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Application of Fuzzy AHP to Identify and Prioritize the Challenges of Resistive Economics in Iran's Agricultural Sector

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Abstract

The main purpose of this study was to identify and prioritize the challenges of resistive economics in Iran's agricultural sector. The study used a survey method with a pairwise comparisons questionnaire as the main instrument. Because this study was based on the opinion of experts, 40 experts and senior managers of the Jihad Agricultural Organization of Khouzestan province were studied. The analysis process in this research was a Fuzzy Analytical Hierarchy Process (FAHP). By exploratory method, the most important criteria and sub-criteria and challenges of resistive economics were identified. The weight of each criterion was calculated after performing pairwise comparisons in fuzzy hierarchical analysis software and was determined in the following order: Economic flexibility (N) with a weight of 0.558, productivity promotion (T) with a weight of 0.320 and realize dynamic growth (S) with a weight of 0.122. After pairwise comparison of all challenges of implementing resistive economics based on sub-criteria, the results were combined and the final weight and priority of each challenges were identified. In order of priority, the challenges were: insecure economic environment to attract domestic and foreign investment (weight=0.265), low productivity of manpower and capital in agriculture with a weight of 0.198, lack of a coherent marketing and marketing system (weight= 0.132), extensive import versus limited export of products with a (weight= 0.132), low efficiency of agricultural production units (weight= 0.116), high waste of agricultural products (weight= 0.093) and land use change related to agriculture (weight= 0.064).

Keywords:
Agriculture; challenge; Khuzestan; resistive economics

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INTRODUCTION

In the world economic literature, resistive economics is a new concept, although it is less emphasized (Milani, 2015). However, terms and theories can be mentioned that are close and similar to it. The theory of "economic resilience" is one of them. Brigaglio and Piccinino (2012), state that the term economic spring is used in two senses: First, the ability of the economy to recover quickly from destructive external economic shocks and, Second, the ability of economics to withstand the effects of these shocks. The goal of a resistive economy is to rebuild and revive the national economy. This type of economy is popular and uses the capacities of the people and the elite, while also using the technical knowledge of the world (Rezaei, 2012). Necessity and importance of paying attention to the resistive economy in the field of agriculture means expanding efforts to make maximum use of existing facilities to produce strategic and basic products to reduce dependence on foreign countries, increase productivity as much as possible, produce goods that reduce foreign dependence provide the necessary input in a complete and timely manner and identify problems and challenges (Rafiei and Changi Ashtiani, 2014). Khaledi et al, (2019) estimated the real position of Iran's agricultural sector by calculating its direct and indirect effects on the national economy. The results of this study showed that the agricultural section is in the third place in terms of direct impact on the national economy. The indirect effect of agriculture on the national economy was estimated at 16 percent of GDP based on the value added of agricultural activities and about 3.1 percent of GDP based on the value added of industries related to agriculture. The total share of value added of Iran's agricultural sector directly and indirectly (total effect) was about 22.5 percent of the country's GDP. Therefore, given the importance of the real position of the agricultural sector in the formulation of policies related to the country's development programs, it is necessary not to look at the agricultural sector with the view that the agricultural sector has less impact on GDP. This has increased the need to pay attention to the resistive economy in the agricultural sector.

Resistive economics is confronted with dependent and consumer economics, is not passive and resists the economic goals of domination, tries to change the existing economic structures and localize it based on worldview and goals. In other words, resistive economics means identifying areas of pressure and trying to control and neutralize them, and in ideal conditions, trying to turn these pressures into opportunities (Toghyani, 2015). Resistive economics is about reducing dependencies and emphasizing the benefits of domestic production and striving for self-reliance. Resistive economics is an economy that identifies all future opportunities with accurate and wise future research and uses the appropriate solution at different levels (Yavarahmadi et al, 2019).

Iran's economy in the second year of implementation of the Sixth Development Plan Law, with the unilateral withdrawal of the United States from Joint Comprehensive Plan of Action on May 8, 2018 and the start of the second phase of economic and financial sanctions on November 5 of the same year faced the most unprecedented sanctions (Plan and Budget Organization, 2019). The second phases of sanctions against Iran are (Plan and Budget Organization, 2019): 1) Trade sanctions, including trade in oil, gas, petrochemicals, automobiles and shipping, and ports, 2) Financial sanctions: blocking the international payment system to Iran, 3) The embargo on foreign direct investment in key sectors of the Iranian economy, 4) Scientific and technological sanctions such as military and nuclear technologies, aircraft manufacturing, shipbuilding, technologies related to the oil and gas industry and, 5) Sanctioning natural and legal persons.

Due to international sanctions, Iran's economy seeks to increase economic resistive, and in this regard, the general policies of the re-

sistive economy with the aim of ensuring dynamic growth and improving economic resistive indicators and achieving the goals of the 20-year vision document, with a flexible jihadist approach, productive, endogenous, progressive and extroverted was announced in February 2013 (Shaghaghi, 2019). *Jihad* as a phenomenon that has a cultural burden in the school of Islam has had a great impact on scientific societies, especially universities. This culture, which can be called *Jihadi* culture or approach, has a central and fundamental principle, which is the full emphasis on spirituality and moral-Islamic human values. Actually; there will be no jihadi management without spirituality. With the advancement of science, the effect of spirituality on the indicators of efficiency and effectiveness, organizational health, proper service, productivity, respect, etc. is not hidden from anyone (Khassaf and Bagheri Nasrabadi, 2016).

The Islamic Republic of Iran is a unique case in the global economic system (Rózsa and Szigetvári, 2019). The new experimental model initiated by and established after the Islamic revolution in 1979 was based on the concept of total independence from foreign influence, including economic independence. In recent years, Iranian politics was characterized by a more liberal approach, trying to relink the country to the global economy (Rózsa and Szigetvári, 2019). In February 2013, the general policies of "resistive economy" were issued by the supreme leader of Iran, including 24 clauses. The main objective of these policies is to develop a pattern of domestic economic on the basis of social values and norms, national resources and highly qualified workforce in order to reduce the vulnerability of the country against international sanction and even turn these pressures into opportunities (Poorolajal, 2017). Resistive economy means the economy that can determine the growth and prosperity of the country in the conditions of pressure, sanctions, hostilities and intense hostilities. The Resistive economy is a method to deal with sanctions against a country or region experiencing sanctions, with the least dependence to abroad on the basic and strategic needs (Heydari Dizgarani and Shokri, 2017).

It seems resistive economy is a way to circumvent sanctions against a country or region experiencing sanctions. This can involve increasing resilience by substituting local inputs for imported inputs, the smuggling of goods and an increase in barter trade. A country may even attempt to turn these pressures into opportunities. In some ways sanctioned economies bear some resemblance to an economy on a war or emergency footing.

The first sanctions were those imposed by the United States in November 1979 after a group of students seized the American Embassy in Tehran. The sanctions by Executive Order 12170 included freezing about $12 billion in Iranian assets, including bank deposits, gold and other properties, and a trade embargo (Manzoor and Mostafapour, 2013).

The second sanctions by the United States were imposed under Ronald Reagan in 1987 because of Iran's actions from 1981 to 1987 against the U.S. and other shipping vessels in the Persian Gulf and support for terrorism (Bayat, 2013).

The third sanctions were imposed in December 2006 pursuant to UNSC Resolution 1737 after Iran refused to comply with UNSC Resolution 1696 which demanded that Iran halt its uranium enrichment program. The fourth sanctions by the United States came into effect in November 2018, and were intended to force Iran to dramatically alter its policies in the region, including its support for militant groups in the region and its development of ballistic missiles (Seyed Taghizadeh). On 21 February 2020, Iran was placed on the FATF blacklist. In August 2020, the Trump Administration tried to extend the arms embargo on Iran with no success (IRNA, 2020).

In Iran, agricultural development is still a fu ndamental means of poverty alleviation, economic development and, in general, sustainable development (Fallah-Alipour et al., 2018). Agriculture as an effective pillar of the

country's economy by providing food security and providing the required inputs to other economic sectors has had effective results on the promotion of key indicators affecting the country's economy. In terms of providing the required inputs to other economic sectors, GDP and labor employment have an important position (Tahamipour and Mahmoudi, 2018). The calculation of macroeconomic indicators for the agricultural sector in the form of a system of national accounts cannot indicate the real position of this sector in the national economy. Khaledi et al, (2019) estimated the real position of Iran's agricultural sector by calculating its direct and indirect effects on the national economy. The results of this study showed that the agricultural section is in the third place in terms of direct impact on the national economy. The indirect effect of agriculture on the national economy was estimated at 16% of GDP based on the value added of agricultural activities and about 3.1% of GDP based on the value added of industries related to agriculture. The total share of value added of Iran's agricultural sector directly and indirectly (total effect) was about 22.5% of the country's GDP. Therefore, given the importance of the real position of the agricultural sector in the formulation of policies related to the country's development programs, it is necessary not to look at the agricultural sector with the view that the agricultural sector has less impact on GDP.

The agricultural sector of Iran's economy is facing multiple challenges which have been expressed by numerous researchers (Akbarzadeh and Solimani, 2019). Water and soil resources crisis and environmental challenges (Hosseinzad et al., 2014; Parhizkari et al., 2015), lack of sufficient technical knowledge and skills of farmers (Panahzadeh Parikhani et al., 2015; Rshidpour, 2020; Rostami Dolatabadi and Ghahremanzadeh, 2016) and waste of agricultural products (Safari Motlagh et al, 2018) were the main challenges of this section. By solving these challenges, it is possible to increase productivity in this sector and benefit from the interests of the agricultural sector in order to improve the country's economy (Tahamipour and Mahmoudi, 2018).

GhaviDel et al (2019) argued that the implementation of the model of resistive economy in the agricultural sector of Iran can play a major role in strengthening the economy. The results of this study showed that the implementation of the model of resistive economy can improve the situation by creating an atmosphere of increasing domestic production of agricultural products, replacing imports, job creation and paving the way for increasing non-oil exports and use all its capacities to strengthen the economy. Hafezie et al (2017) stated that in order to achieve the goals of a resistive economy, it is necessary to support domestic production, increase foreign direct investment, and increase the quality of education and effective communication between academia and industry. Heydari Dizgarani and Shokri (2017) showed the resistive economy includes abandonment of oil revenues, developing tourism industry and tourist attraction, promotion of knowledge-based economy, self-sufficiency in agriculture and products exports, improvement efficiency of agricultural production, moving towards industrialization and international competition, controlling and directing wandering liquidity, maximizing the country tax capacity, reducing the unemployment rate by utilizing capacity and scientific power of the country and so on. Shiravi Khozani and Rezaei Dolatabadi (2016) argued one of the most important issues in the realization of resistive economy is the comprehensive support of the agricultural elites, so that if they are supported, they can transform technology into commercial activities; because empowering the elite in the agriculture is a feature of resistive economy and the conditions should be provided so that they can do their job without restriction. Meuwissen et al (2019) argued agricultural systems in Europe face accumulating economic, ecological and societal challenges,

raising concerns about their resilience to shocks and stresses. These resilience issues need to be addressed with a focus on the regional context in which farming systems operate because farms, farmers' organizations, service suppliers and supply chain actors are embedded in local environments and functions of agriculture. FAO (2016) argued resilience economic is a common objective for all stakeholders in disaster and crisis areas, bridging short-term humanitarian and long-term development interventions. Zero hunger, environmental conservation, climate change adaptation and sustainable economic development cannot be achieved without resilient agricultural livelihoods. Bennett et al (2014) showed that resilient agriculture that eliminates hunger, provides development opportunities, and maintains the supply of natural capital and a diversity of ecosystem services is a basic condition for the persistence and prosperity of human society. Achieving this goal will require developing an agriculture that is persistent, adaptive, and transformative. The objectives of research in scientific sections were to:

Identify the challenges of resistive economics in Iran's agricultural sector.

Prioritize the challenges of resistive economics in Iran's agricultural sector.

Also, the objective of research in applied sections was:

Proposing the necessary applied solutions to reduce the challenges of achieving the engineering economics identified in this research.

Considering that the identification of the challenges of realizing the resistive economy in the agricultural sector of Khuzestan province is done for the first time and from a scientific point of view, the studies of the resistive economy are the only way out of an isolated and dominated economy, this research has High innovation. One of the ways to be recommended to solve the economic problem and the solution to the sanctions is the resistance economy.

METHODOLOGY

This research was applied in terms of purpose and in terms of research method; it was a description of non-experimental research. In conducting the research, the following steps have been followed:1. Development of a theoretical research framework based on a review of articles, dissertations, available documents and searches on various scientific Internet sites, 2. Codification of the challenges facing the implementation of resistive economy policies in the agricultural sector of Khuzestan province using theoretical foundations and review of literature and research drafts, 3. Validation of the challenges facing the implementation of resistive economy policies in the agricultural sector of Khuzestan province using interviews with a number of agricultural jihad experts, managers and senior experts regarding the adaptation of the extracted challenges and using their opinions to select the most important challenges in this field by exploratory method. For this purpose, first the identified challenges were introduced to the experts and then the main challenges were identified through the brainstorming technique in an exploratory way at open environment, 4. Designing a pairwise comparison questionnaire based on the previous step. At this stage, the challenges are faced with each other based on the sub-criteria and are compared with each other, 5. Interviews with an 8 personnel of agricultural jihad experts, managers and senior experts regarding the designed questions and the general view of the questionnaire, 6. Designing the final questionnaire as a data collection tool with the collaboration and guidance of respected professors, advisors and consultants and other professionals and collecting information based on the theoretical framework, objectives and research questions and changing it until achieving a standard questionnaire approved by a panel of experts, 7. Field completion of final questionnaires by agricultural jihad experts in Khuzestan province, to identify and prioritize the challenges facing the implementation of resistive economy policies

in the agricultural sector of Khuzestan province from the perspective of experts and managers of agricultural jihad as experts in this field, 8. In this research, a questionnaire study and research method has been used as the most appropriate method as the basis of work and to document the results of statistical analysis and report the final results and findings, the statistical method using SPSS software and Expert Choice Data analysis, challenges facing the implementation of resistive economy policies in the agricultural sector of Khuzestan province from the perspective of experts and managers of agricultural jihad were discussed.

The analysis process in this research was a Fuzzy Analytical Hierarchy Process (FAHP). The combine effect of fuzzy set theory and analytical hierarchy process gives fuzzy analytical hierarchy process (Fuzzy AHP) as a more powerful methodology for multi-criteria decision making (MCDM). Hence, it can be concluded that Fuzzy AHP will find more applications than conventional AHP in the near future (Iftikhar et al, 2017). Fuzzy AHP can solve and support spatial reasoning problems in a number of different contexts (Partovi, 2006).

Fuzzy numbers (Cox, 1995; Dubois D and Prade, 1980; Mondal et al., 2019; Kim et al., 2020):

Definition: Let M∈F(R) be called a fuzzy number, if the following conditions are satisfied:

(1) *M* is normal. We say that *M* is strongly normal if f_M (x)=1 for some x∈R and that it is normal ifω_M=1. If *M* is strongly normal, then it is normal, but the opposite in general is not true.

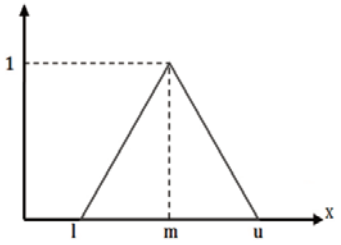
(2) There exists x_0∈R such that $\mu_M(x_0)$=1

(3) For any 0≤α≤1,A_a=[x,μ_(A_a) (x)≥a] is a closed interval.

Where F(R) represents a family of all fuzzy sets and R is the set of real numbers.

Definition 2: A fuzzy number M on R is said to be a triangular fuzzy number if its membership function μ_M (x):R→[0,1] is defined as follows:

$$\mu_M(x) = \begin{cases} \frac{x-l}{m-l}, l \le x \le m \\ \frac{u-x}{u-m}, m \le x \le u \\ 0 \quad , otherwise \end{cases}$$



where l and u stand for the lower and upper value of the support of M respectively, and m represent the modal value. The triangular fuzzy numbers can be denoted by order triplet (l, m, u) of real numbers or regular numbers. The support of M is the set of elements { x ∈ R\ l<x<u}

Definition 3. Consider any two triangular fuzzy numbers M_1=(l_1,m_1,u_1) and M_2 = (l_2, m_2, u_2) then the following arithmetic operations can be defined as follows:

$$(1)\ (l_1, m_1, u_1) + (l_2, m_2, u_2) = (l_1 + l_2, m_1 + m_2, u_1 + u_2)$$
$$(2)\ (l_1, m_1, u_1) \times (l_2, m_2, u_2) = (l_1 l_2, m_1 m_2, u_1 u_2)$$
$$(3)\ k(l_1, m_1, u_1) = (kl_1, km_1, ku_1), k > 0, k \in R$$
$$(4)\ (l_1, m_1, u_1)^{-1} = \left(\frac{1}{u_1}, \frac{1}{m_1}, \frac{1}{l_1}\right), provided\ l_1 \neq 0,$$
$$m_1 \neq 0, u_1 \neq 0$$

The method for fuzzy AHP consists of the following five steps:

1) The fuzzy synthetic extent values for object can be computed using equation that involves computation of

$$S_i = \sum_{j=1}^{m} M_{gi}^{j} and\ [\sum_{i=1}^{n} \sum_{j=1}^{m} M_{gi}^{i}]^{-1}$$

2) Obtaining the fuzzy comparison matrices (Iftikhar et al, 2017):

Where x and y are the values on the axis of membership function of each criterion. This expression can be equivalently written as follows:

$$V(M_2 \ge M_2) = \begin{cases} 1, if\ m \ge m_1 \\ 0, if\ l_1 \ge u_2 \\ \frac{l_1 - u_2}{(m_2 - u_{2)} - (m_1 - l_{1)}}, otherwise \end{cases}$$

3) The degree of possibility for a convex fuzzy number M_t (i=1,2,3,...,k) to be greater than k convex fuzzy numbers can be defined as follows:

$V(M \geq M_1, M_2, ..., M_K) = V[(M \geq M_1) \wedge (M \geq M_2) \wedge ... \wedge (M \geq M_k)] = \min V(M \geq M_i), i = 1,2,...,k$

4) Assume that $d'(A_i) = \min V(S_i \geq S_k)$ for k= 1,2,... ,n; k≠ i.

5) Then via normalization process, we have obtained the following normalized weight vectors

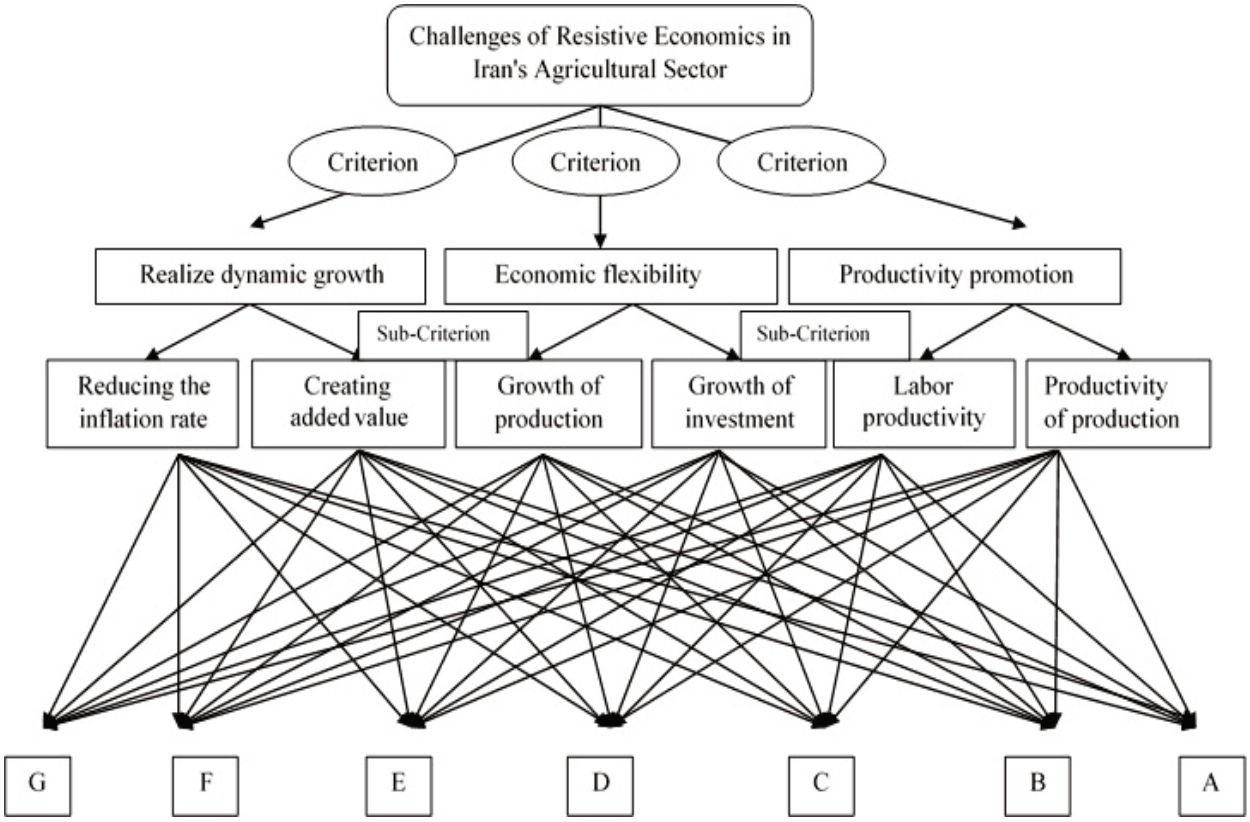
$W = (d(A_1), d(A_2), ... , d(A_n))^T$

The most important limitation of the research is the non-generalizability of the research results to other communities.

RESULTS AND DISCUSSION

Exploratory Result

Based on the first to third steps of research methodology and interviews with agricultural Jihad experts, managers and senior experts regarding the adaptation of the extracted challenges and using their opinions to select the most important challenges and criteria in this field by exploratory and brain storming method, the most important criteria and sub-criteria and challenges of resistive economics in Iran agricultural sector were identified. Then, based on the fourth stage of research methodology, was designed a pairwise comparison that is presented in Figure 1. Criteria were first identified based on a review of the research literature. Then,



A: Insecure economic environment to attract domestic and foreign investment
B: Lack of a coherent marketing and marketing system in the field of agricultural products
C: Low productivity of manpower and capital in the agricultural sector
D: Land use change related to agriculture
E: Low efficiency of agricultural production units
F: High waste of agricultural products
G: Extensive imports versus limited exports of agricultural products

Figure 1. Research Decision Tree Based on Exploratory Results

based on the brain storming method, experts agreed on three criteria: economic flexibility, productivity promotion, and realize dynamic growth. The extracted initial criteria were economic flexibility, productivity promotion, realize dynamic, opportunity builder, endogenous knowledge base and people base.

Fuzzy analytic hierarchy process

By using Expert Choice software, the weight of the each criterion was calculated after performing pairwise comparisons in fuzzy hierarchical analysis software and was determined in the following order:

1- Economic flexibility (N) with a weight of 0.558

2- Productivity promotion (T) with a weight of 0.320

3- Realize dynamic growth (S) with a weight of 0.122

Then, in Figures 3, 4 and 5, the sub-criteria of each criterion were compared and the weight of each was specified.

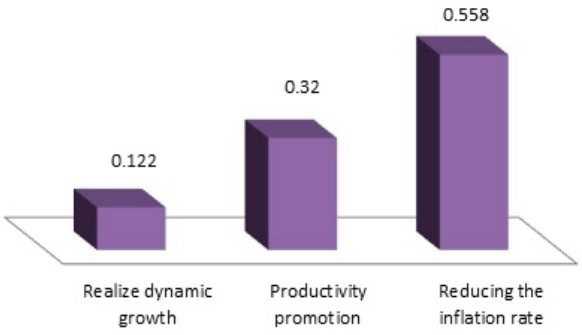
Then, the weight of each challenge of resistive economics in agricultural sector was calculated based on each sub-criterion. Figure 6 shows the weight of each challenges based on the first sub-criterion (reducing the inflation rate of agricultural products) of the first criterion. This means that the challenges based on reducing the inflation rate of agricultural products from the criterion of realizing dynamic growth with other challenges of implementing a resistive economy in agriculture were compared in pairs. Therefore, based on the first sub-criterion (S_1) from the first criterion (S), the challenges were prioritized as follows:

1- Lack of a coherent marketing and marketing system (B) with a weight of 0.319

2- Extensive import versus limited export of products (G) weighing 0.243

3- Insecure economic environment to attract domestic and foreign investment with weight of 0.188

4- High waste of agricultural products (F)



Inconsistency=0.02

Figure 2. Weight of Criteria after Pairwise Comparisons

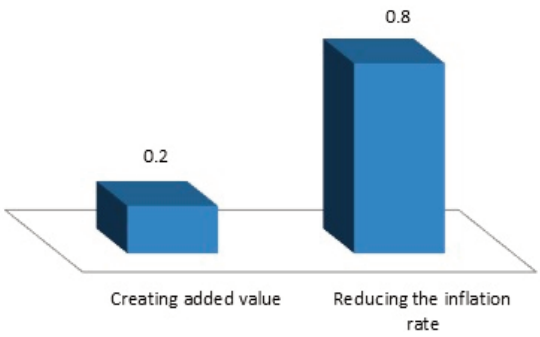


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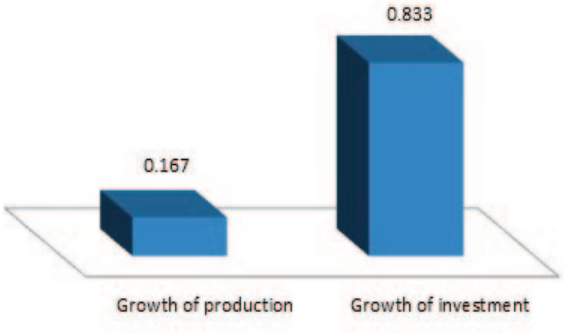
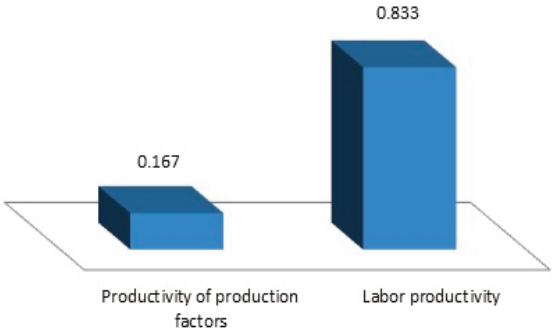
Figure 3. Weight and Importance of Sub-Criteria for Realize Dynamic Growth



Inconsistency=0.0

Figure 4. Weight and Importance of Sub-Criteria for Economic Flexibility



Inconsistency=0.0

Figure 5. Weight and Importance of Sub-Criteria for Productivity Promotion

with a weight of 0.091

5- Low productivity of manpower and capital in agriculture (C) with a weight of 0.073

6- Land use change related to agriculture (D) with a weight of 0.046

7- Low efficiency of agricultural production units (E) with weight of 0.041

In addition, the results showed (Figure 7) the weight of each challenges based on the second sub-criterion (Creating added value) of the first criterion. This means that the challenges based on creating added value from the criterion of realizing dynamic growth with other challenges of implementing a resistive economy in agriculture were compared in pairs. Therefore, based on the second sub-criterion (S_2) from the first criterion (S), the challenges were prioritized as follows:

1- Insecure economic environment to attract domestic and foreign investment (A) with weight of 0.283

2- Extensive import versus limited export of products (G) weighing 0.216

3- Lack of a coherent marketing and marketing system (B) with a weight of 0.143

4- Low productivity of manpower and capital in agriculture (C) with a weight of 0.119

5- Low efficiency of agricultural production units (E) with a weight of 0.117

6- High waste of agricultural products (F) with a weight of 0.078

7- Land use change related to agriculture (D) with a weight of 0.043

Figure 8 shows the weight of each challenges based on the first sub-criterion (growth of production) of the second criterion. This means that the challenges based on growth of production from the criterion of economic flexibility with other challenges of implementing a resistive economy in agriculture were compared in pairs. Therefore, based on the first sub-criterion (N_1) from the second criterion (N), the challenges were prioritized as follows:

1- Extensive import versus limited export of products (G) weighing 0.192

2- Lack of a coherent marketing and marketing system (B) weighing 0.178

3- Insecure economic environment to attract domestic and foreign investment (A) with weight of 0.169

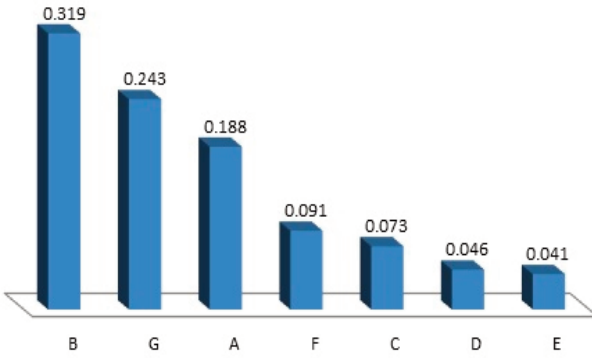
4- High waste of agricultural products (F) with a weight of 0.167

5- Low efficiency of agricultural production units (E) with weight of 0.108

6- Low productivity of manpower and capital in agriculture (C) with a weight of 0.097

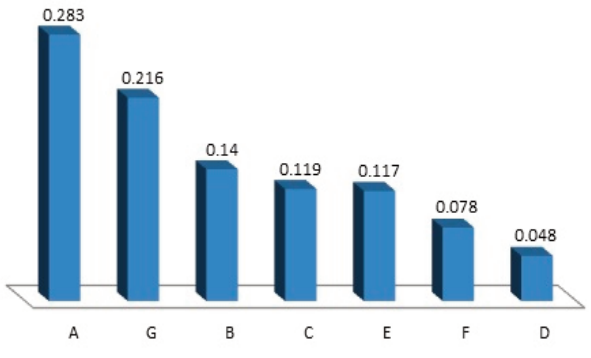
7- Land use change related to agriculture (D) with a weight of 0.090

In addition, the results showed (Figure 9) the weight of each challenges based on the second sub-criterion (growth of investment) of the second criterion. This means that the challenges based on growth of investment from the criterion of economic flexibility with



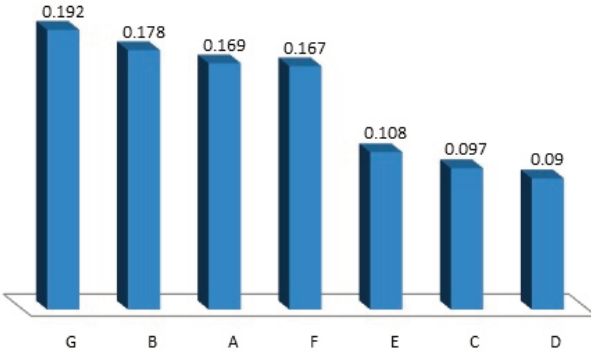
Inconsistency=0.08

Figure 6. Weight of Each Challenges Based on the First Sub-Criterion (Reducing The Inflation Rate of Agricultural Products) of the First Criterion.



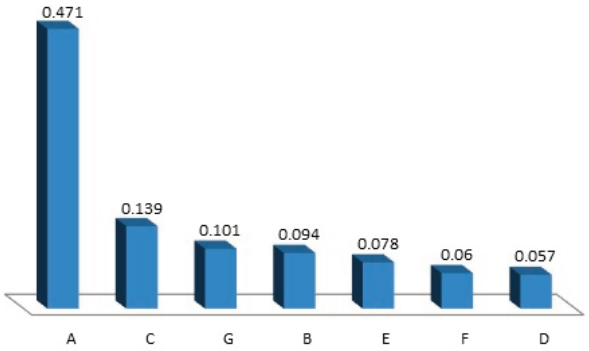
Inconsistency=0.08

Figure 7. Weight of Each Challenges Based on the Second Sub-Criterion (Creating Added Value) of the First Criterion.



Inconsistency=0.08

Figure 8. Weight of Each Challenges Based on the First Sub-Criterion (Reducing Growth of Production) of the Second Criterion.



Inconsistency=0.09

Figure 9. Weight of Each Challenges Based on the Second Sub-Criterion (Growth of Investment) of the Second Criterion.

other challenges of implementing a resistive economy in agriculture were compared in pairs. Therefore, based on the second sub-criterion (N_2) from the second criterion (N), the challenges were prioritized as follows:

1- Insecure economic environment to attract domestic and foreign investment (A) with weight of 0.471

2- Low productivity of manpower and capital in agriculture (C) with a weight of 0.139

3- Extensive import versus limited export of products (G) weighing 0.101

4- Lack of a coherent marketing and marketing system (B) with a weight of 0.094

5- Low efficiency of agricultural production units (E) with weight of 0.078

4- High waste of agricultural products (F) with a weight of 0.060

7- Land use change related to agriculture (D) with a weight of 0.057

Figure 10 shows the weight of each challenges based on the first sub-criterion (labor productivity) of the third criterion. This means that the challenges based on labor productivity from the criterion of productivity promotion with other challenges of implementing a resistive economy in agriculture were compared in pairs. Therefore, based on the first sub-criterion (T_1) from the third criterion (T), the challenges were prioritized as follows:

1- Low productivity of manpower and capital in agriculture (C) with a weight of 0.527

2- Low efficiency of agricultural production units (E) with a weight of 0.168

3- High waste of agricultural products (F) with a weight of 0.073

4 Lack of a coherent marketing and marketing system (B) with a weight of 0.064

5- Extensive import versus limited export of products (G) weighing 0.058

6- Insecure economic environment to attract domestic and foreign investment (A) with weight of 0.055

7- Land use change related to agriculture (D) with a weight of 0.055

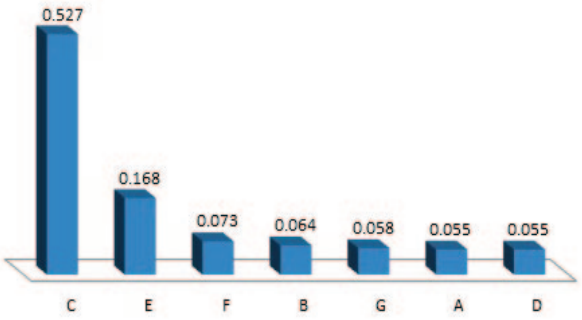
In addition, the results showed (Figure 11) the weight of each challenges based on the second sub-criterion (productivity of production) of the third criterion. This means that the challenges based on productivity of production from the criterion of productivity promotion with other challenges of implementing a resistive economy in agriculture were compared in pairs. Therefore, based on the second sub-criterion (T_2) from the third criterion (T), the challenges were prioritized as follows:

1- Low efficiency of agricultural production units (E) with a weight of 0.371

2- High waste of agricultural products (F) with a weight of 0.162

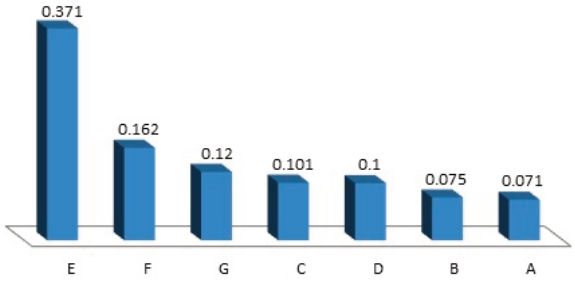
3- Extensive import versus limited export of products (G) weighing 0.120

4- Low productivity of manpower and capital in agriculture (C) with a weight of 0.101



Inconsistency=0.03

Figure 10. Weight of Each Challenges Based on the First Sub-Criterion (Labor Productivity) of the Third Criterion



Inconsistency=0.09

Figure11. Weight of Each Challenges Based on the Second Sub-Criterion (Productivity of Production) of The Third Criterion.

5- Land use change related to agriculture (D) with a weight of 0.100

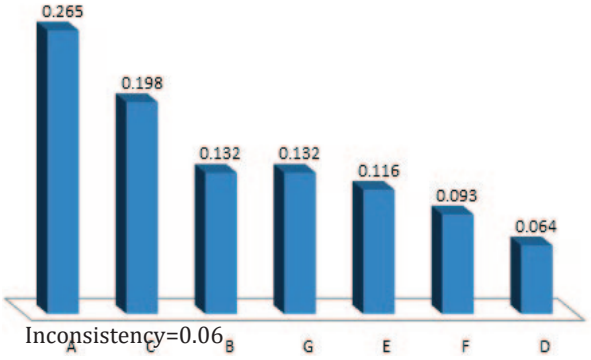
6- Lack of a coherent marketing and marketing system (B) with a weight of 0.075

7- Insecure economic environment to attract domestic and foreign investment (A) with weight 0.071.

After pairwise comparison of all the challenges of implementing resistive economics in agriculture based on sub-criteria, the mentioned results were combined and the final weight and priority of each challenges was identified. Figure 12 and Ttable 1 shows the weight and priority of identified challenges. In order of priority, the challenges were:

Insecure economic environment to attract domestic and foreign investment was first challenge. This result is in line with the researches of Jeshfaghani and Ghiyasi (2017); Keshavarzi and Fathi (2014); Hafezie et al (2017). One of the most important economic problems in developing countries is the insecure economic environment. Price changes, the existence of speculators, market instability, and wrong economic policies cause economic insecurity and increase the risk for domestic and foreign investors.

Low productivity of manpower and capital in agriculture was second challenge. This result is in line with the researches of Heydari Dizgarani and Shokri (2017); Keshavarzi and Fathi (2014). One of the important strategies for achieving agricultural development is to increase the productivity of manpower and capital. Low productivity reduces economic profitability and increases economic dependence. Lack of a coherent marketing and marketing system was the third challenge. This result is in line with the research of Rózsa E.N., Szigetvári T. (2019). Lack of proper marketing system is another obstacle to the failure of agricultural development. Extensive import versus limited export of products, this result is in line with the research of Ghavi Del et al (2019). Low efficiency of agricultural production units was the fourth challenge. This result is in line with the research of Heydari Dizgarani and Shokri (2017). High waste of agricultural products was the fifth challenge. This result is in line with the research of Kotykova and Babych (2019). Land use change related to agriculture was the sixth challenge. This result is in line with the research of Jiang et al (2013).



Inconsistency=0.06

Figure12. Final Weight of Challenges of Resistive Economics in Iran's Agricultural Sector.

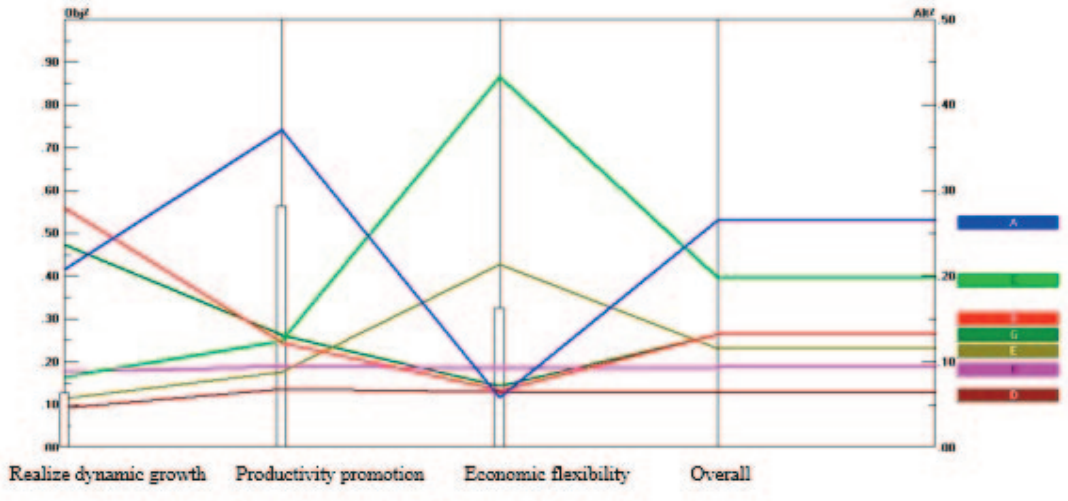


Figure13. Sensitivity Analysis of Prioritizing the Challenges of Implementing a Resistive Economy in Agriculture in Khuzestan Province in Performance Method.

Table 1
Prioritize the Challenges of Resistive Economics in Iran's Agricultural Sector

Challenges	Weight	Priority
Insecure economic environment to attract domestic and foreign investment	0.265	1
Low productivity of manpower and capital in agriculture	0.198	2
Lack of a coherent marketing and marketing system	0.132	3
Extensive import versus limited export of products	0.132	4
Low efficiency of agricultural production units	0.116	5
High waste of agricultural products	0.093	6
Land use change related to agriculture	0.064	7

Sensitivity analysis

In sensitivity analysis, the ranking of the challenges of implementing a resistive economy due to changes in the weight of criteria is examined. Sensitivity analysis is performed based on methods such as dynamic, performance, gradient, head-to-head and two-dimensional methods. In sensitivity analysis using the performance method, the criteria are shown on the horizontal axis and the decision options are shown on the vertical axis. The intersection of the challenge lines with the vertical lines that are the criteria shows the weight of each challenge in relation to that criterion (Figure 13).

CONCLUSION AND RECOMMENDATION

Based on the results respectively, the identified challenges of resistive economics in Iran's agricultural sector are: insecure economic environment to attract domestic and foreign investment, low productivity of manpower and capital in agriculture, lack of a coherent marketing and marketing system, extensive import versus limited export of products, low efficiency of agricultural production units, high waste of agricultural products and land use change related to agriculture. Considering that the first challenge in the implementation of resistive economy in agriculture was the insecure economic environment to attract domestic and foreign investment, thus the policy recommendation this regards include:

1- Policymakers of the agricultural economy sector should plan and make policies re-

garding the establishment of financial discipline and the creation of a transparent environment and the improvement of the business environment.

2- Agricultural sector planners should direct domestic capital to the productive sectors.

3- Managers of the agricultural sector should take action to explain the attractions and determine the preferred priorities for investment.

4- Legislators of the agricultural sector should take action to create more transparency and remove ambiguity in laws and regulations, including labor and insurance laws and other laws related to the field of agricultural trade.

5- Agricultural planners should take the necessary action to formulate long-term strategies and create more confidence in investors.

6. Managers must provide the necessary conditions to eliminate unnecessary and complicated bureaucracy.

7. Policymakers in the agricultural sector should consider leaving the authoritarian economy and seriously fighting it in this sector.

Considering that the second challenge in the implementation of resistive economy in agriculture was low productivity of manpower and capital in agriculture, thus the policy recommendation this regards include:

1. Managers and implementers of programs and policies in the agricultural sector, to provide the necessary conditions to improve the effectiveness of human resources through training.

2- Managers of the agricultural sector should make the provision of production facilities based on accurate indicators evaluated as their top priority.

3- Supporting users to increase production and improve revenue.

4- Increasing the ability, skills and knowledge of the users should be considered.

Considering that the third challenge in the implementation of resistive economy in agriculture was the lack of a coherent marketing and marketing system, it is suggested that:

1. Policymakers and planners should consider designing cropping patterns for products with limited natural resources and market needs.

2- Appropriate information about the supply of agricultural products produced.

3- Planners must take the necessary action to stabilize the prices of agricultural products.

4- Planners should take the necessary action for transparency in the pricing of agricultural products.

5- Providing the financial credits required by the producers should be considered at different times.

6- Reduce the problems of transportation and storage of agricultural products.

Considering that the fourth challenge in the field of implementing a resistive economy in agriculture was the extensive import versus limited export of products, it is suggested that:

1- Creating obstacles by policymakers and legislators to prevent the excessive import of products whose production capacity exists in the country.

2- Providing the necessary facilities by the government for the export of products that have a high added value for export.

3- Establishing interaction with neighboring countries regarding meeting their needs for the country's agricultural products.

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