Measurement of the effects of composite indices on Iran's economic growth with an Islamic approach in 1996-2019

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Abstract

Economic growth and development are macroeconomic objectives for increasing welfare and economic-social justice. Several factors affect economic growth but their effects can be better examined using composite indices which are suitable indicators in the economic literature for performance evaluation and knowledge about the gap between the current status and goals of economic programs and policies. Therefore, the present manuscript aimed to provide and measure the composite indices, macroeconomic and social variables, and their effects on economic growth with the economic jurisprudence approach. To this end, the vector error correction model (VECM) was used for the period 1996-2019. The results of the impulse response function (IRF) test indicated that the economic growth of Iran had a very slight negative response to the impulse of the composite indices, including economic security, production and productivity, and property rights in the long term. Therefore, the composite indices, including economic security, productivity, and property rights could not significantly affect economic growth in Iran in the long term while the economic growth showed a positive and stable reaction to the impulse of the economic-social justice index in the long term. Furthermore, the increase in the cooperation, participation and presence of the active population with the ability to work in the field of production and economic activities increased economic growth.

1 Introduction

Factors are usually considered for economic success and growth in any economy. In the past, economic growth was affected by the increase in production factors (labor, capital, and tools). Today's long-term economic growth is more affected by education and research, health level, the productivity of production factors, international communication, creating healthy competition, entrepreneurial management, etc. [39]. Improving economic growth and examining determinants of production have been the main concerns of economists at any time, especially in recent decades.

As an objective, Islam has asked the society for the independence, stability, economic ability, and scientific and practical superiority of this sector which provides the basic social needs and welfare and has made reaching the highest

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level in all fields obligatory for Muslims [31] in a way that Muslims are responsible for domestic product on the path of economic growth and the priority of using the domestic resources of a country. This issue is considered an obligation, especially in professions in which the livelihood of society and the regulation of affairs depend on it [8]. The production of goods and services on which the individuals' lives and society's stability are dependent, are obligatory for those who can do them so that they need to do it sufficiently, and the production of harmful goods and services for society is prohibited [4].

Given that a significant part of jurisprudence is dedicated to the economy and the way of its interaction, it is necessary to examine the effects of economic jurisprudence strategies on economic growth and observe the results of growth in society. In particular, the accelerated and continuous economic growth and achieving the first economic, scientific, and technological position in the Southwest Asia region with an emphasis on the software movement and science production are among the general policies of Iran's horizon of 2025.

The present manuscript proposed the economic growth indices with an economic jurisprudence approach and then examined the effects of composite macro-economic variables on the economic growth of Iran with an Islamic jurisprudence approach during 1996-2019.

The main research question was that "What are the components of the economic growth composite index?" within the framework of economic growth with an approach to Islamic jurisprudence. To find a logical answer to this question, the following hypothesis was tested theoretically and with reliable economic and Islamic citations: "Economic-social justice, productivity, property rights, economic security, and cooperation and participation are among the most important components of the economic growth index with an economic jurisprudential approach".

2 Literature review

The index is a basic indicator for evaluating the degree of proximity to a target. Indices are designed and built based on available information or learnable information and can be seen and measured in the real world. In other words, indexing means finding an example of a variable in the real world and the visible world and converting qualitative concepts into quantitative values. It should be noted that observation is not just seeing a phenomenon with eyes, but also observing the effect of that phenomenon which means understanding its existence by reason, sense, and understanding. Due to the qualitative nature of some variables, which researchers, especially in economics, intend to measure, the criteria used to measure these variables must represent various aspects of the target concept and have the necessary comprehensiveness. To give a quantitative form to a target concept, in a way that it can be measured, it is necessary to combine and integrate various indicators related to each concept, and this action is called indexing.

A composite index is created when some individual measures are compiled into a single composite index based on an underlying model. In general, a composite index is used to evaluate and measure multidimensional concepts that cannot be measured with a single indicator [51]. To create a composite index according to the OECD model, there is a need for a process that begins with the creation and development of a theoretical framework and continues until the presentation and creation of a composite index. As much as each of these stages is important, the coherence of the whole process is also vital so that choices in each stage can have important consequences for other stages. It is important to note that some of these stages may be ignored or less important depending on the type of study [51].

It is necessary to choose a suitable indicator to review and evaluate the economic performance in terms of economic growth and monitor its movement towards the desired situation. It is inevitable to take advantage of a composite index due to the extent and dispersion of the components that express the domestic product because indices are basic criteria for evaluating the degree of proximity to a target goal and they can be very useful in strategic analysis, identifying trends, determining priorities, and evaluating or monitoring performance. Since composite indices are more effective in measuring the current trend compared to individual variables, the present manuscript used this method to evaluate the economic growth index using a jurisprudential approach from 1996-2019.

There was no study on the composite index, economic growth, with an economic jurisprudence approach, but there are relatively relevant studies as mentioned below.

Shakeri, Momeni, Khadem Alizadeh, and Makhzan Mousavi [57] conducted an article titled "Measuring the composite index of economic justice with an Islamic approach in Iran (1994-2017)" and discussed the important components of the composite index, economic justice, and concluded that economic justice with an Islamic approach in Iran had an upward trend from 1994-2017, except for a few cases. Zaranejad, Ansari, and Khodapanah [62] conducted an article

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The Organization for Economic Cooperation and Development (OECD)

titled "Estimation of the composite index, Islamic Economy, and its changes in Iran" and defined and estimated the composite index, Islamic Economy, for Iran from 1995-2012 and concluded that the absolute value of this index had no significant change in an 18-year period. In general, there was a very mild improvement process during the period. Seyed Nourani and Khandouzi [30] conducted an article titled "Introducing and calculating the composite index, economic justice, from the perspective of Islam in Iran" to introduce a new composite index for economic justice, introduce components, and determine indicators to calculate them.

3 Research methodology

Determining an accurate theoretical framework is the starting point in building composite indices. This framework must clearly define a phenomenon, which must be evaluated, and specify the sub-sections and certain indices and weights that reflect the relative importance of each sub-section and show dimensions of the overall composition.

The strength and weakness of the composite indices are mainly derived from the quality of basic variables. In an ideal state, variables should be selected based on indicators such as relevance, analysis capability, up-to-dateness, and availability. Even though the selection of indices should be guided by a composite theoretical framework, the data selection process can be quite subjective because there may not be a definitive set of indices [51].

The present study analyzed the effects of economic-social composite variables on Iran's economic growth from 1996-2019 using the vector error correction model (VECM). The data normality was checked for the analysis of time series, and the Augmented Dickey-Fuller Unit Root Test (ADF) was used to check the normality of the variables.

According to the unit root test and the necessity of the cointegration of the variables, the Johansen-Joselius test was used to confirm the long-term relationship between the variables. To estimate the Johansen-Joselius cointegration model, the optimal autoregressive distributed lag (ARDL) was determined based on the Schwarz-Bayesian Criterion. To examine the existence of a long-term relationship, the number of Johansen-Joselius cointegration vectors was determined using the effect test and the maximum eigenvalue. Finally, the impulse response of each composite index was tested using Cholesky factors, and the explanatory power of each variable in changing the dependent variable was examined using the analysis of variance (ANOVA).

4 Determining the indices

An approach to economic jurisprudence with the type of attitude and approach of Islam to the economy is used among the reliable sources to define and express the economic growth index. Since the divine verses, as the most important Islamic source, have logical and conceptual implications and reasonable and improbable intellectual requirements, the verdict of some issues, especially the created issues, can be deduced from the intellectual requirements of the appearances of the verses [37] and they are the selected variables in this field. Due to few quantitative studies on indexing domestic product components from a jurisprudential point of view, we selected sub-indices for each divided index based on the domestic product criterion. Therefore, economic growth indices with an approach to economic jurisprudence are suggested as follows based on the explanatory power of the components.

4.1 Economic-social justice index

According to the jurisprudence perspective, social justice means creating equal conditions and removing obstacles for the whole society [44]. The importance of social justice is so much with the most frequent verses of the meanings of "justice" in the field of social justice [45]. Meanwhile, a righteous government, which is the representative of the society and the embodiment of the collective will of society and the defender of their interests, is responsible for adopting laws for the implementation of various aspects of justice and just [7]. Justice is a social trait that people are obligated to do so ([60], AN-NAHL, 90) and on the one hand, it is an individual duty and on the other hand, is a collective duty for rulers [59]. In other words, God's command and call to establish the just ([60], AN-NISA, 135) and to do justice are certainly beyond an individual and personal matter [28] to the extent that the popular uprising for just is considered the purpose of the prophets' mission ([60], Al-HADID, 25). Therefore, the establishment of social justice and just is the main goal of the holy legislator, and the rules of the law must be in accordance with this basic goal of the religious law because social justice and negation of oppression have been introduced as standards in all aspect of human life [50] and the goodness of social justice has been agreed upon by all jurists and scientists as well as all humans [9]. In this regard, the social justice rule is an element involved in the mujtahid's decision to determine the individuals' rights and social classes [3].

The central principle in the exploitation of wealth, which originates from the social justice rule, is that public wealth is for all people [20] as the respect for the equality of all people was the rule of the imams' governance in the distribution of public wealth The fair distribution of charity and public benefits among people in society is a type of justice [21]. This equality for all in the distribution of property and public facilities is based on the equal right of each member of society. Therefore, adherence to the right and delivery of rights to its owners, not the mere equal distribution, is valuable in the distribution of public property because creating equality between people without deserving equality is not considered justice [30].

The fair distribution of production factors is another dimension of justice because work and effort are the bases of production, and the economic value creation lies in the work creation, and people benefit from production and properties according to their work and knowledge ([60], AN-NAJM, 39). Income has no other origin except through the loss of work during the production organization and the contribution of production factors [7]. The income distribution based on production factors or functional distribution of income refers to the distribution of production factors [13]. The labor force can receive the reward of activity in a fixed wage or a share of the profit [40]. Therefore, the government can take steps toward the implementation of justice in society by promoting the combined system of employment and participation of the labor force in profits of production [47]. Based on the profit sharing model or labor share, there are two ways to achieve a fair share of production factors. First, the government's role in determining the minimum wage or increasing wage from profits, and second, the roles of people, and specifically, the roles of social preferences and employers' behaviors in the fair distribution of income among production factors [29]. The second solution improves the workers' welfare without reducing employment and is compatible with both aspects of human and production justice and is superior to the first solution so that the employer voluntarily gives a greater share of profits and benefits from production to workers by increasing fair behaviors and intensity of social preferences (moral values such as fairness and benevolence) in the field of production [29]. Three variables, namely the Gini coefficient, the ratio of the percentage of increase in the minimum wage to prices of goods and services, and the insurance penetration coefficient, are used to measure the economic social justice composite index.

4.2 Productivity index

Along with the quantity, the quality of manpower and productivity plays an important role in Islam. There are valuable concepts in the Quranic and narrational texts that encourage people to optimal use of blessings, valuable opportunities in life, accuracy and proficiency in work, order, participation in affairs, and prevention of extravagance (AL-BAQARA, 249; AL-ARAF, 31; LUQMAN, 19; AL-GHAFIR, 28; AL-FURQAN, 67; AL-ISRA, 27-26), [2, 31]. Two basic conditions, positive and negative, have been considered for using the resources. The first positive condition is that the use of resources must be within the framework of legitimate and permissible goals, and the second condition, which is negative, is to prohibit extravagance and blasphemy ([60], IBRAHIM/7). Taking into account these two conditions considering that Shari'a rulings are subject to real interests and corruption is beneficial for society and prevents the wastage of resources in a way that causes harm to people. Much added value is created and more income is provided and distributed among the production factors by increasing the productivity for inputs in the economy. The productivity improvement improves living standards [16]. The declining trend of productivity means not realizing achievable growth and unprincipled use of resources and their waste. The level of productivity can be measured with the help of the Total Factorial Productivity (TFP) index. The number of industrial operation licenses issued in the research period is also another variable of this index.

4.3 Property rights index

In Imamiyyah jurisprudence, property rights have a long history, and ownership is interpreted as the rights of owners or property right [6, 5, 1, 48]. The "rule of dominion" is the basis of property rights which originates from the collections of prophetic hadiths, especially the prophetic hadith "Al-Nas Maslatun ali Amwalhom" [35] and has strong support in the evidence of reason and narration. Dominion means the full authority of owners in their properties and ownership over all possessions related to their properties. This rule comprises two theorems, positive (permissibility of all proprietary possessions for the owner) and negative (prohibition of possession by others without the owner's permission). A review of Islamic jurisprudence indicates that the definition of right is also derived from ownership, and their main elements are similar, and ownership is a credit relationship established between a person and an object, and financial rights can be acquired instead of property [8]. This perception of ownership was considered an important step in promoting the concept of ownership in Islamic jurisprudence, and due to this development, the ownership was interpreted as the creditable sovereignty of someone (the owner) over something in later periods [23].

In the division of financial rights into objective and non-objective rights, some jurisconsults consider the property right as an example of obvious rights or the most complete obvious right which is considered the same as ownership

in mores [42]. It appears that this view is more compatible with the concept of property rights as a fundamental right. Jurisprudence's emphasis on securing property rights and recognizing them for everyone cannot be contrary to social interests but it is a kind of guarantee of national growth and development. The variables, namely the number of thefts, political stability, corruption control, and rule of law, have been used to measure the property rights composite index.

4.4 Economic security index

Security research usually focuses on factors that provide security, factors that threaten security, security and its authorities [17]. The idea of economic security has been considered by political systems since 1945 and received increasing attention after the end of the cold war [53] so that attention to the economy as a dimension of security has changed to the economy as a security approach, and the concept of economy-oriented security has been replaced by economic security since the 1990s [18].

Economic security can be redefined in negative and positive aspects. Its negative aspect refers to the individuals' immunity from encroachment on their legitimate economic rights, and its positive aspect refers to the creation of necessary platforms to freely realize the legitimate economic goals and desires of each person [32]. Rules, which include these negative and positive aspects, can be found in jurisprudence and principles studies. In other words, jurisprudence rules related to economic security can be studied in three groups:

The first group comprises the rules that prohibit the violation of economic security such as the without prejudice (WP) rule and the lack of any harmful rule, and the individuals' immunity against harm [42]; the rule of respect for Muslim property and work, which means that the Muslims' rights and work property must be protected from free seizure and encroachment [42]; the Presumption of Possession Rule, which means that the possession of a property by a person is a sign of the possessor's ownership of that property under some conditions unless the contrary is proven [26]. The economic security aspect of this rule is that it places the principle on the possessors of properties and makes them unnecessary to prove their ownership of the properties [32]; the rule of obligation, based on which the principle of all contracts, both possessive and obligated, is that they are obligatory [42]. The reason for mentioning this rule, which implies the prohibition of encroachment on the economic rights of individuals, is that individuals should be confident about the property and rights that are acquired through contracts [32] and the rule of liability presumption for possession: according to jurists, the primary requirement for taking possession of another property is that the possessor is liable in front of the owner, that is, in addition to being obligated to return the property during its survival, if the property is destroyed or damaged, the damage should also be compensated [42].

The second group refers to the rules that emphasize and guarantee the individuals' economic security such as the rule of dominion, which means that owners have complete control over their properties and can make any kind of possession, both material and legal, and no one can prohibit them from their possessions without Sharia permission [42]. The rule of rescission: rescission is a person's relinquishment of the right over another person or the discharge of the debtor's obligation from the rights forever [10, 26].

The third group comprises the rules that limit individuals' security and economic freedom. Another aspect of the without prejudice (WP) rule, which is taken into consideration here, is that this rule gives people the fear that their economic freedom is not absolute. They cannot harm others under the pretext of having freedom and dominance over economic affairs. Therefore, the WP rule can be considered a limitation on the rule of dominion. The rule of extravagance forbiddenness: The prohibition of extravagance is another rule that limits human freedom and economic discretion, in other words, the humans' sovereignty over their properties ([60], AL-ARAF/31). The "negation of domination" rule: It is a secondary rule of jurisprudence that is taken from verse 141 of AN-NISA Surah. According to the provisions of the "negation of domination" rule, God has not established any way for unbelievers to dominate the Muslims [58, 4]. Any action, which disturbs people's lives (including security) and the weakening of their livelihood and society, is prohibited, and any action which causes the preservation of this system, is also obligatory and necessary [38].

Assets and capital are considered the causes of uprising and stability ([60], AN-NISA, 5). Islam emphasizes the achievement of economic growth, settlement of fields and lands, and use of their natural resources and capitals ([60], HUD, 61) and forbids capital stagnation [2].

Humans have access to legitimate and free use of resources ([60], AL-MULK, 15), [2]. People are free to use their lives and property, and no one must prevent them from using their freedom. The jurists of Islam consider rationality as the proof of this freedom [36]. In addition to thinkers, traditions such as the one based on which the rule of dominion is established [35], and some other traditions support the economic freedom of humans [2]. Based on the principle of

the obligation of right and duty, people have duties and responsibilities, including respect for the rights of others and protecting the environment, in addition to this right to freedom.

Therefore, the sub-indices of gross domestic fixed capital formation (GDFCF) were used as a percentage of gross domestic product, exchange rate growth rate, and economic freedom to evaluate the socio-economic security index.

4.5 Cooperation and participation index

In the terminology of jurists, cooperation and donation are defined as two-way cooperation [8]. Cooperation has been mentioned in many jurisprudential aspects such as Mudaraba (Financing Loan), Mozaraeh (Agriculture Loan), sharecropping, participation, waqf, enjoining what is right and forbidding what is wrong, hajj, fasting, prayer, khums, zakat, and other jurisprudential aspects. Even though the reason [22], Ijmā (ibid., p. 450), and several traditions (Ibid., p. 446, [43]) are considered to prove the rule of cooperation, the second verse of AL-MAEDA surah is the most important reason for this rule. This verse teaches a general rule to Muslims, which is the basis of Islamic tradition according to Allamah Tabataba'i [59]. From the point of view of Islam, the issue of cooperation and participation of everyone in all matters, including cultural and educational, economic and monetary, political and social matters must be based on benevolence and piety, and Muslims must cooperate in affairs which is useful for society and causes the closeness to God. Therefore, economic and cooperative participation has roots at the beginning of Islam [61]. The economic participation rate is used to measure this index.

5   Research results and findings

5.1 Description of the model

The present research examined the impact of composite macro-economic variables on the economic growth of Iran with the approach of Islamic jurisprudence from 1996-2019 using the vector error correction model (VECM). Therefore, the general model is described as follows:

$$\text{gGDP}_t = \beta_0 + \beta_1 \text{SOEC}_t + \beta_2 \text{PTF}_t + \beta_3 \text{PROPER}_t + \beta_4 SE\text{CU}_t + \beta_5 \text{CORP}_t.$$

In the described model, the variables are described as follows

gGDP: GDP rate at a constant price for 2011.

SOEC: Social-Economic Justice: It is the combination of three indices, insurance penetration in percentage, the ratio of percentage increase of minimum salary to the index of the price of goods and services in percentage, and the Gini coefficient, and is used to calculate using the geometric mean method. Since the Gini coefficient has a negative effect on the socio-economic justice index, the numerical range (GINI-1) is used and the obtained value is converted into the range of 0-100 according to the following equation.

$$\text{Dimensional index} = \frac{(\text{ variable value-minimum value})}{\text{maximum value-minimum value}} * 100$$

PTF: Productivity index: The productivity index of the total production factors is used.

PROPER: property rights index: The geometric mean of two indices, the number of thefts and the mean of political stability, corruption control, and the rule of law, are used and calculated using the above equation in a range of 0-100.

SECU: It is an economic security index, and the geometric mean is used to calculate this index. In this index, the sub-indices of gross domestic fixed capital formation (GDFCF) are used as a percentage of gross domestic product, official exchange rate changes, and economic freedom.

CORP: Cooperation and participation index: The economic participation rate index is used in percentage.

Table 1: The results of the stationarity test of the variables

Statistic / Variable	Level		First order difference	
	Test statistic	Probability	Test statistic	Probability
gGDP	-2.59	0.2854	-5.22	0.0022
SOEC	-4.72	0.0052	-	-
PTF	-0.62	0.9674	-3.53	0.0677
PROPER	-3.79	0.0387	-	-
SECU	-3.14	0.1202	-3.69	0.0477
CORP	-1.16	0.8937	-3.80	0.0361

Source: Research calculations

5.2 The results of the mean test of the variables

In this study, the Augmented Dickey-Fuller Unit Root Test is used to examine the stationarity of the variables, and Table 1 presents its results.

As shown in Table 1, the economic growth, participation and cooperation, productivity, and economic security are stationary in the first order difference but the socio-economic justice and property rights are stationary. According to the unit root test, the cointegration relationship of the variables should be examined using the Johansen-Joselius test to confirm the existence of a long-term relationship between the variables. The optimal autoregressive distributed lag must be determined to estimate the Johansen-Joselius cointegration test. Table 2 presents the test results to determine the number of optimal lags.

Table 2: The results of determining the optimal lag of the model

Lag	SC
0	35.96
1	33.49
2	34.35

Source: Research calculations

The optimal lag is determined for model 1 according to the results of Table 2 and based on the Schwarz-Bayesian Criterion. After determining the optimal lag for examining the existence of a long-term relationship, the number of Johansen-Joselius cointegration vectors is determined using the effect test and the maximum eigenvalue. Table 3 presents the results of the Johansen-Joselius test.

Table 3: The results of the Johansen-Joselius cointegration test

Effect test			
Cointegration vector	**Test statistic**	**Probability**	**Critical value at a 95% level**
0	95.75	0.0000	144.31
1	69.81	0.0038	82.08
2	47.85	0.0470	48.14
3	29.79	0.1208	26.27
4	15.49	0.2258	10.77
5	3.84	0.6563	0.19
Maximum eigenvalue			
0	40.07	0.0000	62.23
1	33.87	0.0492	33.93
2	27.58	0.2272	21.86
3	21.13	0.2555	15.49
4	14.26	0.1768	10.57
5	3.84	0.6563	0.19

Source: Research calculations

The results of the Johansen-Joselius cointegration test indicate that there are at least two cointegration vectors

between the model variables; hence, there is a long-term relationship between the variables of the model.

5.3 The results of the impulse response

Since some variables were not stationary at the significance level and the vector error correction model (VECM) was a method used in studying the relationships between economic variables; this section presents the results of the impulse response test.

5.3.1 Economic growth response test to its own impulse

Figure 1 shows the response of economic growth to its own impulse in Iran's economy from 1996-2019.

Response of GGDP to GGDP Innovation using Cholesky (d.f. adjusted) Factors
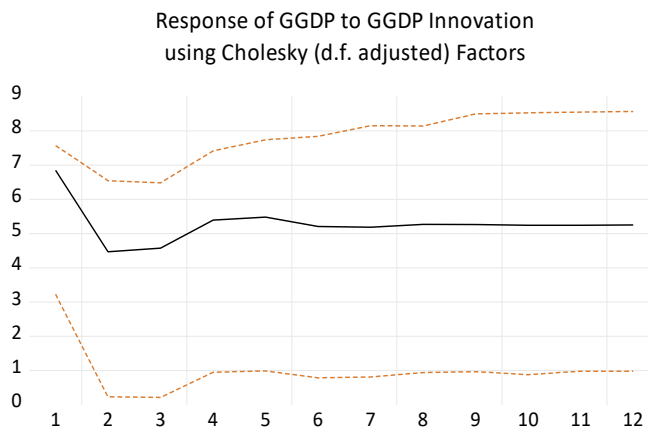
Figure 1: The economic growth response to its impulse

According to Figure 1, Iran's economic growth shows a positive impulse response, and its response continues positively and stably in the long term. Therefore, any positive economic growth impulse leads to an increase in Iran's economic growth in the future. On this basis, the economic growth of the previous periods increases the economic growth in the following periods.

5.3.2 The economic growth response to the economic security composite index impulse

Figure 2 shows the economic growth response to the impulse of the economic security composite index in Iran's economy from 1996-2019.

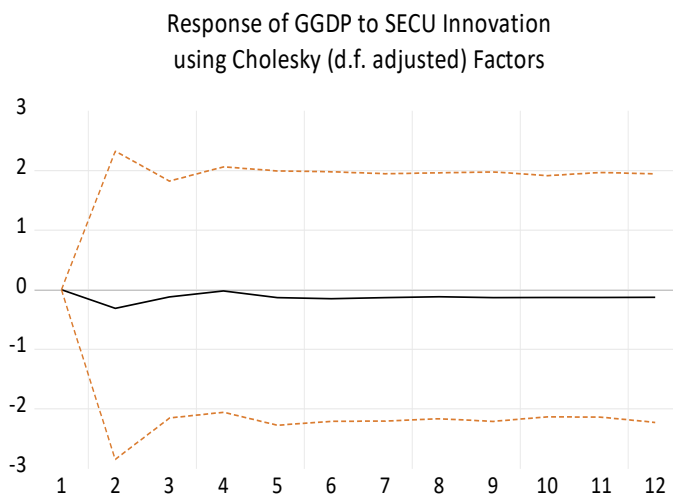**Response of GGDP to SECU Innovation using Cholesky (d.f. adjusted) Factors**

Figure 2: The economic growth response to the impulse of the economic security composite index (source: research calculations)

As shown in Figure 2, economic growth has a negative response to the impulse of the economic security composite index in the second period, and it then increases and becomes almost zero and remains stable. As shown, the economic growth shows a very minor negative response to the economic security composite index impulse in Iran.

5.3.3 Economic growth response test to property rights composite index impulse

Figure 3 shows the response of economic growth to the impulse of the property rights composite index in Iran's economy from 1996-2019.
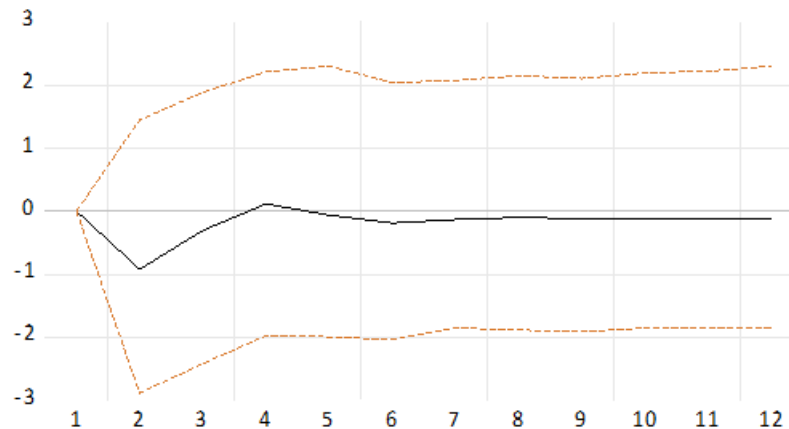

Figure 3: The response of economic growth to the impulse of the property rights composite index (source: research calculations)

As shown in Figure 3, the economic growth shows a negative response to the impulse of the property rights composite index in Iran in the first to the second period, but its response decreases and reaches zero from the third period, and does not respond to the impulse of the property rights composite index from the fifth period of economic growth. In Iran's economy, the property rights composite index cannot affect economic growth in the long term. Regarding the lack of effect of property rights on economic growth in the long term, property rights are somewhat uncertain in Iran and people fail to benefit from the results of their investments and efforts. Furthermore, this uncertainty imposes costs on investors.

5.3.4 Economic growth response test to productivity index impulse

Figure 4 shows the economic growth response to the impulse of the production and productivity composite index in Iran's economy from 1996-2019.
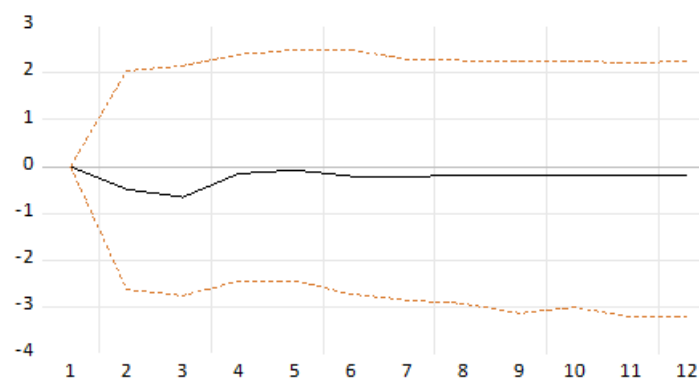

Figure 4: The economic growth response to productivity impulse (source: research calculations)

As shown in Figure 4, the economic growth shows a negative response to the impulse of the production and productivity composite index in Iran in the first three periods but its response decreases and reaches zero from the fourth period. The economic growth of Iran has a very slight and close-to-zero response to the impulse of the production and productivity composite index in the long term.

5.3.5 Economic growth response test to the impulse of the economic-social justice composite index

Figure 5 shows the economic growth response to the impulse of the economic-social justice composite index in Iran's economy from 1996-2019.
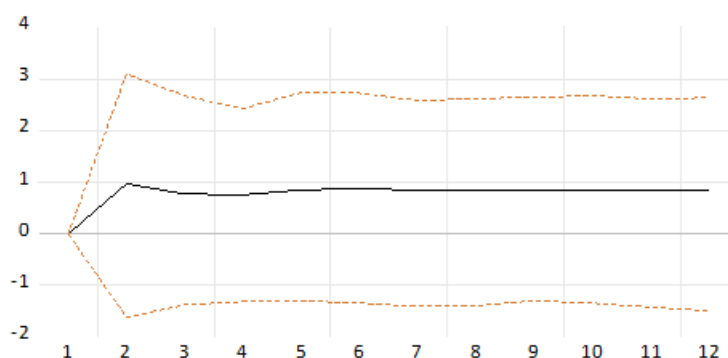

Figure 5: The economic growth response to the impulse of the economic-social justice composite index (source: research calculations)

As shown in Figure 5, the economic growth of Iran shows a positive and quick response to the impulse of the economic-social justice composite index in the first period that continued to be positive and stable in the long term from the second period. Increasing the economic-social justice index enhanced economic growth in the long term. Improving economic and social justice indices, including income distribution, insurance penetration, and increasing the minimum wage to the price index of goods and services can have a significant effect on economic growth. Due to improving the income distribution, the income and wealth will be more fairly distributed among the members of society; hence, the low-income people will have the opportunity to invest in their education and health, and increase the economic participation and total production of the whole society. Furthermore, increasing education costs enhances productivity, and increasing health expenditures improves the individuals' physical health, and ultimately increases productivity and production. Furthermore, increasing the minimum salary compared to the price index enhances the individuals' demand power, leading to an increase in production. Increasing the insurance penetration rate reduces the risk of investments and improves the investors' confidence. Furthermore, spending the insurance expenses for production and employment facilitates the acceleration of economic growth.

5.3.6 Economic growth response test to cooperation and participation index impulse

Figure 6 shows the economic growth response to the impulse of the cooperation and participation composite index in Iran's economy from 1996-2019.
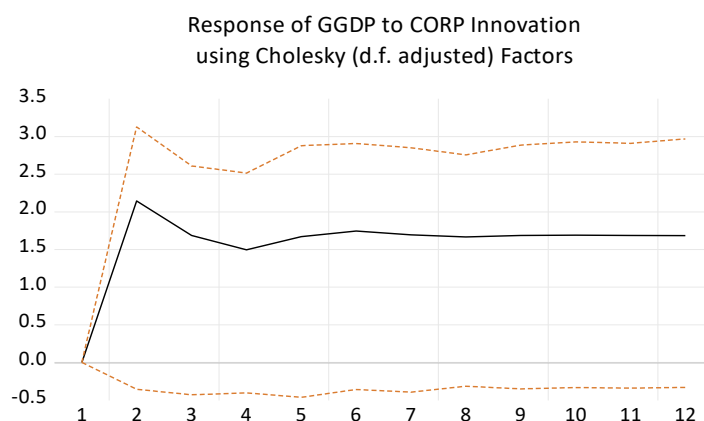

Figure 6: The economic growth response to the impulse of the cooperation and participation composite index (source: research calculations)

As shown in Figure 6, the economic growth shows a positive and quick response to the impulse of cooperation and participation composite index in the first period that continues to be positive and stable in the long term from the third period. Increasing the cooperation and participation index enhances economic growth in the long term. The

rate of economic participation means an increase in the presence of the active population with the ability to work in the field of production and economic activities.

5.4 Analysis of variance test results

The explanatory power of each variable in changing the dependent variable is examined using the analysis of variance. Table 4 presents the results of the analysis of variance of the variables.

Table 4: The results of the analysis of variance of the variables

Period	Standard deviation	gGDP	ECOSEC	PROPER	PTF	SOEC	CORP
1	6.84	100	0	0	0	0	0
2	8.57	90.85	0.13	1.14	0.32	1.28	6.25
5	12.80	89.57	0.08	0.58	0.42	1.73	7.60
10	17.87	88.88	0.07	0.32	0.28	2.02	8.41

Source: Research calculations

As presented in Table 4, regarding the effects of the composite indices, including economic security, property rights, productivity, economic-social justice, and cooperation and participation on Iran's economic growth in the first period, 100% of economic growth changes are explained by itself. In the second period, the explanatory power of economic growth decreases, and the effects of other variables are revealed. The cooperation and participation and economic-social justice indices have higher explanatory power than other indices. In the fifth period, the explanatory power of cooperation and participation, and economic-social justice increases. In the long term (the 10th period), the cooperation and participation, and economic-social justice indices have a higher explanatory power in Iran's economic growth than other indices of the model.

6 Conclusion

The results of the economic growth response to the impulse studied in this research are as follows:

The improvement of economic security indices has a low effect on economic growth. Given the extreme fluctuations and changes in the exchange rate and the low level of economic freedom in Iran, the economic security index cannot be very effective in improving economic growth. The results of some studies, including studies by [27, 19] indicate that security indices have positive effects on economic growth, while Oueslati and Labidi [52] found that the security index (corruption control and accountability) did not have any significant effect on economic growth.

Due to the low level of transparency in Iran, it is difficult to obtain information and identify assets in investment, and it cannot have any effect on economic growth, and can even be negative. The insecurity of property rights leads to the growth of non-productive sectors, an increase in rent-seeking, a lack of growth in innovation and entrepreneurship, and a decrease in production. The results of some studies in Iran, including [55] indicated a positive effect of property rights on economic growth.

The productivity impulse cannot affect economic growth in the long term. The total productivity of production factors is an important factor of economic growth. The productivity growth of the total productivity of production factors has not been achieved in economic development programs and has not had any good effect on economic growth.

Investments increase and lead to economic growth by reducing risk. The results of studies such as [49, 14, 24, 15] indicate that economic justice has a positive effect on economic growth. Furthermore, Eltejaei and Salimi (2012) and Lee and Chang [33] found that social security insurance expenditures explained significant changes in Iran's economic growth, while Li and Wang [34] found a U-shaped relationship between social justice and economic growth in the G20 countries.

In Iran's economy, an increase in the rate of economic participation enhances the presence of the labor force in the economy and the unemployment capacities of the active population are exploited, leading to economic growth.

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