

The effects of macroeconomic (monetary, fiscal, and exchange rate) and trade policies on indicators of sustainable development in Iran

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Abstract

The current uncertainties regarding the fragile recovery of the global economy continue to highlight the importance of studying and accurately predicting the path of leading indicators, especially macroeconomic indicators. Nevertheless, for all developed and developing countries, one of the basic goals of macroeconomic policies is to ensure economic stability. The purpose of this research is to investigate the impact of monetary, financial, foreign exchange and commercial policies on a sustainable economy. In this regard, the variables of wide money supply, credits allocated to the private sector, exchange rate, trade openness, cash liabilities, government expenditures and the market value of companies admitted to the stock exchange are used. The data were extracted from the World Bank database and the autoregressive distributed lag (ARDL) model applied for analyzing the data for years 1990-2020. Results show that the real exchange rate, wide money supply, cash liabilities and commercial openness has a negative and significant impact on economic stability in the short and long term, but the variable of credits allocated to the private sector has a positive effect on the variable. has been affiliated Also, government spending and the market value of listed companies have a negative effect in the short term, but have a positive effect on the stable economy in the long term. Therefore, in addition to active macroeconomic policies, countries should use a wide range of supportive political interventions to achieve a stable economy, which include a specific combination of commercial, financial and currency policies.

Keywords: Sustainable economy, money policy, financial policy, exchange rate policy, commercial policy, ARDL
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1 Introduction

Economic sustainability is a broad set of decision-making principles and business practices aimed at achieving economic growth without engaging in the harmful environmental trade-offs that historically accompany growth. Macroeconomic policies play a vital role in price stabilization and sustainable growth during economic crises [22]. Most countries in the world have responded to crises by reducing interest rates and injecting additional liquidity into their

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financial system [26]. However, not all countries have the necessary flexibility to implement such policies, because their conditions are different from the point of view of monetary policy [61]. Countries with lower interest rates may lose the effectiveness of this policy, as further interest rate cuts could destabilize their currencies by triggering capital outflows [26]. Due to the limitations of monetary policy under these conditions, financial policy has been used to stabilize economic growth and control inflation [38]. The introduction of fiscal stimulus packages can boost domestic demand and help counter any loss in economic confidence [26]. However, unsustainable spending can lead to large budget deficits that may lead to high levels of public debt. Without these policy responses, economies may fall into deep and prolonged recessions [50], however, policy missteps may exacerbate any crisis. Therefore, the question that arises is which type of policy is more suitable for restoring sustainable growth, monetary, financial, currency or even commercial?

[60] argue that the Central Bank (CB)'s non-standard monetary policies have positively affected and stimulated the labor market and development in goods and services markets, referred to the sustainable financial development. Keynesian economists believed that an expansionary fiscal policy could increase aggregate demand and the level of output through the multiplier effect. While monetarists believe that monetary policy has a more important role than fiscal policy. Monetarists believed that the money supply and economic growth had a positive relationship because output increased due to an increase in the money supply. A lot of evidence has shown that monetary and fiscal policy plays an important role in achieving macroeconomic goals in developed and developing countries. In fact, some researchers have shown that efficient monetary and financial policies are an incentive to maintain price stability, financial sector and external balance, which ultimately leads to rapid and sustainable economic development [60]. However, several studies have evaluated the impact of monetary variables on income growth stronger than fiscal variables in developed countries ([2, 20, 55]) while similar results for some developing countries. Development has also been reported ([1, 57, 3]). Some other authors have proposed a greater role for fiscal policy in some developed countries ([50, 4]) and developing countries. ([27, 17, 14]). While some other authors have a significant complementary role for both policies ([58, 41]). It seems, as evident from the literature, that there is general support for monetary policy in developed countries while the findings for developing countries are different [23].

On the other hand, countries that are open to international trade tend to grow faster, innovate, improve productivity and provide higher income and more opportunities to their people [22]. Therefore, trade policies are a key component of a sustainable economy. Trade helps allocate scarce resources more efficiently and makes it easier for rich and poor countries to access environmental goods, services and technologies. While the world has changed in fundamental ways over the past two decades and faces both old and new challenges, greater cross-support between sustainable development and trade is critical. Important achievements have been made in the field of multilateral trade with implications for the sustainable development agenda. The World Trade Organization (WTO) was created in 1995 with new agreements and broader coverage of trade policies and practices and an emphasis on sustainable development. The WTO provides a powerful support framework for sustainable development [63].

In addition, traditional view asserts that there is a positive relationship between the foreign exchange rate and economic growth. So much so that an increase in foreign exchange rates enhances the net export volume and thus positively affects economic growth due to the increasing total demand. However, structural economists argue that there is an inverse relationship between the exchange rate and economic growth, especially in developing countries [45]. Thus, currency policies play a significant role in the stability of the economy in developed and developing countries. Many developing economies are heavily dependent on agricultural exports as well as non-renewable natural resources (fuel and minerals). Natural resource abundance, rather than raising living standards, has led to uncompetitive exchange rates that stifle the development of tradable non-natural resource sectors and lead to low-diversity production structures. The lack of diversification, in turn, has exacerbated the problems of dependence on the terms of trade and led to high macroeconomic volatility and vulnerability. Therefore, according to the country's development plans, Iran's economy ambitiously aspires to become one of the twenty largest economies in the world. One of the surest ways to achieve the mentioned goal is to pursue rapid and sustainable economic growth and development through the proper management of the exchange rate in the country. Understanding this role, [54] argues that poor exchange rate management can be disastrous for countries' economies. Therefore, the exchange rate acts as an international price to determine the competitiveness of a country. Similarly, [61] explains that the exchange rate plays an important role in guiding the broad allocation of production and expenditure in the domestic economy between foreign and domestic goods. Therefore, among all macroeconomic variables, the effects of exchange rate changes on macroeconomic conditions have become important due to the integration of financial markets and acceleration of capital flow. The end of the Bretton Woods system was seriously followed by the adoption of a floating exchange rate system in major industrial economies and other emerging countries over time. Since then, the issue of exchange rate fluctuations has attracted a lot of attention due to its effects on prices and total production [45].

In this regard, according to what has been said, a country should adopt the best policies so that it can face and respond to unforeseen events and economic problems with its actions. However, most of the existing research has focused either on the role of monetary policy or fiscal policy separately, but rarely on the combination and interactions between monetary, fiscal, exchange and trade policies. Based on this, by studying the impact of monetary, financial, currency and trade policies, policy makers may provide guidelines for governments when crises and economic problems occur in the future. Based on this and considering the importance of the subject, in the continuation of the research, first the theoretical foundations of economic sustainability will be reviewed, and then domestic and foreign studies will be reviewed to examine the research gap in this field. Finally, the introduction of the model, the necessary tests and the analysis and conclusions of the model are discussed.

2 Sustainability and Economy

The world's population reached 7.125 billion in 2015, surpassing the 7 billion mark in fifty years since the 1960s, where an average of 3 billion people was estimated to live. It is projected to increase to 12 billion by 2050, provided the rate of population growth does not change. In parallel with the increase in population, the world GDP increased from US\$1.369 trillion in 1960 to US\$75.590 trillion in 2015. Per capita income has doubled since then, but at the same time criticism of development economics has increased. Population growth and rapid increase in production increased the pressure on natural resources. These developments show that production and consumption demand cannot continue to increase at this rate and have led to questioning the theory of growth. The 1973 oil crisis and similar cases have led to the formation of a new development approach that considers economic, social and environmental factors together to create an improved growth-development model [25]. Proponents of this new paradigm have accepted two principles. The first one is related to people's quality of life. According to this principle; The existence of suitable environmental conditions is necessary for the production of goods and services. Also, an agreed and acceptable standard of living for all people of the world should be provided. The latter should provide opportunities not only for people today, but also for future generations [13].

Sustainability, which on one level can be defined as the ability to create strength and consistency in the economy and other fields, is also defined as how people treat nature. By focusing on the relationship between humankind and nature, it may become clear what responsibilities people have when considering future generations and the world they will be left with [18]. Just as words like "democracy", "liberty", and "equality" have historically resonated in popular discourse, the term "sustainability" has recently gained similar importance [5]. Economy is another important concept as old as human history. Economics is the science of discovering goods and services that people need and produce using the limited resources they have. The nature of the economy should be focused on continuous growth and development. However, economists do not agree on this issue. While economists on the frontiers of progress have a pessimistic view such as TR Malthus and David Ricardo, others have an optimistic view such as Adam Smith and Jean-Baptiste C. Economists' optimistic view of these views was well accepted until the 1970s. Due to reasons such as the oil crisis of 1973, the growth paradigm was changed and replaced by a sustainable growth strategy. Development efforts can be analyzed by establishing six basic dimensions. The technological dimension includes the fight against nature, ethical production, the human dimension that raises living standards, the employment dimension, the environmental dimension, the dominance dimension includes surpassing other societies, and the freedom dimension includes the freedom of people [36].

Sustainability is defined as the ability to sustain development without compromising the capacity to meet the needs of future generations by meeting their daily needs. This definition has been almost the source and inspiration of all future works since its inception. Economic sustainability should be considered as a factor for competitiveness, meeting basic needs correctly, increasing social welfare. Also, as an effort to support life, protect and develop natural systems, which are integrated together, provide balanced development now and in the future ([64, 6]).

In general, sustainability for the economy should be considered the performance without degradation of the quality of life of all people on earth, taking into account the welfare of society, growth and development, and environmental conditions. On the other hand, sustainability can be defined as the ability to endure. According to another definition, sustainable development can be seen as the process of creating opportunities that help fulfill the desires of individuals and communities and reveal their potential in a sustainable period, while the resilience of economic, social and environmental systems is improved [32]. Sustainable development can only be achieved when the environment, the social sphere and the economy are considered. Economically sustainable development includes profit, cost savings, economic growth, research and development. When economy and environment are considered together, they include energy efficiency, subsidies and incentives for the use of natural resources. When the economy and the social sphere are considered together, business ethics, fair trade and workers' rights are seen as common points [52].

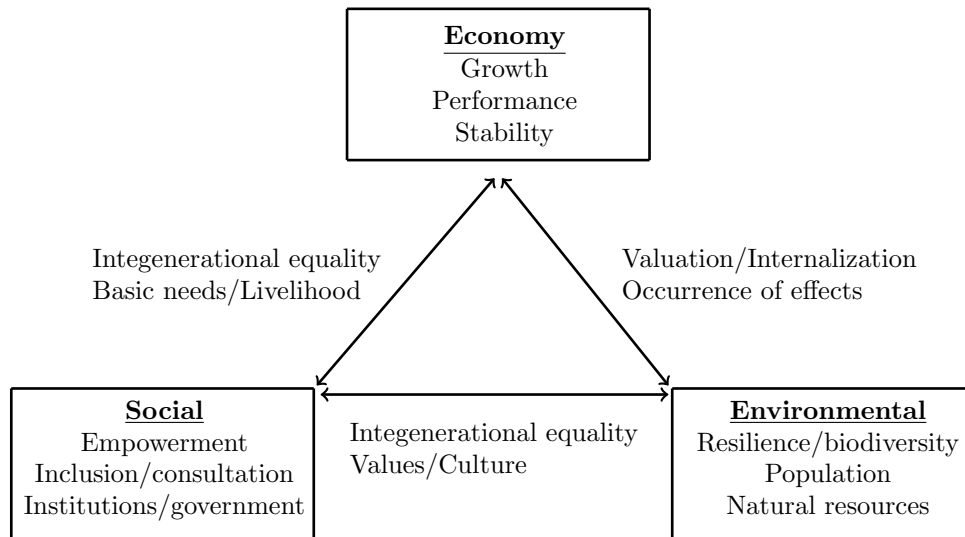


Figure 1: Sustainable economy triangle-relationships between basic elements Source: [19]

It can be seen in Figure 1 that there are three aspects of sustainability, including economic, environmental and social, and these three aspects are related through different elements [10]. The economic aspect of sustainability includes the elimination of the maximum level of well-being by increasing the goods and services and consequently the consumption of people, on the other hand, the environmental aspects include the protection of the integrity and flexibility of the ecological system and the social aspects include the realization [12]. In this context, sustainable development emerges as a phenomenon that will coexist with the preservation of the environment and the evaluation of economic and social development [19]. Sustainability itself is divided into three major categories; -Weak sustainability-Strong sustainability-Very strong sustainability the weak sustainability approach assumes that there is no need to protect natural resources, assuming that there is a high degree of substitutability between natural and human resources. built-in resources, although its continuity can be provided by introducing constraints. A strong sustainability approach assumes that growth that conserves resources that do not have close substitutes at a certain level must be considered, and this is necessary, assuming that there is a low level of substitutability between natural resources and finite artificial resources. Renewable capacity in the very strong sustainability approach, it is emphasized that the substitution between natural and man-made resources is zero and growth should be achieved only by using renewable resources without using non-renewable resources ([36, 54]). Another factor that should be considered in a very strong sustainable development approach is an approach that considers the life rights of other living and non-living organisms except humans [19].

3 Research background

[44] studied the impact and magnitude of monetary and exchange rate policies on real economic variables of Iran. Simulations suggest that the devaluation of Rial against US Dollar causes a fall in GDP. Although imports fall but surprisingly there is no significant improvement on non-oil exports. Money supply also increases. This causes the price level to rise and thus creates stagflation. [56] studied the Impact of fiscal and monetary policies on fiscal consolidation in Iran. In addition to the economic stability of the financial instability of the variables used to measure money. To estimate the error correction model, the method of test used is not limited The results obtained show that the increase in capital expenditure, tax and legal deposit rates leading to increased financial stability and economic crisis is leaving and also current government spending, inflation, oil export revenues and liquidity, lead to reduced financial stability and economic crisis in the country.

[9] investigated the role of Monetary Policy and Financial Leverage on Financial Stability in the Economy of Iran. The results showed that the central bank has been more seeking to achieve the goal of economic stability through the application of expansionary monetary policy; so that achieving this goal has a higher stability and durability than the goal of inflation stability during the studied period in the Iranian economy. Then, the policy rule is estimated in which the growth rate of credit to private sector (as a measure of financial stability) is adjusted in response to monetary policy shocks and financial leverage (the ratio of private sector debt to output).

[37] investigated the impact of monetary policies on the dynamics of financial markets development, labor markets, and the markets for goods and services. They found out that Asset Purchase Program had an impact on the growth of government bond yields issued by euro area countries, on lowering the risk rate on corporate bond markets, and increasing the nominal value of shares. In addition, growth in inflation and a decline in interest rates were affected. Finally, the European Central Bank (ECB)'s non-standard monetary policies have positively affected and stimulated the labor market and development in goods and services markets, referred to the sustainable financial development.

[43] investigated the effect of financial development on the efficiency of monetary policy in Iran during the period of 1358-1399. The variable of the ratio of internal credits of banks to GDP was considered as an index of financial development based on the banking sector and the ratio of the value of stock market transactions to GDP was considered as an index of financial development based on the capital market. The estimation results of research models showed that with the improvement of financial development indicators, the effectiveness of monetary policy in influencing economic growth will decrease.

[51] have paid attention to effect of financial policy on inclusive development. They have investigated the components of financial policy, including the composition of expenditures and the composition of incomes, and its effect on inclusive development in the period of 2017-2018 in the form of two structural vector auto-regression models. The findings of the research show that most of the components of the government's financial policy, except for economic expenditures, do not have a significant effect on the comprehensive development index, and these expenditures also (with a delay period) have a negative effect on the comprehensive development.

[7] investigate the effect of trade and foreign direct investment on the economic growth of selected OPEC countries, convergence and gravity model. For this purpose, 12 selected OPEC member countries for the time period 2010-2020 have been estimated in the framework of space panel data using the space camera regression model. The results show that foreign direct investment has a spillover effect on economic growth inside and in neighboring countries, and as a result, it increases trade and brings technology into countries.

[48] investigated the effect of monetary policy channels on sectoral value added and sustainable economic growth in West African countries. World Bank and International Monetary Fund data were prepared for thirteen member countries during the years 2013 to 2019. The findings show that while the effect of monetary policy channels on the added value of the agricultural sector is mostly heterogeneous and significantly inelastic, the effect of monetary policy channels on the industry and service sectors is very homogeneous and negative, but insignificant for the service sector.

[41] in their research study the impact of monetary policy and fiscal policy on the consumption and emission of carbon dioxide as an indicator of sustainable development in the economies of the Gulf Cooperation Council (GCC) from 1990 to 2019. Based on their findings, co-accumulation is confirmed through various tests and long-term relationships are found in both models. Government spending has long-term positive effects on the consumption and emission of carbon dioxide and short-term positive effects on its emission in the region. In the long run, the money supply has a negative effect on the consumption and emission of carbon dioxide.

[31] empirically investigated the relationship between monetary policy and economic growth, as well as to investigate the long-term and short-term effect of monetary policy on the economic growth of a developing country (Bangladesh) and a developed country (England). Have mentioned this study used secondary data from 1980-2019. The results show that monetary policy has a long-term relationship with the economic growth of both countries. The long-term coefficients showed that the money supply has a positive long-term effect on the economic growth of both countries. Unlike the UK, the exchange rate has an adverse effect on the economic growth of Bangladesh. Bank rate appears to be driving UK economic growth.

4 Introducing the model

4.1 Autoregressive distributed lag (ARDL) model

In the present study, the autoregressive distributed lag (ARDL) model is used to investigate the relationships between variables. The ARDL model has several advantages over other similar models in empirical research. (1) The ARDL model can be applied to small samples (Narayan and Narayan, 2005; Narayan, 2004). (2) The ARDL model assumes that all variables are endogenous. It can be applied in situations where the variables are at the I (0) or I (1) level and both [39]. (3) In addition, the ARDL model allows simultaneous estimation of long-term and short-term parameters. Due to the advantages mentioned above, in this research, the self-regression model with distributive breaks has been used in its study to analyze the impact of monetary, fiscal, foreign exchange and commercial policies

on economic stability. This pattern is extracted from the study of [37].

$$\begin{aligned}
\Delta GDP_t = & c + \sum_{i=0}^{\rho} \theta_1 \Delta GDP_{t-i} + \sum_{i=0}^{\rho} \theta_2 \Delta mc_{t-i} + \sum_{i=0}^{\rho} \theta_3 \Delta liquid_{t-i} + \sum_{i=0}^{\rho} \theta_4 \Delta lprivat_{t-i} \\
& + \sum_{i=0}^{\rho} \theta_5 \Delta lgc_{t-i} + \sum_{i=0}^{\rho} \theta_6 \Delta lex_{t-i} + \sum_{i=0}^{\rho} \theta_7 \Delta lopen_{t-i} + \sum_{i=0}^{\rho} \theta_8 \Delta lbm_{t-i} \\
& + \gamma_1 lGDP_{t-1} + \gamma_2 lmc_{t-i} + \gamma_3 liquid_{t-i} + \gamma_4 lprivat_{t-i} + \gamma_5 lgc_{t-i} \\
& + \gamma_6 lex_{t-i} + \gamma_7 lopen_{t-i} + \gamma_8 lbm_{t-i} + \varepsilon_t
\end{aligned} \tag{4.1}$$

where Δ is the first difference and ε_t is the perturbation term. The above equation can provide short-term and long-term estimates in a single-equation framework. Estimates for short-term effects are obtained from the coefficient of the corresponding first difference, while estimates for long-term effects can be obtained from equation (4.1) by normalizing coefficients γ_1 to γ_8 . However, long-term estimates are meaningful only if convergence can be established.

In relation (4.1), the model is logarithmic and mc represents the market value of domestic companies listed on the stock exchange, $liquid$ is cash debt to GDP, $privat$ is domestic credit to the private sector (percentage of GDP), gc is expenditure final government consumption (percentage of GDP), ex real exchange rate, $open$ trade openness obtained from the sum of exports and imports in terms of GDP, bm broad money supply and GDP as an indicator of sustainability. It is economical. Also, the statistics and information available in this field have been collected from the database of the World Bank and the International Monetary Fund for the period of 1990-2020.

4.2 Stationary test

Although, in the framework of ARDL, it is not necessary to perform many pre-tests, but the unit root tests can show the degree of accumulation of each variable and convince the researcher whether the ARDL model should be used or not. In this technique, in the presence of $I(2)$ variables, the calculated F statistic presented by Sons et al. (2001) is invalid. Because the bounds test assumes that the variables are $I(0)$ or $I(1)$. Hence, performing the unit root test in the ARDL method can be necessary to ensure that none of the variables are $I(2)$ or beyond.

In this regard, in order to check the significance of the variables in the autoregression technique with distributed intervals (ARDL), the generalized Dickey-Fuller (ADF) test is a common and appropriate method that has been used in most studies. The null hypothesis of this test shows the existence of a unit root, and the opposite hypothesis indicates the nullity of the variables or the absence of a unit root. There are other common methods to determine the significance of a variable, such as the Phillips-Peron (PP) test. This test is similar to the ADF test, with the difference that in the Phillips-Perron test, the residuals can have autocorrelation. Therefore, in the current research, both tests are used to check the significance of the variables. The results of table 1 show that the variables of real exchange rate and domestic credits to the private sector are not differentiated and other variables are normalized in the first order difference. Based on this, the auto-regression model with distribution breaks can be used to understand the relationship between variables.

Table 1: Stationary test

Symbol	Variable	ADF test		PP test	
		Statistics	Possibility	Statistics	Possibility
BM	Wide money supply	-2.46	0.13	-2.45	0.14
Δ BM	Liquidity difference	-7.73	0.00	-8.12	0.00
EX	Exchange rate	-3.36	0.02	-3.76	0.01
GC	Government expenses	-2.80	0.21	-2.89	0.18
Δ GC	Difference in government spending	-5.26	0.00	-5.20	0.00
GDP	GDP	-1.55	0.49	-1.11	0.70
Δ GDP	Gross domestic product difference	-2.97	0.05	-2.97	0.05
LIQUID	Cash liabilities	-2.61	0.28	-2.47	0.34
LIQUID Δ	Difference in cash liabilities	-4.09	0.02	-5.56	0.00
MC	Market value of companies	-1.042	0.72	-1.62	0.46
Δ MC	Difference in the market value of companies	-6.92	0.00	-7.08	0.00
PRIVATE	Domestic credits to the private sector	-3.84	0.03	-10.33	0.00

4.3 Bounds test

In the first step, the F test is used to prove the existence of co-accumulation. The F test emphasizes the significance of the interval of variables. This test is also known as the edge test. If the calculated F-statistic is less than the lower limit value, the null hypothesis that there is no long-term relationship cannot be rejected, while if the calculated F-statistic is greater than the upper limit value, the null hypothesis can be rejected and as a result the existence of a long-term relationship is confirmed. Finally, if the calculated F-statistic is between the lower and upper limits, the result is not certain and the Banerjee-Dulado and Master test should be used [39]. The results of the test show that the test statistic of the edges (12.88) is higher than the upper limit at all levels, so the existence of a long-term relationship is confirmed.

Table 2: The results bounds test

I (1)	I (0)	Probability level	F Statistic
2.89	1.92	10%	
3.21	2.17	5%	
3.51	2.43	2.5%	12.88
3.90	2.73	1%	

5 Model estimation results

- A) The results of estimating the impact of monetary, financial, currency and commercial policies on sustainable economy can be seen in Table 3. According to the findings of the estimation model, the exchange rate has a negative impact on the sustainable economy. An increase in the exchange rate and a decrease in the value of the currency increase the price of traded goods and create a negative effect on the real balance. This, in turn, will lead to a decrease in aggregate demand and production, and has a negative impact on economic sustainability. On the other hand, devaluation of currency can lead to redistribution of income from people with a high final desire to consume to save and have a negative effect on aggregate demand and the economy. The negative effect of the exchange rate increase on economic growth can be caused by the limiting effects on imported inputs, which the production structure of developing countries mainly depends on. Therefore, an increase in the exchange rate with a decrease in the import of raw materials, intermediate goods and capital goods has a negative effect on economic growth. That is why devaluation policy brings positive results in some developed countries and at the same time has negative consequences for the economic growth of developing countries.

The first study in this field can be attributed to [16] used cross sectional regression analysis for 24 developing countries during 1960-1983 to test the hypothesis that exchange rate appreciation hinders growth. Experimental findings showed that there is a significant negative relationship between exchange rate and production level. In line with more recent studies that support the argument of structural economists, [15] applied a panel model using panel data from 1995 to 2008 for a sample of 39 countries in Latin America and found that the negative impact of exchange rates on They proved the production. Therefore, they showed that devaluation in Latin American countries increased the nominal cost in the production process and thus reduced the rate of economic growth instead of increasing it. [11] investigated the transmission mechanism from exchange rate to economic growth through panel data analysis using cross-sectional data between 1995 and 2014 for 12 transition economies in Eastern Europe and Central Asia. The results of the research showed that the increase in the exchange rate has led to economic recession. However, they also show that real exchange rate changes are not the main variable in explaining economic growth. [45] considering the structural characteristics of developing economies, investigated the relationship between real exchange rate and economic growth. The sample included 54 developing countries and covered the period 1990-2010. Experimental results showed that the effect of exchange rate on the economic growth of developing countries is negative. Finally, [35] also showed a negative relationship between the exchange rate and economic growth in Turkey.

- B) The findings of the model estimation indicate that cash debt has left a negative and significant effect on the stability of Iran's economy. With the increase in cash debt, the decrease in public savings caused by the budget deficit will not be fully compensated by the increase in private savings. As a result, national saving decreases and thus total investment at home or abroad decreases. Less investment in the country will have a negative effect on GDP, as it will lead to lower capital stock, higher interest rates, lower labor productivity, and lower wages. Conversely, less foreign investment (or more foreign inflows) will have a negative impact on the income

of foreign capital, thereby reducing the country's future GDP and negatively affecting economic stability. [63] obtained results similar to the present research.

- C) According to the estimation results of the model, trade openness has a negative and significant effect on the stability of Iran's economy. This suggests that trade openness has an adverse effect on the economic sustainability of developing countries and supports the hypothesis that a country behind the technological frontier may be driven by trade to specialize in traditional goods and reduce long-term growth. In other words, in these countries, limited trade liberalization leads to incorrect allocation of financial resources, reduction of production and trade, which in turn negatively affects sustainable economic growth. In this context, an empirical study of the impact of international trade during the period from 1971 to 2016 on the sustainable economy in Saudi Arabia was carried out by [8] using an autoregression model with distribution breaks for annual data. In the long run, the results showed that trade openness has a negative effect on economic growth. Also, [7] studied the relationship between international trade openness and sustainable economy in India using the ARDL model. Their findings show the existence of a negative relationship between trade openness and sustainable economy index.
- D) According to the results of credits allocated to the private sector, it leads to economic stability in Iran. Private sector credit is very important for private investment and sustainable growth and development in an economy. Based on this, by financing investments, domestic banks increase employment, ensure efficiency and productivity, and economic stability. The positive relationship shows that Iranian financial institutions provide relatively effective intermediary services that increase the investment efficiency of private companies and thus have a positive effect on growth. In this case, [37] evaluated the relationship between financial development and economic growth in selected developing countries. This study was a panel data type and was evaluated with a panel regression model. The results of the research show that bank credits to the private sector significantly increase the productivity of workers and thus facilitate long-term economic growth. Also, [20] found the impact of private sector credit on the real sector in Nigeria. Check out. This study used the multiple regression model in the analysis. This study shows that there is a positive and significant effect of credit to the private sector on the real sector in Nigeria. This shows that the performance of the real sector is strongly influenced by the creditworthiness of the private sector in the Nigerian economy.
- D) The findings indicate a negative and significant effect of the wide supply of money on economic stability in Iran. A large money supply can artificially inflate asset prices - such as housing and stocks. This misallocation of capital can lead to waste and speculative investments, which in turn lead to a rapid increase in asset prices, followed by economic contraction or stagnation and a significant reduction in economic activities, and as a result, have a negative effect on economic stability. Among the studies in this field, we can mention [24], who investigated the effect of wide money supply, inflation on the economic growth of Nigeria in the period of 1973-2013. Their findings showed that wide money supply and interest rates have a negative relationship with economic growth. Another study that confirms the same result is the paper by [28], who examine the effect of money supply on Pakistan's GDP between 2000 and 2011. Their findings indicate a statistically insignificant and negative effect of money supply on economic growth.
- F) Government spending has had a negative effect on the stability of Iran's economy in the short term and a positive effect in the long term. In the short run, as the size of the government increases and due to the destructive effects of taxation, the levels of government inefficiency increase, so government spending reduces economic growth. This may also be related to the fact that a significant portion of public spending in Iran spends on debt payments during the study period. Corruption on a large scale in the country, which enables the easy conversion of public expenditures to the account of public and private officials through the use of fictitious budgets and expenditures and other illegal actions, can be the cause of the negative relationship between these two variables. But in the long run, with the increase in government spending, production will also follow the same trend, which will lead to the stimulation of total demand and, as a result, increase the level of GDP and the stability of the economy. Private investment is another channel through which government spending can have positive effects on economic stability. Increased government spending encourages private investment, which will lead to higher economic growth and improved economic conditions. Among similar studies, [62] applied the multivariate time series framework to Nigeria to analyze the impact of public expenditure on output growth. The findings showed that public spending had a negative impact on economic growth in the short term. In another study, [24] found that government spending has a negative effect on growth. On the other hand, other studies proved that government spending increases the production and development of a country, including [9, 46, 28, 30, 33, 34, 59, 46] noted.
- G) Finally, the results indicate that in the short term the market value of listed companies had a negative effect and in the long term a positive effect on the stability of Iran's economy. In the short term, the negative impact of the market valuation of stock companies can be seen in the behavior of the savings rate due to the increase in investment returns, which causes a decrease in the savings rate and reduces the demand for precautionary savings. In the following, legal reserves of banks are reduced and as a result of granting facilities and lending

are also reduced and this causes a decrease in investment and economic growth and has a negative effect on economic stability. But in the long term, the capital market is a key factor in economic growth and causes an increase in funds for new investments, which ultimately contributes to the growth and stability of the economy. In a study, [42] stated that stock market value has a causal and positive relationship with economic growth. He also noted that Portugal's economy is small compared to other European countries, but investors are always interested in investing in an economy that is trying to grow. [6] also showed that investment in the financial sector has a long-term relationship with economic growth. Furthermore, a causal relationship between stock markets and growth in small and illiquid stock markets has been rejected. In addition, there is a positive and significant relationship between stock markets and economic growth at middle- and high-income levels. [62] and [57] showed that the Turkish financial market is aligned with the growing economy in light of the increase in the volume of transactions in the bond market, and this improvement helps to increase economic growth. On the other hand, King and Levin (1993) found a negative relationship between the market value of listed companies and economic growth. The coefficient of the error correction pattern can be seen in table 3. This coefficient, as a speed adjustment coefficient in the ARDL model, determines the adjustment speed from the short-term equilibrium to the long-term side. In Table 3, ECT has a negative sign and is significant at the one percent level. The numerical value of the coefficient is -0.16, which means that 16% of imbalances are eliminated in each period and it takes about six periods to reach long-term equilibrium.

Table 3: Model estimation results

Variable	Coefficient	Standard deviation	Statistic-t	Possibility
short term relationship				
GDP (-1)	0.83	0.02	39.60	0.00
GC	-0.29	0.08	-3.63	0.00
GC (-1)	0.82	0.08	10.19	0.00
EX	-0.06	0.01	-4.87	0.00
EX (-1)	-0.14	0.01	-16.28	0.00
BM	-0.09	0.01	-6.75	0.00
BM (-1)	-0.08	0.02	-4.40	0.00
MC	-0.03	0.01	-2.68	0.02
MC (-1)	0.06	0.02	4.01	0.00
LIQUID	-0.76	0.03	-24.01	0.00
OPEN	-0.84	0.12	-6.94	0.00
PRIVET	0.38	0.04	10.48	0.00
PRIVET (-1)	0.39	0.07	5.20	0.00
C	3.41	0.33	10.33	0.00
Long term relationship				
GC	3.21	0.36	8.85	0.00
EX	-1.22	0.12	-9.96	0.00
BM	-0.99	0.06	-15.40	0.00
MC	0.16	0.04	4.47	0.00
LIQUID	-4.57	0.58	-7.93	0.00
OPEN	-5.02	0.59	-8.54	0.00
PRIVET	4.60	0.40	11.56	0.00
C	20.48	1.02	20.04	0.00
Error correction pattern				
ECT	-0.16			0.00

Diagnostic tests for the assumptions of the classical linear regression model (CLRM) are used. Therefore, for valid inference and reliable conclusions regarding the coefficients in a model, the model must meet the assumptions of the classical regression model. [55] concludes that a model can only be considered a true model if it fulfills all the assumptions of the classical linear regression model. However, if there is no serious deviation from the classical assumptions, a model can still be used [39]. Among the main and important assumptions of the classical assumption is the independence of error terms. This means that the residuals of the response variables should be uncorrelated. Another classic assumption is heterogeneity of variance, which assumes that the residual variance of the response variables is constant, so there is no heterogeneity. Other items are the normality of the distribution, the absence of autocorrelation, and the specification of the model, which are used in this research to confirm how close the research

model is to the real model for reliable and valid inferences [64] according to the findings. and considering that the significance level of each of the tests is higher than 0.05, therefore, there is no problem of autocorrelation, heterogeneity in the model, and the normality of the distribution and specification of the model are confirmed.

Table 4: Diagnostic tests

Test	Autocorrelation	Heterogeneity	Model specification	Normality
Probability level	0.38	0.11	0.54	0.58

According to the structural changes in Iran's economy, there is a possibility that the macroeconomic complexes will be exposed to one or more structural failures. As a result, the stability of the short-term and long-term coefficients is checked through the cumulative sum (CUSUM) and cumulative sum (CUSUMSQ) tests. Unlike the Chow test, which requires the determination of breakpoints, the CUSUM and CUSUMSQ tests are completely general tests for structural changes, as they do not require prior determination of the location of structural failure. In the present research, due to the fact that the graphs are in the critical range, the stability of the model can be confirmed.

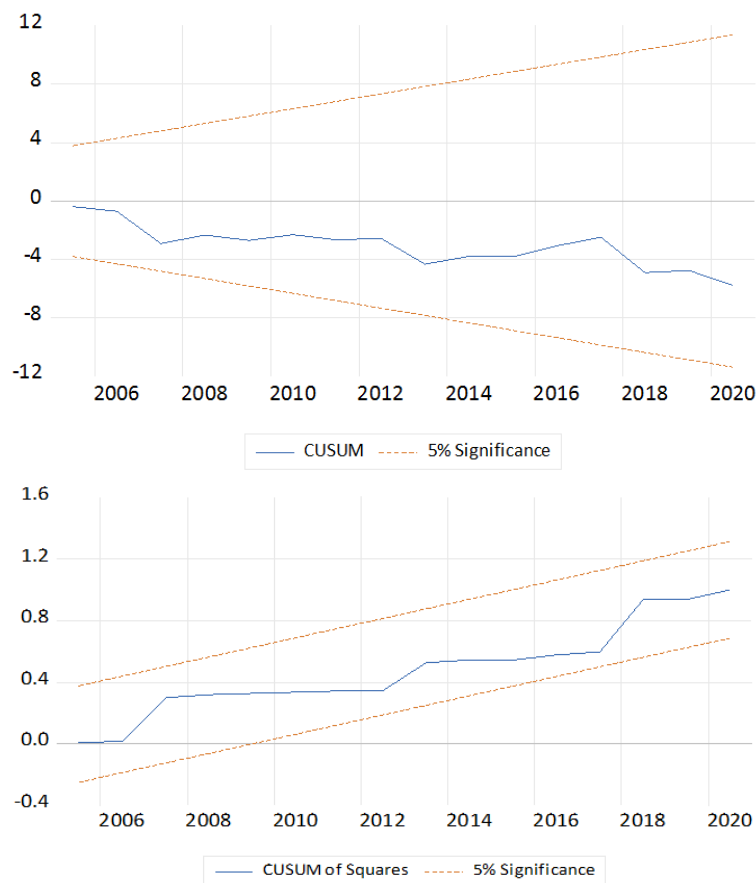


Figure 2: model stability test

6 Summary of the research

Growth with stability is the basic condition for achieving a sustainable economy. Achieving rapid and sustainable economic growth is the goal of most countries. Achieving such a goal has been difficult due to several factors that affect economic growth. The economic growth of any country is influenced by many macroeconomic factors such as trade, money supply, exchange rate, private sector credits, foreign debts, etc. In this study, our main focus has been

to investigate the impact of macroeconomic policies on Iran's economic stability, and according to the results of the model estimation, the following suggestions can be made:

- Central banks should strengthen the accountability and credibility of monetary policy to maintain a short-, medium-, and long-term focus on improving their monetary policy frameworks. This can be done by achieving an optimal money supply that will sustain the economic growth of these countries.
- The independence of central banks should also be maintained at its optimal level. This encourages the central bank to be transparent in its interactions with the public, a phenomenon that keeps expectations at favorable levels to reinforce the effectiveness of its monetary policy frameworks.
- Also, Iran's central banks and ministries of finance and economic planning are advised to carry out concrete macroeconomic reforms to use monetary policy to boost investment through interest rate cuts.
- The study recommends that strong foreign exchange policies be adopted to check the permanent devaluation of the currency. This can be done by strengthening their export base through value added export products.
- Decision makers and policy makers should understand the types of financial risks and the role of financial intermediaries in financial markets in the process of financial growth so that they can control different capacities and resources. This can be achieved through advanced financial systems that seek to develop the financial sector and reduce the obstacles facing companies in terms of external growth.
- Since the value of Iran's currency is not strong enough in the world market, in order to strengthen the country's currency, it is necessary to promote the increase in export income and trade facilities, and thus strengthen sustainable growth and development.
- Since cash liabilities have a negative impact on growth, it is suggested that there is a need to reform and strengthen supervision of financial intermediaries to ensure sound prudent lending practices. Credits should be allocated to more productive companies. Governments should use resources optimally and should shift resources from consumption to investment costs. In addition, central banks should set rules for strict credit standards to prevent excessive liquidity.
- Establishing mechanisms for domestic monetary growth, targeted credit diffusion, increasing the level of monetization of the economy is likely to help implement industrial policy priorities and facilitate sustainable economic development.
- The results show that an increase in the level of exchange rate is associated with a decrease in the level of production. Thus, our findings provide confirmation from an econometric perspective for the structuralist view, which argues that exchange rate appreciation causes a contraction in economic activity. This means that it is not true that the devaluation of the domestic currency causes export growth in Iran, which has a production structure based on imported inputs. The most important policy implication of the findings shows that there is a need for an exchange rate policy framework that complements the existing inflation targeting regime in Iran. Instead of fully liberalizing the exchange rate, policy makers in Iran should prevent the upward movement of the exchange rate considering its negative impact on economic growth. In other words, the inflation targeting regime in Iran can only be implemented successfully within the framework of a broad monetary policy that includes a complementary exchange rate policy.
- Allocation of inter-sectoral resources and productivity growth will promote the conscious management of the exchange rate through export competitiveness and also the expansion of competitive import sectors.
- There is also a need to continue to increase government final consumption expenditure, but this should be done with caution to ensure that it contributes significantly to increasing the level of economic activity, especially through domestic enterprises in the private sector of the country.
- The central bank, as the monetary authority, should promote and implement strong regulations to strengthen the credit channel that will undoubtedly lead to economic growth. Achieving this requires providing sufficient physical and financial infrastructure and low liquidity to bridge the gap between lending rates and savings rates, as it is well known that investment and savings in an economy are stimulated by interest rates.
- In a period of economic recovery, abandon the overly conservative "budget rule," increase budget spending, and increase the national debt to invest in education, health, and other structural reforms. The increase in government spending should be approximately equal to the growth of budget investments and real cash incomes of the population.

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