavior indicates that in addition to conventional factors (that is, past growth of economic activity, real interest rates, and private sector credit); private investment is significantly and negatively influenced by uncertainty and macroeconomic instability (see, for example, Ramey and Ramey, 1995). In addition to low (and sometimes even negative) growth rates, other aspects of macroeconomic instability can place a heavy burden on the poor. Inflation, for example, is a regressive and arbitrary tax, the burden of which is typically borne disproportionately by those in lower income brackets. The reason for this is twofold. First, the poor tend to hold most of their financial assets in the form of cash, rather than in interest-bearing assets. Second, they are generally less able than are the better off to protect the real value of their incomes and assets from inflation. In consequence, price jumps generally erode the real wages and assets of the poor more than those of the nonpoor. Moreover, beyond certain thresholds, inflation also curbs output growth, an effect that will affect even those among the poor who infrequently use money for economic transactions.⁶ In addition, low output growth that is typically associated with instability can have a longer-term impact on poverty (a phenomenon known as “hysteresis”). This phenomenon typically manifests itself in shocks to the human capital of the poor. In Africa, for instance, there is evidence that children from poor families drop out of school during crises. Similarly, studies for Latin American countries suggest that adverse terms-of-trade shocks are in part responsible for the decline of schooling attainment (see, for example, Behrman, Duryea, and Szekely, 1999). Also, there is this probability that the macroeconomic

instability can influence the poor inappropriately, since the consumption patterns are very sensitive to the income changes of the lower level of income. (Mobarak, 2005). Furthermore, some economists believe that macroeconomic instability is harmful for capital accumulation. There are also meaningful empirical evidences that confirm this theory. In this field, you can refer to studies done by Kormendi and Meguire (1985), Fischer (1993), Briault (1995), and Bleaney (1996).

Most of the countries suffering from chronic macroeconomic instability register low and volatile rates of capital formation and economic growth. Furthermore, they tend to exhibit low level of public capital spending as a share of output. Many economists nowadays believe that macroeconomic instability is detrimental to capital accumulation and economic growth, and there is empirical evidence that supports this view. Theoretical arguments in this line of research focused on the detrimental effects of macroeconomic instability on private investment and productivity. Moreover, early empirical studies, which assessed the effects of macroeconomic instability on investment, used either aggregate investment (Bleaney, 1996) or private investment data (Cardosa, 1993) in their analyses.

Macroeconomic instability has negative effects on both private and public investment, albeit through different channels. While the rise in macroeconomic uncertainty is the main cause for a reduction in private investment, the reduction in the fiscal ‘ability’ of the government is the principal reason for the decrease in public investment. That is, a rise in the level of macroeconomic instability leads to fiscal stringency due to the existence of the budget constraint of the government. For example, high inflation rate and/or excessive debt accumulation lowers the overall public resources otherwise available for public expenditures, namely capital and current expenditures. In turn, the incumbent government lowers public capital expenditures rather than current expenditures when faced with fiscal stringency since it is politically easier to cut the former than the latter. (Ismihan, Metin-Ozcan, & Tansel, 2005).

Many recent empirical studies found positive effects of public capital spending, particularly infrastructural spending, on private investment, productivity and growth. These studies suggest that a decrease in public capital spending can be harmful for economic growth. More importantly, given the detrimental effects of macroeconomic instability on public investment, these studies imply that chronic macroeconomic instability can be very costly in terms of private capital accumulation and hence economic growth if public and private investment are complementary (i.e. if public investment crowds-in private investment). (Ismihan, Metin-Ozcan, & Tansel, 2005).

Moreover, in the new literature of political economic, it has been recently emphasized on the role of the political parameters in the macroeconomic instability. In such a way that the studies of Persson and Tabellini (2000), and Drazen (2000) show that the instability and polarization (such as political weakness, populist governments, etc.) can have harmful effects on the macroeconomic stability, public investment, and economic growth in long run periods.

The developing countries may experience the macroeconomic instability in the form of the result of bad management in the whole economy (such as adopting incorrect economic

policies), and the structural features such as income inequality and wealth. In this regard, you can refer to the studies done by Dornbusch and Edwards (1990), and Onis (1997).

Rodrik (1997) and Mobarak (2005). On the other hand, Yang (2008) shows that in the countries in which there are high degrees of racism and ethnic dissimilarity, democracy meaningfully decrease the instability of growth. While in the countries with the low level of racism and ethnic diversity, this relation is not significant. Also, Guillaumont, Korachais and Subervie (2006), argue macroeconomic instabilities are likely to affect under-five survival beyond their effect through a lower economic growth. First, they have an irreversible influence on child mortality due to asymmetry in the reaction of child health to ups and downs in economic variables. Moreover, they may involve a stronger income inequality (as "almost poor" people are more likely to suffer from income shocks), which decreases the average child survival rate.

Rodrik (1999) also believes that democracy can manage the shocks of macroeconomic better, because the democratic institutes decrease the social disintegration, so it is expected that the democratic countries have lower levels of macroeconomic instability.

The studies done by Asemoglou, Simon, James and Yunyong (2003) show that the countries that encounter high instability not only suffer from the deviations in the policies of macroeconomic, but also encounter the weak institutional structures. They actually make this conclusion that the difference in the quality of the institutes is the main reason for the interstate macroeconomic instability.

5. Methodology and Model

The most common method for choosing the best variables in predicting the crisis from among the literature of the models for predicting the crisis, the probability of the occurrence of crisis in a period (of K in the future period) is estimated by Probit or Logit Multi-Variable Models. The big advantage of these kinds of algorithms in comparison to other models is that they present all of the information which is about the probability of the occurrence of the crisis all in one and in the form of single number (the probability of occurrence of crisis). This algorithm has also considered the behavior of the whole variables simultaneously and extracted the variables which don't have acceptable explanation from the model. But in algorithms which are used in the mentioned models, there is no mechanism for valuating and ranking different kinds of variables, based on the amount of their accuracies in predicting the actual crises. In these models, we can only express opinion that whether one variable is significant or not, or they can determine the rate of reliability of the variables in predictions. But when the calculations of econometrics imply the reliability of a variable, it is not clear that the estimated reliability means the prediction of the major portion of the crises with the considerable number of incorrect warnings, or it means losing the major parts of the crises as the result of producing the limited amount of incorrect warnings. Another weakness of these patterns is that no obvious interpretations can be presented from the weak points and the shortcomings of the economic system by them.

In another algorithm that is used for predicting the crises, specific variables have been chosen as the warning variables, and their behaviors have been considered and controlled. In this method, since each of the warning variables is considered independently, the possibility of concluding and expressing the opinion about the predicting power of each of them in estimating the risk of attack and also the effective factors in forming the expectation of the attack in the market has been provided.

The recent method for predicting the crisis is known as the Warning Algorithm or the Early Warning System (EWS). This method which has ample precedents in evaluating the capability of financial temporal series and the prediction of regulating business cycle turning points have entered into the literature of analyzing the financial crises in the middle of 1990s. A specific copy of early warning systems was presented in an article by Kaminsky and Reinhart (1996) which has special position regarding the function and the power of prediction among the similar models. The mentioned model has been developed in another article that has been written by Kaminsky, Lisondo and Reinhart (1998).

It seems that the recent pattern that is called Early Warning System i.e. KRL is the best and the most efficient registered pattern for predicting the crisis. The mentioned pattern has been used in several articles and proved its priority in predicting the crises. For example, we can refer to the prediction of the crisis of the southeastern of Asia. In this regard, the comparison of the predicting patterns of Frankle-Rose (FR) and Sachs-Tomell-Velasco (STV) in the article written by Berg and Pattillo (1999) with KLR pattern shows that KLR acts better than the other two models. In another article that was issued in 2004, the prediction power of KLR Pattern has been evaluated in comparison with the other common patterns of predicting the crisis that are used in the International Monetary Fund or in other economic institutions such as EIU. The results of this article also confirm the priority of KLR Model (Berg, Borenzstein and Pattillo, 2004). The early warning patterns such as KLR, unlike the current models that usually use the econometrics techniques, because of the specific algorithm that are used in them, are not primarily faced with the common problems and errors of econometrics. (Berg and Coke, 2004)

The general idea of the whole early warning systems is the behavioral control of the number of the economic variables (warners) over the time. Exit of each of the variables from the range of fluctuation is reasonable and passing the specific threshold limit is considered as a warning for the occurrence of the crisis over the distinct temporal period in the future.

In this research, the method of the early warning systems is used for determining the best predicting variables of the macroeconomic instability and constructing the macroeconomic instability index.

The macroeconomic instability index shows the situation of the macroeconomic stability that is generally a combination of inflation, budget deficit, the fluctuation of the real exchange rate (Note 1), and change in the exchanges trade (Note 2).

In this research, the macroeconomic instability index (Note 3) (MII) has been constructed and extracted for Iran by a combinational method. The basic variables which are used are as

follows: the rate of inflation (inf), change in the real exchange rate (ex), the proportion of the budget deficit to the gross domestic product (bd), and exchanges trade (tot). This index is defined as the weight sum of the rate of inflation, the fluctuation of the real exchange rate, change in the budget deficit, and fluctuation of the exchanges trade. The weight of each variable will be equivalent to the standard deviation of that variable.

$$MII_t = \alpha \left(\frac{\text{inf}_t - \min \text{inf}}{\max \text{inf} - \min \text{inf}} \right) + \beta \left(\frac{\text{ex}_t - \min \text{ex}}{\max \text{ex} - \min \text{ex}} \right) + \gamma \left(\frac{\text{bd}_t - \min \text{bd}}{\max \text{bd} - \min \text{bd}} \right) + \varphi \left(\frac{\text{tot}_t - \min \text{tot}}{\max \text{tot} - \min \text{tot}} \right)$$

The weights of the components of the index are chosen in such a way that the total some of them is equal to one, in other word, $\alpha + \beta + \gamma + \varphi = 1$.

The more amount of this index – which is between zero and one – means the more instability. In the pattern that has been used in this research, the years in which the macroeconomic instability index is as much as 1.5 times of the standard deviation of the whole chosen sample more than the sample average (crisis threshold) (Note 4) are considered as the critical years.

$$MII_t > \text{mean}(MII) + 1.5 \times \text{stdev}(MII), t \in (1974:2008)$$

As, stdev means the standard deviation of the macroeconomic instability.

The calculated values for the macroeconomic instability index over the investigating period have been fluctuated between 0.13 and 0.69 that its mean and standard deviation for the whole period have been 0.32 and 0.11 respectively. Thus, the threshold of the instability crisis is determined 0.49 for Iran that regarding this amount in the years of 1980, 1981, and 1987, the macroeconomic of Iran has encountered with the instability crisis. In the recent two decades, the most amount of instability is related to 1995 and the least amount is related to 2001.

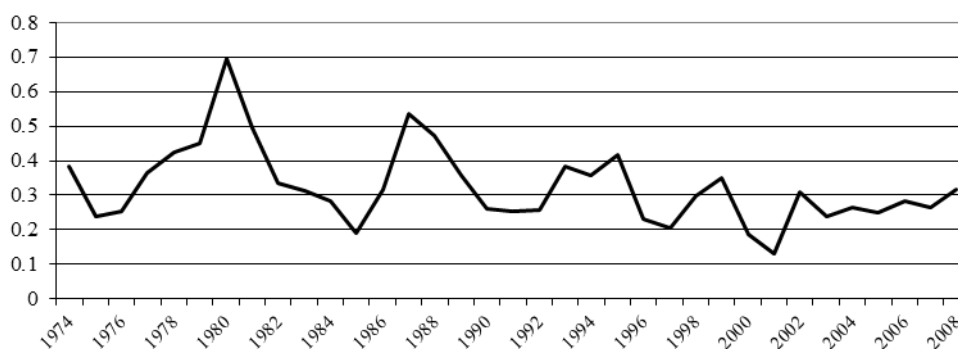


Figure 1: The situation of Iran's macroeconomic instability, 1974-2008

Based on the fig.1, although the process of the index of Iran's macroeconomic instability has being decreased and the depth and intensity of the fluctuations have declined, the macroeconomic of Iran always suffers from the persistent instabilities. The gist is that the

mentioned process has being increased since 2003 that it can considered as a warning for occurrence of the instability crisis of macroeconomic in future. Situation of the macroeconomic instability during the different programs of five-year economic and social development of the country has been presented in table (1).

Table 1: Situation of the macroeconomic instability during the different programs of five-year economic and social development

Plan	Max	Min	Average
First(1985-1993)	.358	.252	.301
Second(1995-1999)	.417	.205	.300
Third(2000-2004)	.307	.132	.226
Fourth(2005-2009)	.318	.248	.287

As, in table (1), the most amount of the macroeconomic instability index during the mentioned programs is related to 1995 and the least amount is related to 2001.

Based on the achieved information, approximately, the instability index has been in the peak at the beginning or final years in each program. In the following chart the contrast of economic growth and the macroeconomic instability have been shown. As, in the years in which the macroeconomic instability has increased, the economic growth has been affected and decreased. Investigating the correlation of the two variables shows the considerable negative correlation (-0.6). It seems that the macroeconomic instability is a serious barrier against the economic growth.

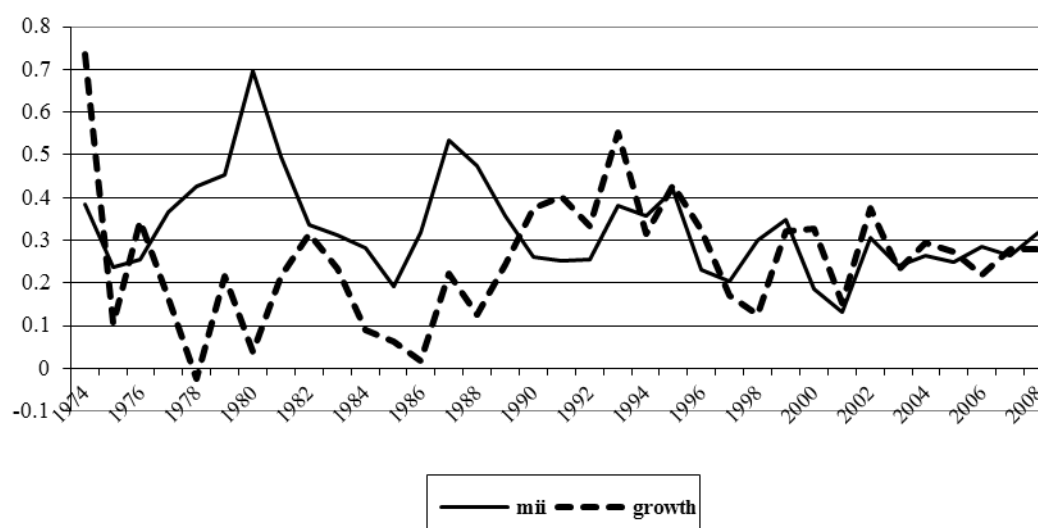


Figure 2: The macroeconomic instability index and economic growth in Iran, 1974-2008

To predict the situation of the macroeconomic instability in future and to choose the best predicting variables of the macroeconomic instability, first, some functional terms are defined.

- *Warning variables:* choosing the warning variables has been done according to the theoretical and empirical studies. Variables that have been used are: the rate of inflation, the proportion of the budget deficit to the gross domestic product, fluctuation of the real exchange rate, and changes of the exchanges trade.
- *Prediction period:* is the period in which it is expected that the warning variables predict the crises that will be occurred in that period. The warning that accompanies at least with a crisis during the prediction period is called true signal, otherwise; it is called false signal.
- *The threshold warning limits:* pass of each defined index for each variable from a specific threshold is considered as a warning. In each threshold that is chosen, naturally, some crises and also some errors are predicted. The optimal threshold is a threshold that in one hand predicts the most possible amount of crises and on the other hand, produces the least number of false signals. It means that it must be chosen in such a way that it can create an optimal balance between the correct predicted crises and the amount of errors. KRL Algorithm is used for achieving an optimal complex of appropriate thresholds.

For achieving an optimal amount of the threshold limit for each variable, all of the possible values have been tested in the range of 30 percent to 10 percent of the whole observations (30 percent to 10 percent of the whole observations are located higher than the determined limit. It means the existing observations in the range of the seventh and the ninth decimals.) And among them, the group that shows the least proportion of the false signal to the correct signal is chosen as the optimal threshold for the variable. The stages for choosing the warning threshold has been explained in the following table for the supposed variable X.

Table 2: Different stages for choosing the warning threshold

Phase	Variables and Parameters	Terms
1	X: The warning Variable	$X = \begin{bmatrix} x_1 \\ \cdot \\ \cdot \\ \cdot \\ x_M \end{bmatrix} \quad m = 1, \dots, M$
2	MII: macroeconomic instability index	$MII = \begin{bmatrix} mii_1 \\ \cdot \\ \cdot \\ \cdot \\ mii_M \end{bmatrix} \quad m = 1, \dots, M$ St. $MII = \alpha \inf i + \beta exi + \gamma bdii + \phi toti$ $\alpha + \beta + \gamma + \phi = 1$

3	CT: The threshold Crisis	$CT = \text{mean}(MII) + 1.5 \times \text{stdev}(MII)$
4	$\forall_m = 1, \dots, M$ $x_m \geq P_k(X) : \begin{cases} \text{True} \\ \text{False, else} \end{cases} \exists j : m+1 \leq j \leq m+5, MII_j > CT$ $\Rightarrow a = \sum_m \text{True}, b = \sum_m \text{False}$	
5	$\forall_m = 1, \dots, M$ $x_m \geq P_k(X) : \begin{cases} \text{True} \\ \text{False} \end{cases} \exists j : m+1 \leq j \leq m+5, MII_j > CT$ $\Rightarrow c = \sum_m \text{True}, d = \sum_m \text{False}$	
6	NS: the proportion of the number of errors to the true predictions	$NS = \frac{b/b+d}{a/a+c}$

Those groups of variables that the proportion of the false signal to the true signal for them is less than one, are chosen as the appropriate warning variables, and those groups of variables that this proportion for them is more than one don't have the sufficient reliability for prediction and thus they are omitted from the complex of appropriate variables. The situation of each warning variable and also the warning threshold of each of them have been shown in table (3).

Table 3: the situation of the warning threshold and the proportion of error to the true prediction of warning variables

Warning variables	The threshold warning	the proportion of the number of errors to the
The budget deficit instability index	0.43	0.25
The real exchange rate instability index	0.4	1.2
The inflation instability index	0.39	0.5
The exchanges trade instability index	0.42	0.75

Regarding the proportion of the number of errors to the true predictions, the most reliable predicting variable is the proportion of the instability index of the budget deficit to the gross domestic product. After that, the most reliable ones are the inflation instability index and the exchanges trade instability index respectively. Since the proportion of the number of errors to the true predictions of the variable in the index of real exchange rate instability is more than one, so it is omitted from among the predicting variables.

6. Conclusion

The majority of economists believe that macroeconomic instability is harmful for capital accumulation and economic growth due to the risk of decision making microfinance and enterprises especially in developing countries. Consequently, the income distribution and other macroeconomic index will be effected because of bad management in whole economy.

The result our research shows that calculated values for the index of macroeconomic instability over the investigated period have fluctuated in between 0.13 and 0.69. The instability threshold for Iran is determined 0.49 that regarding the amount of that in 1980, 1981, and 1987, the macroeconomic of Iran encounters with the instability crisis. In two decades, maximum rate of instability is related to 1995 and minimum rate is related to 2001. In consider of results, approximately, macroeconomic instability index has been at the peak, in the beginning and final years of each program of development. Moreover, in the years in which the macroeconomic instability has increased, the economic growth has been affected and decreased.

Finally, result suggests that growth is positively correlated with macroeconomic stability. Although it is difficult to prove the direction of causation, these results confirm that macroeconomic Instability has generally been associated with poor growth performance. It seems that the macroeconomic instability is a serious barrier against the economic growth of the country.

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Notes

Note 1. The real exchange rate is the product of the proportion of the incidental index of the price of input to the index of the costs of goods and consumption services with the exchange rate in the informal market.

Note 2. The exchanges trade is the proportion of the incidental index of the price of export to the incidental index of the price of import.

Note 3. The Macroeconomic instability index (MII) is useful in evaluating and comparing the level of macroeconomic instability within and between the time periods. (Ismihan 2003)

Note 4. Usually the threshold of crisis is chosen in such a way that the number of the calculated crises in the whole investigated samples is not less than 5 percent of the whole amount of the sample.

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