**RESEARCH ARTICLE**

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# Future Study of Factors Affecting Economic Poverty in Iran 2043: A Threat to Health

Reza Faryabi[1], Shima Bordbar[2], Mohammad Moqaddasi Amiri[3] and Ali Reza Yusefi[3,*]

[1]Department of Public Health, School of Health, Jiroft University of Medical Sciences, Jiroft, Iran
[2]Health Human Resources Research Center, School of Health Management and Information Sciences, Shiraz University of Medical Sciences, Shiraz, Iran
[3]Department of Public Health, Sirjan School of Medical Sciences, Sirjan, Iran

**Abstract:**

***Introduction:*** Economic poverty is a fundamental challenge in many countries, significantly impacting human societies. Identifying and analyzing the numerous factors contributing to poverty is a practical approach to reducing its burden. Policymakers, equipped with knowledge of potential future scenarios, can formulate effective strategies and policies for various contingencies. This study uses a scenario-based planning approach to explore the factors influencing economic poverty in Iran by 2043.

***Methods:*** The study was conducted in two phases. Phase one involved a comprehensive review to identify factors contributing to poverty. Phase two focused on determining key driving factors and forces, followed by the formulation of compatible scenarios through the analysis of mutual interactions and potential states of these factors. Data analysis and scenario creation were facilitated using MICMAC and Scenario Wizard software.

***Results:*** In the first phase, 35 factors contributing to economic poverty were identified and categorized into micro-level (15 factors) and macro-level (20 factors). In the second phase, experts identified 11 key driving factors. Additionally, by analyzing the balanced mutual effects and employing MICMAC and Scenario Wizard software, six compatible scenarios were developed. These scenarios ranged from unfavorable trends exacerbating poverty to maintaining the status quo and favorable trends under existing sanctions.

***Conclusion:*** According to the scenarios of the first group with a high probability of occurrence, nine factors (mismanagement, sanctions, conflict and war, low level or lack of education, accidents, and natural disasters, lack of jobs and sources of income, financial corruption, lack of growth and economic development and lack of support from the government and supporting institutions) of the 11 final factors affecting poverty in Iran 2043 will have an unfavorable situation. Therefore, poverty alleviation planning and policy-making to cover the existing deficiencies are suggested by focusing on these nine factors.

**Keywords:** Future study, Scenario, Economic poverty, Iran, Health, Scenario wizard software.

*Address correspondence to this author at the Department of Public Health, Sirjan School of Medical Sciences, Sirjan, Iran; Tel:+989173126342; E-mail: alirezayusefi67@gmail.com

## 1. INTRODUCTION

Economic poverty occurs when an individual lacks sufficient income to meet basic needs. This phenomenon poses a significant threat to societal structures and organizations, playing a central role in numerous social and economic challenges. These include weakened social institutions, hunger and malnutrition, inadequate hygiene, social deprivation, poor quality of life, exclusion from development programs, isolation, and the necessity of engaging in undesirable work due to limited choices [1-5].

The causes of poverty extend beyond economic factors to encompass social and demographic aspects, such as education and training, access to healthcare, health status, living standards, lifestyle, age, and gender [6, 7]. Economists typically focus on evaluating economic determinants, whereas sociologists emphasize socio-cultural factors, analyzing poverty at various levels-micro, meso, and macro [8]. Among the many factors that cause poverty, inequality, and discrimination (racial, minority, ethnic, gender, class system, *etc.*), lack or low level of education, insufficient, limited, or poor access to health care, unfavorable health status and the high cost of treating diseases, conflict and war, climate change, poor governance and lack of government support, unemployment and lack of suitable jobs can be mentioned [9-11]. Despite the many efforts of governments and international communities, poverty still exists worldwide, especially in developing and underdeveloped countries [12]. According to the report of the International Labor Organization, this phenomenon is considered a threat to the 2030 vision of this organization, i.e., a just world in which the needs of the most vulnerable people are met and a world in which every country enjoys sustainable and inclusive economic growth for all [13]. According to the World Bank report, for almost 25 years, extreme poverty has continuously decreased, so in 2015, there were about 734 million people in extreme poverty in the world, which decreased to about 644 million people in 2019 [14]. However, this trend of reducing extreme poverty changed in 2020 for the first time. It started an increasing trend that reached about 733 million people, which is expected to continue in the coming years [14]. The World Bank report indicates that in Iran in 2011, nearly 20% of the Iranian population was below the poverty line, even though in 2021, more than 28.1% of Iran's population will be below the poverty line [15]. Also, the Islamic Republic of Iran Majlis Research Center reports have shown the increase and deepening of poverty in Iran in the 2010s. According to this report, the poverty rate, i.e., the percentage of the population below the absolute poverty line in the country in 2021, was equal to 30.4%. Moreover, the poverty rate has been increasing since 2006 (with 15%) and has reached over 30% since 2008 [16]. Iran's trends and economic developments have increased pressure on low-income households and poverty [17].

A thorough understanding of the nature of poverty is essential for policymakers to develop practical and integrated strategies to mitigate its extent and consequences [18]. Since the problem of poverty and poverty alleviation programs is always the concern of policymakers, knowing and investigating this phenomenon as much as possible is an undeniable necessity for the success of such programs and solving the critical problem. In this regard, what is important is that countries can use the most appropriate strategies to identify these factors in any situation; in this situation, if the policymakers are aware of the state of different futures (including probable future, possible future, and preferred future) in this regard, have, they can plan the desired policies and strategies for every possible future.

A thorough understanding of the nature of poverty is essential for policymakers to develop practical and integrated strategies to mitigate its extent and consequences. Since addressing poverty and implementing effective poverty alleviation programs are constant priorities for policymakers, a comprehensive investigation of this phenomenon is a fundamental prerequisite for the success of such initiatives. To this end, countries must adopt appropriate strategies to identify relevant factors in various contexts. By gaining awareness of different future scenarios—including probable, possible, and preferred futures—policymakers can design targeted policies and strategies to address potential challenges. Future study approaches can help respond to this need [19]. Future study is an approach that includes understanding possible futures and preparing to make decisions for the future [20]. Future study starts with identifying different future options, examining these options, considering their probability of occurrence, and considering them in terms of desirability [20].

There are different methods for future study, and the choice of each method depends on factors such as time, information sources, available financial resources, and the goals of future study implementation. These methods include the Delphi method, scenario creation method, environmental survey method, brainstorming method, patent analysis method, dependency tree method, morphological analysis method, interaction analysis method, and future cycle method (mind map) [21].

The current research used mutual effects analysis and scenario building for future studies on factors affecting poverty. The analysis of mutual effects identifies the most influential factors in explaining a phenomenon. For this purpose, in addition to the direct impact of each factor on the phenomenon, it also calculates and considers the indirect effects of that factor, that is, the effects of that factor through intermediary factors [22]. In other words, one of the primary limitations of many forecasting methods is that the factors are forecasted individually. There is no apparent reference to their possible influence on each other, while they are often related to each other in some way. Most analysts emphasize that the probability of each event is partially conditioned by the occurrence of different events [21]. The dependence between these factors can be considered for prediction, and the analysis of the mutual effects of these relationships between variables is considered in the analysis [22].

On the other hand, scenarios help managers to know what possible futures exist. How are these futures created? And why does each future occur [23]. In the planning method based on scenarios or scenario writing, scenarios are formulated or used differently [23]. Scenario writing processes include two main parts: on the one

hand, the preparation of scenarios, and on the other hand, the use of scenarios in planning processes considered in scenario writing [24]. In each scenario, a combination of different states of each factor plays a role, extracted using scientific methods of the most probable scenarios [25].

The primary objective of this research was to identify the factors influencing economic poverty in Iran and analyze them using the mutual effects analysis technique. Key driving factors were determined, and various scenarios were developed to explore potential futures for economic poverty in Iran by 2043.

## 2. METHODS

This exploratory study was conducted cross-sectionally, with practical objectives divided into two distinct phases.

### 2.1. The First Phase

The study's first phase included conducting a comprehensive review to identify factors affecting poverty.

In this phase, a comprehensive review was used in the English-language Web of Science (ISI), PubMed, and Scopus databases to identify factors affecting poverty. In this comprehensive review, according to the research question (what are the factors affecting poverty?), English keywords were used according to Table **1**.

Furthermore, to increase the sensitivity of the search and, in other words, to increase the percentage of discovery and selection of related articles, the researcher examined several databases and searched with relatively common words, and synonymous words were used in the search along with the OR operator.

In addition, synonyms were also used in the search with the AND operator to increase the specificity, that is, to reduce the selection of unrelated articles. The search strategy of the studies is given in Table **2**.

### 2.1.1. Study Inclusion Criteria

Those studies that investigated factors affecting poverty were written in English, and the full text of the study was available.

### 2.1.2. Study Exclusion Criteria

The exclusion criteria also included studies conducted before 2000 and non-English language studies.

### 2.1.3. Criteria for Selecting Studies and Evaluating Quality

Two researchers evaluated all studies. In the first stage (checking the title), duplicate and unrelated items were discarded. In the next stage (abstract review), studies that did not match the topic and purpose of the study were too old and related to before 2000, and review articles were removed. Finally, the quality of the remaining articles was evaluated using the STROBE tool.

This tool includes the review of 22 sections: Title and abstract, introduction (in two sections, background/argument of topic selection, and objectives), methods (in 9 sections; type of study, environment (time and place) of research, participants in the study, variables, sources of data/measurement, bias, sample size, quantitative variables, and statistical methods), results (in 5 sections; participants, descriptive data, outcome data, main results, and other analyses), discussion (in 4 sections; key results, limitations, interpretation, and generalizability), and other Information (including funding).

**Table 1. Keywords for searching studies.**

| Concepts | Poverty | Factors |
|---|---|---|
| **Keywords** | Destitution | Causes |
| | Impoverishment | Source |
| | Indigen | Root |
| | Penury | Creator |
| | Extreme Poverty | Predictor |
| | Poverty, Extreme | associated factor |
| | Low-Income population | Determinant |
| | Low-Income population | Maker |
| | Poverty, Absolute | --- |
| | Absolute Poverty | --- |
| | Federal Poverty Level | --- |
| | Federal Poverty Threshold | --- |
| | Hardship, Economic | --- |

**Table 2. Study search strategy.**

| Row | Databases | Strategy |
|---|---|---|
| 1 | Web of Science (ISI) | #1 – TS= ("Poverty" OR "Destitution" OR "Impoverishment" OR "Indigen*" OR "Penury" OR "Extreme Poverty" OR "Poverty, Extreme" OR "Low-Income Population*" OR "Low Income Population*" OR "Poverty, Absolute" OR "Absolute Poverty" OR "Federal Poverty Level*" OR "Federal Poverty Threshold" OR "Hardship*, Economic*")<br>#2 – TS= ("Factor*" OR "Causes" OR "root" OR "creator" OR "source" OR "maker" OR Predictor OR "associated factor" OR determinant)<br>#3- #1 AND #2 |
| 2 | Scopus | #1 – TITLE-ABS-KEY ("Economic Poverty" OR "Economic Penury" OR "Economic Extreme Poverty" OR "Economic Poverty, Extreme" OR "Low-Income Population*" OR "Low Income Population*" OR "Poverty, Absolute" OR "Absolute Poverty" OR "Federal Poverty Level*" OR "Federal Poverty Threshold" OR "Hardship*, Economic*")<br>#2 – TITLE-ABS-KEY ("Factor*" OR "Causes" OR "root" OR "creator" OR "source" OR "maker" OR Predictor OR "associated factor" OR determinant)<br>#3 – #1 AND #2 |
| 3 | PubMed | #1 – ("Poverty"[tiab] OR "Destitution"[tiab] OR "Impoverishment"[tiab] OR "Indigen*"[tiab] OR "Penury"[tiab] OR "Extreme Poverty" [tiab] OR "Poverty, Extreme" [tiab] OR "Low-Income Population*"[tiab] OR "Low Income Population*"[tiab] OR "Poverty, Absolute" [tiab] OR "Absolute Poverty" [tiab] OR "Federal Poverty Level*"[tiab] OR "Federal Poverty Threshold" [tiab] OR "Hardship*, Economic*"[tiab])<br>#2 – ("Factor*" [tiab] OR "Causes" [tiab] OR "root" [tiab] OR "creator" [tiab] OR "source" [tiab] OR "maker" [tiab] OR Predictor[tiab] "associated factor"[tiab] OR determinant [tiab])<br>#3 – #1 AND #2 |

### 2.1.4. Data Extracting

For data extraction, a form containing the authors' profile, name of the journal, year of publication of the article, country where the study was conducted, type of research, and main results was used. For this purpose, the framework analysis method was used, including familiarization with the data, identification of a thematic framework, indexing, and table drawing [26].

### 2.2. The Second Phase

This phase included a study, scenario creation, and five steps.

### 2.2.1. First Step

Identifying the effective factors and their driving forces and determining the key factors

This step of scenario creation was done in the first phase of the study; in other words, factors affecting poverty were extracted in the first phase.

### 2.2.2. Second Step

*Mutual effects of key factors and determining the role of each factor*

In this research, mutual effects analysis was used to investigate the relationships between the factors affecting poverty and determine the role of each of these variables in influence and impressionability. For this purpose, the pair interaction form, which consists of the main factors affecting poverty, was presented to the panel of experts to determine the interrelationship of the factors. Additionally, the MICMAC software was used to analyze the data.

Moreover, using the mutual effects analysis approach considers the mutual relationships between the factors. This method recorded the factors on an orthogonal matrix

(perpendicular to each other). At each intersection of the matrix, the question was asked how the factor in one row affects the probability of different factors affecting the column.

In this order, at this stage, the orthogonal matrix of the critical factors affecting poverty was prepared and presented along with the instructions for completing it in the expert panel meeting. Each factor's influence on other factors' occurrence was determined in these matrices with numbers between zero and three. The number zero means no effect, the number 1 means a weak effect, the number 2 means a moderate impact, and finally, the number 3 means a strong effect.

At this stage, the role of each critical factor affecting poverty was also determined; each factor can be a defining or influencing variable, a double variable, an influencing variable, an independent variable, or a regulating variable. Determining or influential variables are more influential and less impressionable.

Therefore, the system depends more on these variables. Influential variables are the most critical component because system changes rely on them, and the degree of control over these variables is significant.

On the other hand, they are input variables to the system. Double or binary variables act in a very influential and very impressionable way at the same time. The nature of these variables is mixed with instability because every action and change on them results in a reaction and change in other variables.

Impressionable variables are those variables that are highly impressionable and are impressionable by other variables and are considered as output variables. Finally, the independent variables have low influence and impressionability and seem to have nothing to do with the

system because they neither stop a main variable nor cause its evolution and progress in the system.

### 2.2.3. Third Step

Determining possible situations for each of the critical factors

After determining the key factors affecting poverty and examining their mutual effects during the scenario creation process, according to the results of the MICMAC software, a group of factors was determined as the final vital factors affecting poverty. The final key factors were determined according to the factor scores obtained from the output of the MICMAC software.

Then, experts' opinions were used in the expert panel to determine the possible situations for each of these final vital factors, and the different conditions that each of the factors may have in Iran 2043 were determined.

Again, the panel of experts designed and discussed a matrix containing different statuses of all critical factors. In this matrix, the experts were asked about the possible situations where each critical factor happens and how it will affect the occurrence or non-occurrence of other conditions. They are also asked to complete the matrix based on the three characteristics of strengthening, neutralizing, and limiting, and by inserting figures between 3 and -3, they specify the degree of influence of each of the situations on the occurrence or non-occurrence of the other problem.

In other words, the central question of this matrix was that if situation a1 of key factor A happens in the future, what effect will it have on the occurrence or non-occurrence of situation b1 of essential factor B? In this matrix, situations can also show a negative influence; the influence of situations on each other's occurrence is measured with numbers between 3 and -3. In this order, the number 3 is a robust reinforcing effect, 2 is a medium reinforcing effect, 1 is a weak reinforcing effect, zero has no effect, -1 is a weak limiting effect, -2 is a medium limiting effect, and -3 is a robust limiting effect. These data are finally analyzed using Scenario Wizard software.

### 2.2.4. Fourth Step

Preparing a basket of scenarios and determining possible and desirable scenarios

In the fourth step, the square matrix that included the final key factors and selected main drivers along with the possible situations of each in the previous step was completed by the experts (based on determining the strengthening or limiting effect of each situation in the probability of the problem), it was analyzed using balanced interaction effects and using Scenario Wizard software.

The results of this analysis were the creation of many scenarios based on mathematical calculations and the result of combining different states of factors and their possible states. However, from all the created scenarios, some are incompatible; they contradict the network of influencing relationships the research experts considered

by completing the previous stage's matrix. These scenarios do not occur in reality and are impossible to analyze, policy, and plan. They are only used statistically because they are not likely to happen based on the network of influencing relationships considered by the experts of this research.

### 2.2.5. Fifth Step

Analysis and review of possible scenarios.

The final vital factors and any combination of their states form a specific scenario. This research investigated scenarios with a high probability of occurrence and high likelihood of compatibility, and each factor's status in each scenario was described. The scenario's likelihood was also investigated based on the results of the Scenario Wizard software.

Five expert panel meetings were held with 10 experts to complete the matrices in the study's second phase.

## 2.4. Research Time Frame

Regarding the time frame of the research, it should be explained that, in future studies using the scenario technique, after finalizing the influential factors in the future of the subject under investigation, it is possible to prepare possible situations for each of the factors in the coming years with a definite and uncertain time frame. In other words, it is possible to define a planning scene in periods of five, ten, fifteen, or twenty years or to prepare a scene without defining time to move from the present. This study chose the time horizon because of Iran's 20-year long-term vision, the country's longest-term nationally approved plan. This study also considered believable futures up to 2043, from 2023, when the implementation of this research began, to 2043. It covered a long-term future of 20 years.

## 2.5. Population and Research Sample

The statistical population for this research included experts in economics, sociology, and management, comprising academic professors and practitioners from universities (medical sciences and Ministry of Science institutions in Iran). A targeted sampling approach, specifically the snowball method, was employed as a non-probability sampling technique. Fifteen experts from various university departments across Iran, each with at least five years of experience in relevant fields such as economics, sociology, management, and social welfare, were selected to participate in the study.

## 3. RESULTS

### 3.1. FINDINGS OF THE FIRST PHASE

Results of a comprehensive review

In the search for studies, 3426 articles were found. In the next step, duplicate and unrelated cases (3084 studies) were excluded from the study after primary screening (review of titles), and 342 studies entered the secondary screening stage (review of abstracts of articles). The screening criterion at this stage was relevance and

appropriateness to the subject under study, articles from 2000 onwards, and review articles. In this stage, two researchers separately examined the abstracts of the articles, and to increase the accuracy and quality of the study, two researchers reviewed the evaluation results at this stage during a meeting, and a third evaluation was also carried out to resolve the disputes. After the consensus at this stage, it was found that some of these articles are not valid criteria for investigating the factors affecting poverty and are related to the study's objectives; they are very old (articles before 2000) and are review articles. Thus, the number of studies was reduced to 59 articles. In the search for the full text of the articles, we tried to contact the authors of those articles that were unavailable and get the complete text, and if they did not respond, they were excluded from the study. In this way, 59 studies with full text were identified. In the next step, after reviewing the sources of this number of studies, ten other related articles were extracted, and the number of articles reached 69. Then, the quality of the remaining 69 articles was examined. Thus, to measure the quality of the articles, each study was reviewed by at least two researchers separately, and for this purpose, the STROBE evaluation checklist was used. Based on this, only the articles that were done correctly based on the STROBE

tool and scored seven and above were included in the study [27]. In addition, in cases of disagreement between two researchers, a third party was used to check the quality. At this stage, six articles were discarded due to poor quality and methodology, and the number of studies was reduced to 63. They were included in extracting the results according to their usefulness in the field under investigation (Fig. **1**).

According to the purpose of the study and the reviewed studies, 35 factors affecting poverty were identified and categorized in two sections, including micro factors (15 factors) and macro factors (20 factors) (Table **3**) [28-128].

### 3.2. Findings of the Second Phase

#### 3.2.1. Results of Interaction Analysis

To identify the key factors and the main driving factors according to the direct and indirect effects of each factor on other factors, a matrix of 35 x 35 factors affecting poverty was developed and analyzed using mutual effects analysis. Based on the results of the preliminary analysis show, the degree of saturation of the matrix is 50.61, which shows that the selected factors had a moderate and scattered effect on each other, and in fact, the system had a relatively stable situation.
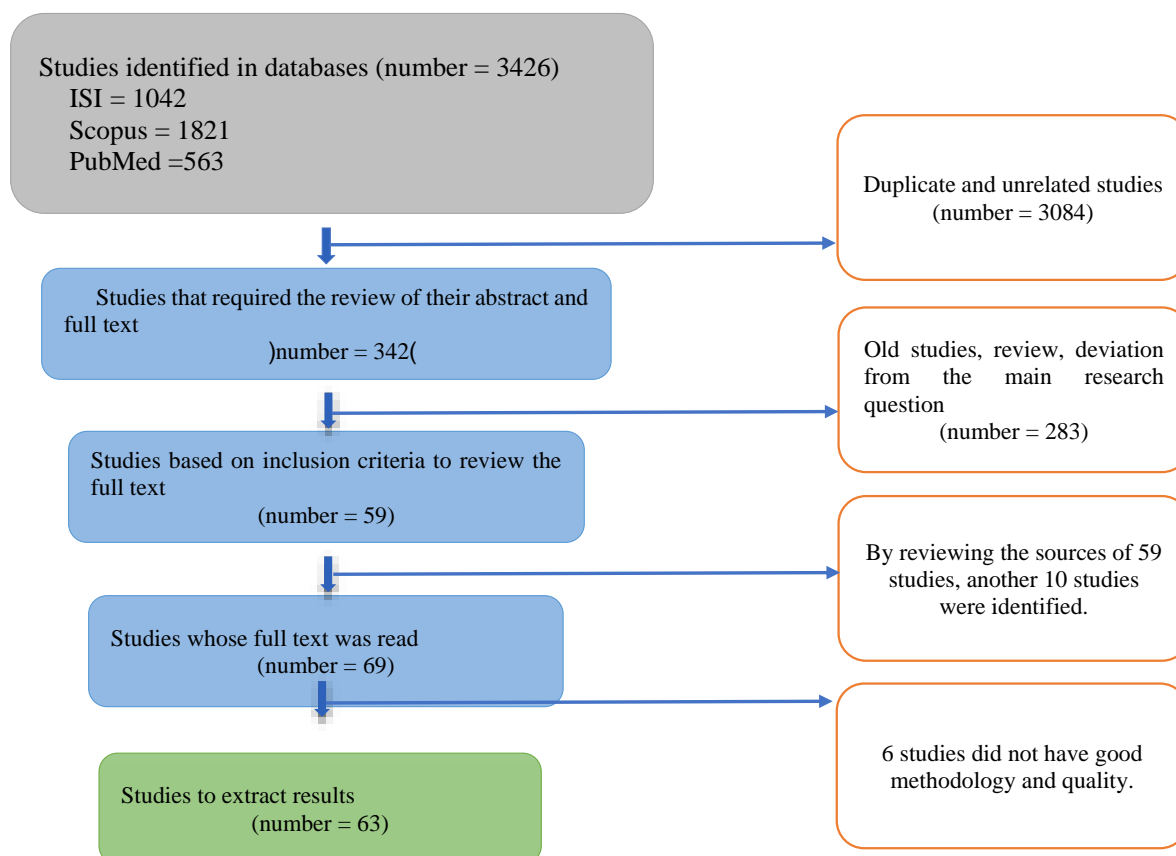


**Fig. (1).** Flowchart of article review and search.

**Table 3. Factors affecting poverty.**

| Micro Factors/Refs | Macro Factors/Refs |
|---|---|
| Lack of health facilities and poor health conditions [28] | Sanction [80, 81] |
| Back-breaking health costs [29] | Inflation [42, 69, 82] |
| Low level or lack of education [30-37] | Conflict and war [43-48] |
| Lack of job and source of income (Lack of job opportunities and unemployment) [31, 34, 38-42] | Unequal distribution of material resources and wealth and discrimination and social inequality [31, 34, 45-54, 81] |
| Increasing age [31, 34, 54, 56, 57] | Weak healthcare system [128] |
| Ruralism [51, 62-64] | Geographical and environmental obstacles (such as drought, adverse weather changes, *etc.*) [44, 58-61, 58] |
| Gender (female), head of household [30, 31, 33, 34, 54] | Poor public services and inadequate infrastructure [31, 55, 65] |
| Possession of capital assets and limited material capital (such as lack of housing, *etc.*) [32, 39] | Lack of national reserves [30, 55] |
| The degree of independence of family members and the dependency burden [31, 33, 34] | Lack of support from the government and supporting institutions [30, 54, 65-68] |
| Unhealthy lifestyle [70] | Lack of economic growth and development [30, 38, 50, 69, 78] |
| Illness and lack of complete health [33-35, 67, 72-74] | Lack of coverage of social security and support systems such as insurance [67, 71] |
| Living in deprived and underprivileged areas [33, 58, 61, 64, 75, 76] | Mismanagement and inefficiency of managers and policy makers [30, 71] |
| Lack or low level of work motivation [8, 41, 48, 77] | Lack of proper planning of service provision and product production [30, 71] |
| Individual factors such as lack or low level of self-confidence, job skills, familiarity with the market, etc [38, 41, 52, 83]. | Failure to use the young and productive forces of society [30, 54, 71] |
| Large household size (dimensions) [83, 84] | Lack of specific policies for employment [30] |
| - | Lack of independence and dependence on countries [30, 71] |
| - | political, economic, and social instability [30, 54, 71, 78] |
| - | Accidents, incidents and disasters [79] |
| - | Population growth (without a plan) [85, 86] |
| - | Financial corruption [87-89] |

### 3.2.2. System Analysis: Evaluating the Influence and Impressionability of Factors

In the mutual influence matrix, the sum of the numbers of each row shows the influence of that factor, and the sum of the column numbers of each factor also shows its influence. Table **4** shows the total row and column scores for each factor.

Based on the analytical results of this matrix, the most influential factors include mismanagement and inefficiency of managers and policymakers, sanctions, conflict and war, and low levels of education. Also, the most influential factors are considered, such as lack of economic growth and development, back-breaking health costs, illness and lack of perfect health, lack of health facilities, and poor health conditions.

Fig. (**2** corresponds to the matrix form of the research and is set based on the direct effects of factors on each other, where 28 factors are placed. These factors directly impacted at least one other factor; in this study, only seven impressionable factors are not shown in the influence (Fig. **2**).

### 3.2.3. System Analysis: Determining the Role of each Factor

Based on the location of each factor in the dispersion map of the influence/ impressionability Figure, the role of that factor in the investigated system can be determined. Table **5** presents the classification of variables based on role.

Based on the findings presented in Table **5**, the first category is the influential variables. These factors include mismanagement and inefficiency of managers and policymakers, sanctions, conflict and war, low level or lack of education, accidents, and natural disasters, lack of support from the government and supporting institutions, growth Population (without a plan), lack of specific policies for employment and lack of proper planning of service provision and product production are among the variables affecting poverty.

The second category is two-faceted variables. In this study, five variables out of 35 variables, including inflation, lack of job and source of income, unequal distribution of material resources and wealth, financial corruption, and lack of economic growth and development, are included in this group.

The third category is influencing variables or outcome variables. Nine variables are included in this category, which includes political, economic, and social instability, lack of health facilities and poor health status, illness and lack of perfect health, lack of social security and support system coverage, unhealthy lifestyle, possession of capital assets and limited material capital, back-breaking health costs, lack of or the low level of work motivation and weak public services and insufficient infrastructure.

The fourth category is independent variables. These factors include living in deprived and underprivileged areas, living in rural areas, the degree of independence of family members and the dependency burden, lack of

**Table 4. Characteristics of the mutual effects matrix of factors affecting poverty.**

| Row | Group | Factor Affecting Poverty | Total Score of the Row (Level of Influence) | Total Column Score (Level of Influence) |
|-----|-------|--------------------------|---------------------------------------------|------------------------------------------|
| 1 | Micro factors | Lack of health facilities and poor health conditions | 25 | 48 |
| 2 | | Back-breaking health costs | 13 | 58 |
| 3 | | Low level or lack of education | 36 | 22 |
| 4 | | Lack of job and source of income | 33 | 44 |
| 5 | | The size (dimension) of the household | 16 | 13 |
| 6 | | Age increasing | 21 | 10 |
| 7 | | Village life | 22 | 28 |
| 8 | | Gender (female) head of the household | 14 | 7 |
| 9 | | Acquisition of capital assets and limited material capital | 16 | 33 |
| 10 | | The degree of independence of family members and the dependency burden | 22 | 15 |
| 11 | | Unhealthy lifestyle | 17 | 32 |
| 12 | | Illness and lack of perfect health | 24 | 48 |
| 13 | | Living in deprived and underprivileged areas | 24 | 25 |
| 14 | | Lack or low level of work motivation | 11 | 35 |
| 15 | | Individual factors include lack of self-confidence, low job skills, familiarity with the market, *etc*. | 12 | 24 |
| 16 | Macro factors | Sanction | 43 | 1 |
| 17 | | Inflation | 28 | 33 |
| 18 | | Conflict and war | 41 | 7 |
| 19 | | Unequal distribution of material resources and wealth | 30 | 47 |
| 20 | | Weak healthcare system | 18 | 24 |
| 21 | | Geographical and environmental barriers | 16 | 8 |
| 22 | | Poor public services and inadequate infrastructure | 8 | 38 |
| 23 | | Lack of national reserves | 20 | 15 |
| 24 | | Lack of support from the government and supporting institutions | 30 | 14 |
| 25 | | Lack of economic growth and development | 32 | 54 |
| 26 | | Lack of coverage of the social security and support system | 22 | 32 |
| 27 | | Population growth (no plan) | 30 | 4 |
| 28 | | Financial corruption | 33 | 32 |
| 29 | | Mismanagement and inefficiency of managers and policymakers | 47 | 8 |
| 30 | | Lack of proper planning of service provision and product production | 28 | 14 |
| 31 | | Failure to use the young and productive force of society | 18 | 13 |
| 32 | | Lack of specific policies for employment | 29 | 14 |
| 33 | | Lack of independence and dependence on countries | 15 | 19 |
| 34 | | Political, economic, and social instability | 26 | 33 |
| 35 | | Accidents and natural disasters | 35 | 3 |

**Table 5. The role of each influential factor on poverty based on the MICMAC methodology of mutual effects analysis (based on direct effects).**

| Variable Role Based on MICMAC Methodology | Factors Affecting Poverty | Variable Placement Specifications On the Scattering Page | |
|---|---|---|---|
| | | Total Score of the Row (Level of Influence) | Total Column Score (Level of Influence) |
| **First Division: Influential variables** | Mismanagement and inefficiency of managers and policymakers | 47 | 8 |
| | Sanction | 43 | 1 |
| | Conflict and war | 41 | 7 |
| | Low level or lack of education | 36 | 23 |
| | Accidents and natural disasters | 35 | 3 |
| | Lack of support from the government and supporting institutions | 30 | 14 |
| | Population growth (no plan) | 30 | 4 |
| | Lack of specific policies for employment | 29 | 14 |
| | Lack of proper planning of service provision and product production | 28 | 14 |
| **The second category: Bivariate variables** | Inflation | 28 | 33 |
| | Lack of job and source of income | 33 | 44 |
| | Unequal distribution of material resources and wealth | 30 | 47 |
| | financial corruption | 33 | 32 |
| | Lack of economic growth and development | 32 | 54 |
| **The third category: Impressionable variables** | Political, economic, and social instability | 26 | 33 |
| | Lack of health facilities and poor health conditions | 25 | 48 |
| | Illness and lack of perfect health | 24 | 48 |
| | Lack of coverage of the social security and support system | 22 | 32 |
| | Unhealthy lifestyle | 17 | 32 |
| | Acquisition of capital assets and limited material capital | 16 | 33 |
| | Back-breaking health costs | 13 | 58 |
| | Lack or low level of work motivation | 11 | 35 |
| | Poor public services and inadequate infrastructure | 8 | 38 |
| **The fourth category: Independent variables** | Living in deprived and underprivileged areas | 24 | 35 |
| | Village life | 22 | 28 |
| | The degree of independence of family members and the burden of support | 22 | 15 |
| | Lack of national reserves | 20 | 15 |
| | Failure to use the young and productive force of society | 18 | 13 |
| | Age increasing | 21 | 10 |
| | Weak healthcare system | 18 | 24 |
| | Geographical and environmental barriers | 16 | 8 |
| | Size (dimension) of the household | 16 | 13 |
| | Lack of independence and dependence on countries | 15 | 19 |
| | Gender (female) head of the household | 17 | 7 |
| | Individual factors | 12 | 24 |
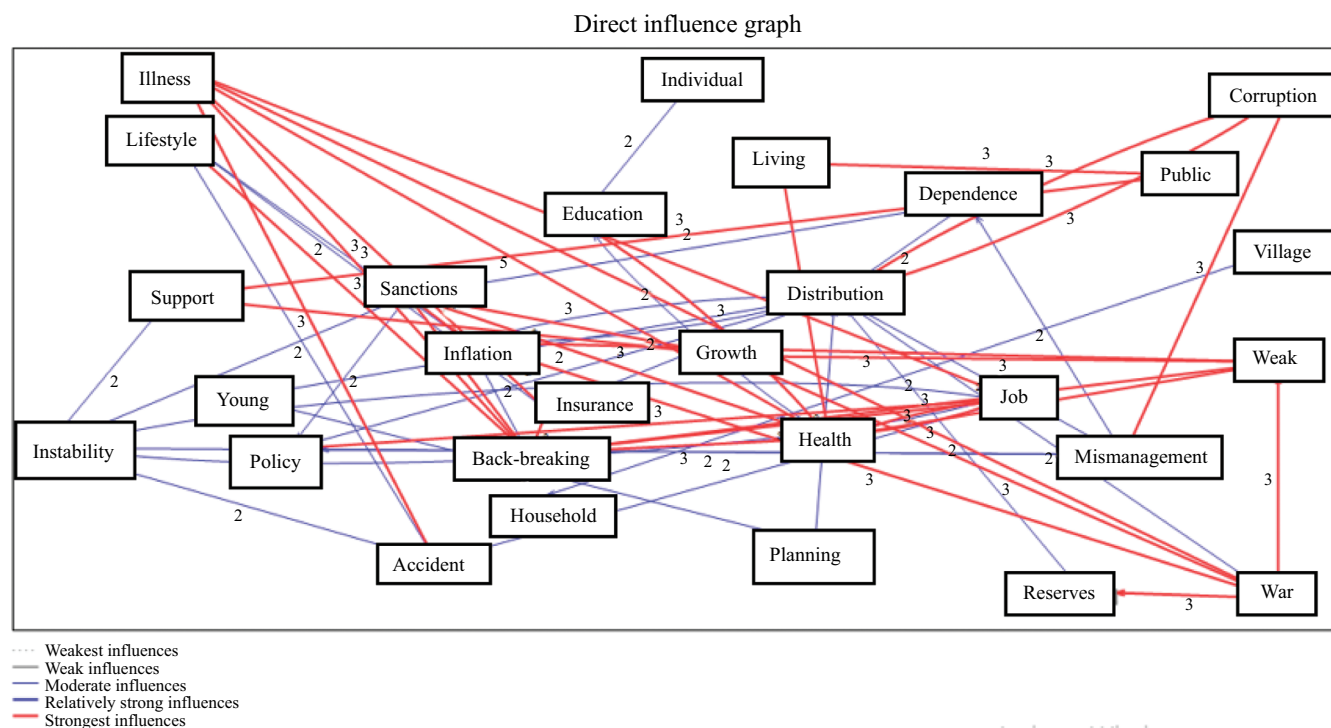
**Fig. (2).** Direct relationships between variables (very weak to powerful effects).

national reserves, lack of use of the young and productive workforce of the society, aging, weak health care system, geographical and environmental barriers, size (dimension)) the household, the lack of independence and dependence of the countries, the gender (female) of the head of the household and individual factors.

### 3.2.4. Direct and Indirect Effects of Factors on each Other

What was obtained from comparing the results of the ranking of the variables based on the analysis of their direct effects and the analysis of their indirect effects showed that the shift in the rank of the variables was not noticeable. Therefore, in identifying the most influential factors, ranking the factors based on direct and indirect effects did not differ much.

The direct and indirect effects of the factors were investigated and compared to identify the most influential and impressionable factors. The ranking results of influenceable and impressionable variables based on the direct impact of the factors on each other and their indirect effects are presented in Table **6**.

Examining and comparing variables' direct and indirect effects in explaining influencing and impressionable variables shows that the ranking of influencing variables based on direct and indirect impact is almost similar. The results show that for more effective variables, the ranking of the mentioned indicators based on the direct effects has been repeated with a slight

change in the ranking of indirect effects.

Fig. (**3**) corresponds to the matrix form of the research and is set based on the indirect effects of factors on each other, where 27 factors are placed; these are the number of factors that affected at least one other factor, and eight factors that were only effective based on indirect effects are not shown in the influence figure.

### 3.2.5. Selection of Critical Factors Affecting Poverty

Considering the system investigated in this research was relatively stable, the most influential variables were examined to extract the key factors affecting poverty. According to the ranking and the nature of the variables and, finally, based on the opinion of experts, the number of 11 variables was selected and used to create scenarios for the next step. As Table **7** shows, based on the results of this analysis, the top 11 influencing variables based on direct effects were almost the same as the top 11 influencing variables based on indirect effects.

### 3.2.6. Determining Possible Situations for each of the Critical Factors

Based on experts' opinions, possible situations were considered for each key factor, presented in the table below. Table **8** presents the possible situations of 11 factors influencing poverty in Iran 2043.

### 3.2.7. Scenario Basket

Many scenarios were created by combining different states of the final vital factors and their possible states

**Table 6. The ranking of the direct and indirect effects of variables on each other according to influence and impressionability.**

| | Ranking Variables Based on Direct Effects | | | | | | Ranking Variables Based on Indirect Effects | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Impact rating | Variable | The Degree of Influence | Influence Rating | Variable | The Degree of Influence | Impact Rating | Variable | The Degree of Influence | Impressionability Rating | Variable | The Degree of Influence |
| 1 | Mismanagement | 549 | 1 | Back-breaking cost of health | 678 | 1 | Mismanagement | 559 | 1 | Back-breaking cost of health | 732 |
| 2 | Sanction | 502 | 2 | Lack of economic growth and development | 631 | 2 | Sanction | 527 | 2 | Lack of economic growth and development | 601 |
| 3 | Conflict and war | 479 | 3 | Improper hygiene | 561 | 3 | Conflict and war | 500 | 3 | Illness and lack of health | 555 |
| 4 | Low level or lack of education | 421 | 4 | Illness and lack of health | 561 | 4 | Low level or lack of education | 447 | 4 | Unequal distribution of resources | 554 |
| 5 | Accidents and natural disasters | 409 | 5 | Unequal distribution of resources | 549 | 5 | Accidents and natural disasters | 399 | 5 | Improper hygiene | 552 |
| 6 | Lack of job and income | 385 | 6 | Lack of job and income | 514 | 6 | Financial corruption | 379 | 6 | Lack or low level of work motivation | 480 |
| 7 | Financial corruption | 385 | 7 | Poor public services | 444 | 7 | Lack of job and income | 378 | 7 | Lack of job and income | 480 |
| 8 | Lack of economic growth and development | 374 | 8 | Lack or low level of work motivation | 409 | 8 | Lack of government support | 358 | 8 | Possession of limited capital assets | 447 |
| 9 | Unequal distribution of material resources | 350 | 9 | Possession of limited capital assets | 385 | 9 | Unequal distribution of material resources | 357 | 9 | Financial corruption | 406 |
| 10 | Population growth | 350 | 10 | Sanction | 385 | 10 | Lack of economic growth and development | 346 | 10 | Instability | 406 |
| 11 | Lack of government support | 350 | 11 | Instability | 385 | 11 | Population growth | 345 | 11 | Individual factors | 377 |
| 12 | Lack of employment policy | 339 | 12 | Unhealthy lifestyle | 374 | 12 | Lack of employment policy | 328 | 12 | Low level or lack of education | 365 |
| 13 | Sanction | 327 | 13 | Lack of coverage of the social security and support system | 374 | 13 | Lack of proper planning of service provision and product production | 325 | 13 | Unhealthy lifestyle | 357 |
| 14 | Lack of proper planning of service provision and product production | 327 | 14 | Financial corruption | 374 | 14 | Political, economic, and social instability | 317 | 14 | Poor public services | 356 |
| 15 | Political, economic, and social instability | 304 | 15 | Village life | 327 | 15 | Inflation | 309 | 15 | Living in deprived and underprivileged areas | 355 |

*(Table 8) contd.....*

| | Ranking Variables Based on Direct Effects | | | | | | Ranking Variables Based on Indirect Effects | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Impact rating | Variable | The Degree of Influence | Influence Rating | Variable | The Degree of Influence | Impact Rating | Variable | The Degree of Influence | Impressionability Rating | Variable | The Degree of Influence |
| 16 | Improper hygiene | 292 | 16 | Living in deprived and disadvantaged areas | 292 | 16 | Improper hygiene | 295 | 16 | Village life | 347 |
| 17 | Illness and lack of health | 280 | 17 | Individual factors | 280 | 17 | Disease and lack of health | 276 | 17 | Inflation | 346 |
| 18 | Living in deprived and underprivileged areas | 280 | 18 | Weak healthcare system | 280 | 18 | Dependency burden | 266 | 18 | Lack of coverage of the social security and support system | 334 |
| 19 | Village life | 257 | 19 | Low level or lack of education | 257 | 19 | Living in deprived and underprivileged areas | 255 | 19 | Weak healthcare system | 205 |
| 20 | Dependency burden | 257 | 20 | Lack of independence and dependence on countries | 222 | 20 | Lack of coverage of the social security and support system | 250 | 20 | Lack of autonomy and dependence on countries | 203 |
| 21 | Lack of coverage of the social security and support system | 257 | 21 | Dependency burden | 175 | 21 | Village life | 248 | 21 | Dependency burden | 169 |
| 22 | Age increasing | 245 | 22 | Lack of national reserves | 175 | 22 | Lack of national reserves | 239 | 22 | Size (dimension) of the household | 159 |
| 23 | Lack of national reserves | 233 | 23 | Lack of proper planning of service provision and product production | 163 | 23 | Lack of independence and dependence on countries | 216 | 23 | Lack of appropriate planning of service provision and product production | 158 |
| 24 | Weak healthcare system | 210 | 24 | Lack of employment policy | 163 | 24 | Weak healthcare system | 214 | 24 | Lack of government support | 145 |
| 25 | Failure to use the young and productive force of society | 210 | 25 | Lack of government support | 163 | 25 | Age increasing | 214 | 25 | Lack of employment policy | 138 |
| 26 | Unhealthy lifestyle | 198 | 26 | Size (dimension) of the household | 152 | 26 | Failure to use the young and productive force of society | 203 | 26 | Age increasing | 133 |
| 27 | Size (dimension) of the household | 187 | 27 | Failure to use the young and productive force of society | 152 | 27 | Unhealthy lifestyle | 193 | 27 | Failure to use the young and productive force of society | 126 |
| 28 | Possession of capital assets and limited material capital | 187 | 28 | Age increasing | 116 | 28 | Geographical and environmental barriers | 189 | 28 | Lack of national reserves | 108 |
| 29 | Geographical and environmental barriers | 187 | 29 | Geographical and environmental barriers | 93 | 29 | Size (dimension) of the household | 187 | 29 | Gender (female) head of the household | 92 |

*(Table 8) contd.....*

| Ranking Variables Based on Direct Effects | | | | | | Ranking Variables Based on Indirect Effects | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Impact rating | Variable | The Degree of Influence | Influence Rating | Variable | The Degree of Influence | Impact Rating | Variable | The Degree of Influence | Impressionability Rating | Variable | The Degree of Influence |
| 30 | Lack of independence and dependence on countries | 175 | 30 | Mismanagement | 93 | 30 | Possession of capital assets and limited material capital | 185 | 30 | Geographical and environmental barriers | 90 |
| 31 | Gender (female) head of the household | 163 | 31 | Gender (female) head of the household | 81 | 31 | Back-breaking health costs | 168 | 31 | Conflict and war | 70 |
| 32 | Back-breaking health costs | 152 | 32 | Conflict and war | 81 | 32 | Gender (female) head of the household | 157 | 32 | Mismanagement | 63 |
| 33 | Individual factors | 140 | 33 | Population growth | 46 | 33 | Individual factors | 135 | 33 | Population growth | 62 |
| 34 | Lack or low level of work motivation | 128 | 34 | Accidents and natural disasters | 35 | 34 | Lack or low level of work motivation | 130 | 34 | Accidents and natural disasters | 21 |
| 35 | Poor public services and inadequate infrastructure | 93 | 35 | Sanction | 11 | 35 | Poor public services and inadequate infrastructure | 91 | 35 | Sanction | 15 |
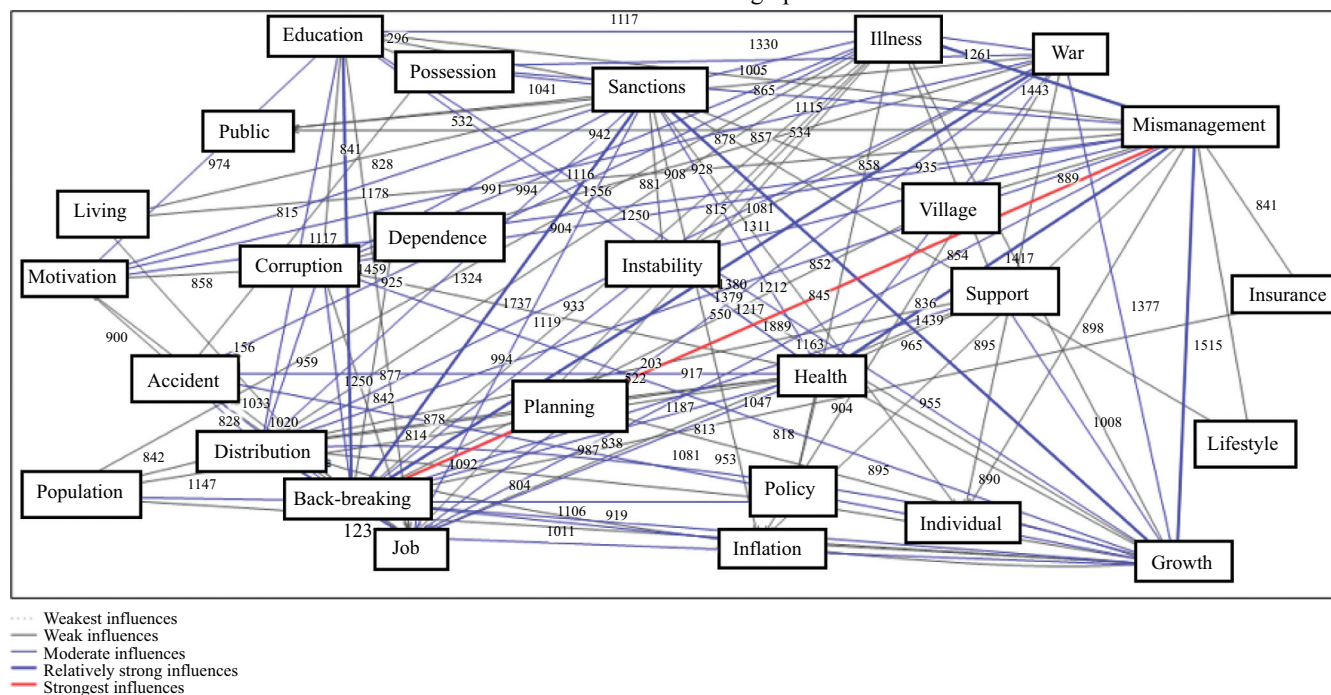


**Fig. (3).** Indirect relationships between variables (very weak to powerful effects).

using the analysis of balanced mutual effects. From 177,147 created scenarios (multiplying the possible states of the factors in this research, which were made based on statistical calculations), many do not occur because they contradict the network of influencing relationships developed by research experts.

Therefore, compatible scenarios, *i.e.*, scenarios that have not violated the network of direct and indirect influence relationships of factors and their possible situations that experts considered, were extracted using the Scenario Wizard software; in this way, six compatible scenarios were extracted in this research.

**Table 7. Key factors affecting poverty (based on direct and indirect effects) and final selection.**

| Ranking Variables Based on Direct Effects | | Ranking Variables Based on Indirect Effects | |
|---|---|---|---|
| Impact Rating | Variable | Impact Rating | Variable |
| 1 | Mismanagement | 1 | Mismanagement |
| 2 | Sanction | 2 | Sanction |
| 3 | Conflict and war | 3 | Conflict and war |
| 4 | Low level or lack of education | 4 | Low level or lack of education |
| 5 | Accidents and natural disasters | 5 | Accidents and natural disasters |
| 6 | Lack of job and income | 6 | Financial corruption |
| 7 | Financial corruption | 7 | Lack of job and income |
| 8 | Lack of economic growth and development | 8 | Lack of government support |
| 9 | Unequal distribution of material resources | 9 | Unequal distribution of material resources |
| 10 | Population growth (no plan) | 10 | Lack of economic growth and development |
| 11 | Lack of government support | 11 | Population growth (no plan) |

**Table 8. Key factors affecting poverty and possible situations of each in Iran 2043.**

| Row | A Key Factor Affecting Poverty | Code | The Possible Situation for Iran Until 2043 (next 20 years) | Intended Impact on Poverty |
|---|---|---|---|---|
| 1 | Mismanagement and inefficiency of managers and policymakers | a1 | Improvement relative to the current situation | Optimal |
| | | a2 | Continuing the current trend | Maintain the status quo |
| | | a3 | Regression (degradation) compared to the current situation | Undesirable |
| 2 | Sanction | b1 | Increase relative to the current situation | Undesirable |
| | | b2 | Continuing the current trend | Maintain the status quo |
| | | $b_3$ | The reduction compared to the current situation | Optimal |
| 3 | Conflict and war | c1 | An increase compared to the current situation | Undesirable |
| | | c2 | Similar to the current situation | Maintain the status quo |
| | | c3 | The reduction compared to the current situation | Optimal |
| 4 | Low level or lack of education | d1 | An increase compared to the current situation | Undesirable |
| | | d2 | Similar to the current situation | Maintain the status quo |
| | | d3 | The reduction compared to the current situation | Optimal |
| 5 | Accidents and natural disasters | e1 | An increase compared to the current situation | |
| | | e2 | Similar to the current situation | Undesirable |
| | | e3 | The reduction compared to the current situation | Maintain the status quo |
| 6 | Lack of job and income | f1 | An increase compared to the current situation | Optimal |
| | | f2 | Similar to the current situation | Undesirable |
| | | f3 | The reduction compared to the current situation | Maintain the status quo |
| 7 | Financial corruption | g1 | An increase compared to the current situation | Optimal |
| | | g2 | Similar to the current situation | Undesirable |
| | | g3 | The reduction compared to the current situation | Maintain the status quo |
| 8 | Lack of economic growth and development | h1 | An increase compared to the current situation | Optimal |
| | | h2 | Similar to the current situation | Undesirable |
| | | h3 | The reduction compared to the current situation | Maintain the status quo |
| 9 | Unequal distribution of material resources and wealth | o1 | An increase compared to the current situation | Optimal |
| | | o2 | Similar to the current situation | Undesirable |
| | | o3 | The reduction compared to the current situation | Maintain the status quo |
| 10 | Population growth (no plan) | i1 | Increase relative to the current situation. | |
| | | i2 | Similar to the current situation | Optimal |
| | | i3 | The reduction compared to the current situation | |
| 11 | Lack of support from the government and supporting institutions | j1 | An increase compared to the current situation | Undesirable |
| | | j2 | Similar to the current situation | Maintain the status quo |
| | | j3 | The reduction compared to the current situation | Optimal |

Tables **9** and **10** show the possible states of each factor separately for each scenario, called the scenario board. To facilitate the understanding of the conditions of the scenario board and the weight of the favorable and unfavorable conditions of this page based on the status of factors with the favorable color green, maintaining the status quo: yellow and unfavorable: red is also provided.

## 4. DISCUSSION

This study was conducted with the aim of future studies on the factors affecting economic poverty in Iran in 2043. Based on the findings of this research, six scenarios were identified as compatible scenarios, which were generally placed in three groups:

### 4.1. Scenarios of the First Group

Scenarios with unfavorable trends and facing factors that aggravate and cause poverty.

### 4.2. Scenarios of the Second Group

scenarios with a calm nature and maintenance of the status quo along with aggravation of mismanagement and lack of support from the government and supporting institutions.

### 4.3. Scenarios of the Third Group

Scenarios with a favorable trend along with the current state of sanctions.

Scenarios of the first group: scenarios with an unfavorable trend and facing factors that aggravate and underpin poverty

Based on the findings of the research, the first and second scenarios are the scenarios that show the unfavorable trend and the exposure to factors that aggravate and create poverty in Iran 2043 and the possibility of an increase in poverty cases. In these scenarios, witness the escalation of mismanagement, sanctions, conflict and war, low level or lack of education, accidents, and natural disasters, lack of jobs and sources of income, financial corruption, lack of economic growth and development, and lack of support from the government and supporting institutions along with the current situation, we have an uneven distribution of material resources and unplanned population growth.

Mismanagement is related to the aggravation of the risk of poverty. In this regard, Ahmad *et al.* [90], Mishi *et al.* [91], Siddiqui [92], Ugoani [93], and Obadan [94] each in their studies have pointed out the role of mismanagement in the occurrence of poverty and its aggravation. It seems that undertaking economic activities at the micro and macro level by inefficient and inexperienced managers will result in the waste of resources. Mismanagement due to the inability to plan accurately, properly monitor and evaluate, properly prioritize, and implement programs can lead to poverty and lead society to poverty [95]. In this context, many Asian countries have enormous resources, but mismanagement has prevented the eradication of poverty in these countries because mismanagement is considered a waste of resources [96]. In this regard, one of the causes of mismanagement, especially in developing countries, can be the result of not being aware of the importance of management science and the selection and appointment of unprofessional and inappropriate people in management positions [97].

Therefore, in this management space, what we will witness as management is a set of methods based on accident, trial and error, and arbitrary actions that have no theoretical or professional support. The direction of moving from this situation to the ideal situation is to use elite people and meritocracy [98]. Meritism means that people with the most expertise, knowledge, and interest in serving in the organizational and collective environment are appointed to management positions [98]. Also, regular assessment and monitoring of managers' professional performance and training and keeping them updated are other factors that can help reduce and prevent mismanagement [99].

Sanctions were identified as another important factor in the occurrence of poverty, which, according to the scenarios of the first group in Iran 2043, will be unfavorable. Sanctions are one of the most important causes of poverty in the current era and have a special place. In line with this research, the results of Nademi and Hassanvand's study investigating the severity of sanctions and poverty in Iran showed that absolute poverty has increased in Iran with the increase in the degree of economic sanctions [100].

Fadaee and Derakhshan's study on the impact of the severity of sanctions over time on Iran's economic growth indicates that the application of medium and strong sanctions in the short term has harmed economic growth with coefficients of 0.0098 and 0.43, respectively. Also, the long-term relationship has shown that the application of moderate economic sanctions in the long term harmed economic growth with a coefficient of 0.024 [101]. The research of Marzban and Ostadzad also showed that when oil sanctions are applied in Iran, their effect on social welfare becomes more noticeable. Suppose a combination of sanctions on the sale of oil and consumer, intermediate, and capital goods is applied. In that case, the effect of the sanctions will be much more comprehensive than in the previous case [102].

Choi and Luo's study also argued that sanctions effectively spread poverty in target countries. They showed that the impact of US economic sanctions on target countries, such as fuel embargoes, asset freezes, trade restrictions, or sanctions on most financial activities, has increased the poverty gap between 6.1 and 7.4 percent [80].

Neuenkirch and Neumeier, in their research on the effects of sanctions imposed by the United Kingdom and the United States on 68 countries between 1976-2002, showed that the imposition of British sanctions led to a decrease in real per capita GDP growth between 2.3 and 3.5 percent in the target countries. Also, in the last ten years of these sanctions, British economic sanctions have reduced economic growth by more than 5%. On the other hand, US sanctions during the seven years have reduced the growth of the target countries' GDP between 0.5 and 0.9 [81].

**Table 9. Statuses of each of the factors affecting poverty in Iran 2043 by each scenario in the scenario table.**

| Scenario basket | Mismanagement | Sanction | Conflict and war | Low level or lack of education | Accidents and natural disasters | Lack of job and income |
|---|---|---|---|---|---|---|
| Scenario 1 | Regression (degradation) compared to the current situation | An increase compared to the current situation | An increase compared to the current situation | An increase compared to the current situation | An increase compared to the current situation | An increase compared to the current situation |
| Scenario 2 | Regression (degradation) compared to the current situation | An increase compared to the current situation | An increase compared to the current situation | Similar to the current situation | Identical to the current situation | An increase compared to the current situation |
| Scenario 3 | Regression (degradation) compared to the current situation | Continuing the current trend | Similar to the current situation | Identical to the current situation | Similar to the current situation | Similar to the current situation |
| Scenario 4 | Continuing the current trend | Continuing the current trend | Similar to the current situation | Identical to the current situation | The reduction compared to the current situation | Similar to the current situation |
| Scenario 5 | An improvement over the current situation | Continuing the current trend | The reduction compared to the current situation | The reduction compared to the current situation | The reduction compared to the current situation | Similar to the current situation |
| Scenario 6 | An improvement over the current situation | The reduction compared to the current situation | The reduction compared to the current situation | The reduction compared to the current situation | The reduction compared to the current situation | The reduction compared to the current situation |

| Scenario basket | financial corruption | Lack of economic growth and development | Unequal distribution of material resources | Population growth (no plan) | Lack of government support | |
|---|---|---|---|---|---|---|
| Scenario 1 | An increase compared to the current situation | An increase compared to the current situation | Increase the ratio | Similar to the current situation | Increase the ratio | |
| Scenario 2 | Similar to the current situation | An increase compared to the current situation | to the current situation | An increase compared to the current situation | to the current situation | |
| Scenario 3 | An increase compared to the current situation | Similar to the current situation | Identical to the current situation | Similar to the current situation | Similar to the current situation | |
| Scenario 4 | Similar to the current situation | Identical to the current situation | Similar to the current situation | Similar to the current situation | Increase the ratio | |
| Scenario 5 | Similar to the current situation | The reduction compared to the current situation | Reduce the ratio | The reduction compared to the current situation | to the current situation | |
| Scenario 6 | Similar to the current situation | The reduction compared to the current situation | to the current situation | The reduction compared to the current situation | Identical to the current situation | |

**Table 10. The page of the research scenarios including the influencing factors of poverty in Iran 2043: the possible situations of each factor by the scenario in the form of colors related to the possible situation.**

| Scenario Basket | A | B | C | D | E | F | G | H | O | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scenario 1 | a1 | b2 | c1 | d1 | e1 | f1 | g1 | h1 | o1 | i2 | j2 |
| Scenario 2 | a1 | b2 | c2 | d2 | e2 | f2 | g2 | h2 | o2 | i3 | j2 |
| Scenario 3 | a1 | b1 | c2 | d2 | e3 | f2 | g2 | h2 | o1 | i3 | j2 |
| Scenario 4 | a1 | b1 | c3 | d2 | e3 | f2 | g2 | h3 | o2 | i2 | j3 |
| Scenario 5 | a2 | b1 | c3 | d3 | e3 | f3 | g3 | h2 | o3 | i3 | j3 |
| Scenario 6 | a2 | b1 | c3 | d3 | e3 | f3 | g3 | h3 | o3 | i3 | j3 |

* A: mismanagement, B: embargo, C: conflict and war, D: low level or lack of education, E: accidents and natural disasters, F: lack of jobs and income, G: financial corruption, H: lack of economic growth and development, O: unequal distribution of material resources, I: population growth (without plan), J: lack of support from the government and supporting institutions.

It seems that sanctions can cause a shortage of one or more goods or a wide range. However, in this situation, sanctioned countries such as Iran will try to replace the import of goods from other countries to overcome the obstacle of sanctions. Still, this issue may cause a shortage of goods and increase their prices.

Therefore, economic sanctions lead to a decrease in the supply of essential goods in the livelihood of people in the society, and the increase in prices, especially the cost of essential goods, can aggravate the rise in poverty in sanctioned countries, including Iran.

Conflict and war are other factors affecting poverty, which, according to the scenarios of the first group in Iran in 2043, had an unfavorable situation. The findings of Nademi and Hasanvand's study have shown that the war has had a positive and significant impact on poverty due to the conditions of war and the destruction of facilities, infrastructures, structures, and the allocation of resources to finance the war. This effect will have significant or catastrophic dimensions [100].

According to studies, wars, violence, and national or regional unrest disrupt society and create more poverty in affected areas [103, 104]. Also, war and political changes affect security, stability, livelihood, prosperity, and economic growth [105].

Wars such as imposed war are not only associated with the destruction of technical and physical infrastructure, factory production capacities, and farms, but all members of the society, especially people with low incomes, suffer a lot from war. During the imposed war in Iran, the government borrowed the reserves of the social security organizations and proceeded to repay it with a long delay and without taking into account the interest, and took steps to weaken the financial situation of the social security organization [106].

Also, population policies imposed during the war increased the burden of living for low-income families and decreased their per capita income. At the same time, government spending on health services and subsidies also increased, and finally, with a two-decade delay, the young population entered the labor market. The labor supply increased when there were no job opportunities, and as a result, the unemployment rate among the youth also increased. As a result of this situation, fewer savings were formed in the public and private sectors, less investment, and lower economic growth [106].

Another factor that can cause poverty, and according to the scenarios of the first group, which has an unfavorable situation in Iran in 2043 compared to the present, is the low level or lack of education. Becker and Schultz believe education and training will reduce poverty by increasing human capital. It seems that the increase of human capital means the increase of knowledge, skills, expertise, and training of people in two-income and non-income ways, that is, on the one hand, by increasing the level of income due to the improvement of education, and on the other hand, through how to make appropriate and optimal decisions in consumption resulting from income and efficient and effective production decision-making, resulting from increasing the level of knowledge and awareness, will be effective in reducing poverty [107].

The level of access people have to income is related to their level of education and physical health, and the difference in the level of income is associated with the difference in the level of education and physical health [107]. Mincer also described the revenue function in which income distribution depends on individual differences in education and training [108].

Mohammadzadeh *et al.*, in their study on poverty and its determinants, showed that improving education is one of the most essential factors in reducing household poverty and contributes 24.2% to lowering the probability of household poverty [109]. Poorly educated people have limited opportunities to succeed in a dynamic work environment. It seems that the increase of human capital in the form of the level of education, especially of the heads of households in deprived areas, can help to obtain a source of income and employment and, as a result, reduce poverty through the expansion of formal and informal education and the development of technical and professional skills and capabilities.

Accidents and incidents are another factor affecting poverty, which, according to the scenarios of the first group in Iran 2043, is unfavorable. Junior *et al.* [110], Jia *et al.* [111], and Sawada and Takasaki [112] have each pointed out in their studies that accidents and disasters (natural or unnatural) have been one of the factors affecting the occurrence of poverty disasters.

Lack of jobs and sources of income are other essential factors in poverty, and they play an important role in this field. Based on the findings of the present study and the scenarios of the first group, this factor of poverty will also have an unfavorable situation in Iran in 2043. The occurrence and aggravation of poverty due to a lack of job and/or source of income are also mentioned in the studies of O'Campo *et al.* [113], Probosiwi [114], Hassan, *et al.* [115], Muhammad and David [116] and Quy [117]. Employment and having a certain Shariah-compliant and accepted job is considered the most important source of income for groups and households. Therefore, people who do not have a job and a specific source of income and are so-called unemployed will be deprived of the necessary income to meet their basic needs. On the other hand, the limitation of markets and the expansion of economic records will be a reason for the aggravation of unemployment and the increase in the intensity and volume of poverty in society. Also, the lower the participation of the active labor force in economic activities, the more the level and intensity of poverty in the society will increase.

Financial corruption is one of the other factors affecting poverty, which, in the scenario of the first group, will be an unfavorable situation in the future of Iran in 2043. The findings of Mehrgan and Mohseni's study showed that poverty and corruption go hand in hand and in the same direction. In other words, the causal relationship between them is two-way [118]. The correlation between poverty and corruption has also been confirmed in the studies of Husted [119], Gupta [120], Besong [121], and Jong and Khagram [122]. In a study, Dincer and Gunalp investigated the effect of corruption on income inequality and poverty in the United States. Their research findings indicated that increased corruption will lead to a rise in inequality and poverty [123]. It seems that

corruption affects poverty by affecting economic growth factors. This means that corruption has prevented the market from becoming competitive by reducing economic investment and distorting the market, and this issue brings the economy's inefficiency. In this way, economic activity costs increase, and income inequality expands. On the other hand, corruption can lead to the inability to encourage domestic and foreign investments, diverting public funds for personal purposes and rentier activities [87].

Such activities operate informally and do not pay taxes, thus reducing tax revenue [87]. Finally, it should be mentioned that corruption will lead talents from productive activities to non-productive activities. As a result of all these complications, corruption will be the basis for the emergence and aggravation of poverty [88]. On the other hand, it can be said that corruption affects poverty by affecting government agents. Poor governance, corruption, and inadequate infrastructure deprive governments of opportunities, wealth, and resources and deprive access to essential goods and services. For example, corruption destroys government institutional funds meant to provide quality public services, diverting public funds from basic and public needs to capital projects (which are more corruptible) and increasing government budget pressures [89].

Among the other factors that, according to the scenarios of the first group in Iran 2043, have an unfavorable situation is the lack of economic and social growth and development. During recent studies, it has been reported that the benefits of economic growth reduce absolute poverty in such a way that the growth of average incomes benefits poor people. On the contrary, a country's lack of economic growth and development can cause poverty and its aggravation [124-127]. The results of Nadami and Hassanvand's study showed that the economic growth rate had a negative and significant effect on poverty, which means that the economic growth rate is associated with job opportunities for people in society. As a result, with the rise in employment, the percentage of poor people decreases [100].

Finally, the lack of support from the government and supporting institutions is one of the factors affecting poverty, which, according to the scenarios of the first group, will be an unfavorable situation in Iran in 2043. Ochilov and Najibullah's study has mentioned the critical role of governments and their support program in reducing societal poverty [128]. Governments can be essential in increasing income, reducing and eliminating poverty. The importance of this role depends on the economic system governing the society, without sufficient support from governments, especially when people need to obtain the basic needs of life or improve education. Their career prospects are struggling. Poverty is an imaginable phenomenon. In this regard and the direction of poverty reduction and poverty alleviation, the government's support in the form of rural development through the creation of construction Jihad, the construction of rural roads, the provision of health and educational services, the provision of essential goods needed by the people in the city and the rural areas at a subsidized price, covering people under the supervision of supporting organizations and institutions, it is recommended to establish housing cooperatives and offer low-interest loans, expand social insurance coverage, and expand free educational and health services in cities and villages.

Scenarios of the second group: scenarios with a calm nature and maintaining the status quo along with the aggravation of mismanagement and lack of support from the government and supporting institutions

The second category of scenarios includes scenarios in which the status of most of the factors and variables that make it up will proceed according to the existing conditions, and there is no possibility of an unfavorable situation occurring in the next 20 years, i.e., in Iran 2043, for some factors. The second and third scenarios are included in this category. The typical features of the scenarios of this group are given in Table **11**.

The third and fourth scenarios indicate a situation similar to the current conditions for sanction, conflict, and war, low level or lack of education, lack of jobs and source of income, financial corruption, and unequal distribution of material resources. However, in the third scenario from the second group of scenarios, mismanagement and lack of support from the government and supporting institutions in Iran 2043 will go unfavorably.

**Table 11. The commonality of the scenarios of the second group.**

| The Second Group | Scenarios | Commonality |
|---|---|---|
| Scenarios with a calm nature and maintaining the status quo along with the escalation of mismanagement and lack of support from the government and supporting institutions | The third scenario The fourth scenario | • Sanction: Similar to the current situation<br>• Conflict and war: Similar to the current situation<br>• Low level or lack of education: Similar to the current situation<br>• Lack of job and source of income: Similar to the current situation<br>• Financial corruption: Similar to the current situation<br>• Unequal distribution of material resources: Similar to the current situation |

**Table 12. The commonality of the scenarios of the third group.**

| The Second Group | Scenarios | Commonality |
|---|---|---|
| Scenarios with a favorable trend along with the current state of sanctions | The fifth scenario The sixth scenario | • Mismanagement; Reduction compared to the current situation<br>• Conflict and war; Reduction compared to the current situation<br>• Low level or lack of education; Reduction compared to the current situation<br>• Accidents and natural disasters; Reduction compared to the current situation<br>• Unequal distribution of material resources; Reduction compared to the current situation<br>• Unplanned population growth; Reduction compared to the current situation<br>• Lack of support from the government and supporting institutions; Reduction compared to the current situation |

***Scenarios of the Third Group:*** Scenarios with a favorable trend along with the current state of sanctions

The third category of scenarios includes the fifth and sixth scenarios. In these two scenarios, the common factors similar to the current situation include sanctions, lack of jobs and sources of income, financial corruption, and lack of economic growth and development. The typical features of the scenarios in this category are presented in Table **12**.

The factor that has not seen a favorable situation in all scenarios and, finally, in the scenarios of this group (the third group), which has a situation similar to the current trend, is sanctions. As explained earlier, economic sanctions against Iran have a long history. Of course, their intensity has been different over the years. As mentioned in the scenarios of the first group, sanctions have a positive and significant effect on poverty. In other words, with the increase in the degree of economic sanctions against Iran's economy, poverty in the country increases.

Therefore, according to the research findings and considering the impact of sanctions on the increase in poverty in the country, adopting urgent measures of international and human rights forums to cancel severe oily, financial, commercial, and banking sanctions against Iran is a vital issue.

## CONCLUSION

Based on the findings of the study and emphasizing the scenarios of the first group with a high probability of occurrence, nine factors (mismanagement, sanctions, conflict and war, low level or lack of education, accidents and natural disasters, lack of jobs and sources of income, financial corruption, lack of economic growth and development and lack of support from the government and supporting institutions), from the 11 final factors affecting poverty in Iran 2043 will have an unfavorable situation. Therefore, it is recommended to plan poverty alleviation and policy to cover the existing deficiencies by focusing on these nine factors.

In this regard, employing knowledgeable and experienced managers in sensitive positions, empowering managers by holding relevant workshops and training courses, striving to lift sanctions through international negotiations, avoiding any internal and external tensions and wars, improving the level of literacy in society, preparing for and improving the state of infrastructure to deal with natural disasters and accidents, creating jobs at the micro and macro levels, especially for the young workforce, and comprehensively combating financial corruption in all organizations and administrations are recommended.

## AUTHORS' CONTRIBUTIONS

ARY designed the study and prepared the initial draft. ARY and MMA contributed to data collection and data analysis. ARY, SB, and RF have supervised the whole study and finalized the article. All authors have read and approved the manuscript.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study is approved by the Social Security Organization Research Institute Ethics Committee Iran with the ID number 2014022652.

## HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

## CONSENT FOR PUBLICATION

Informed consent was obtained from all the study participants.

## AVAILABILITY OF DATA AND MATERIALS

All the data are presented as a part of Tables or Figures. Additional data can be requested from the corresponding author [A.R.Y].

## CONFLICT OF INTERESTS

The authors declare that they have no competing interests.

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