Analyzing the Inequality and Welfare Status in Iran and Its Competitors: Applying Multi- Criteria Decision-Making Techniques

Yadollah Dadgar

Professor of Economics, Beheshty University, Iran. Email: y_dadgar@sbu.ac.ir
(Correspondent Author)
Rouhollah Nazari
Ph.D. in Economics, Ferdowsi University, Iran, Email: rnazari2004@gmail.com

Abstract

Inequality and welfare have ever been two social-economic concerns in so many countries the significance of which increased after the inception of development economics in 1950. In the beginning, inequality and welfare status, IWS, was evaluated solely on the unidimensional and only economic-centred issues. After the 1970s (the first wave of socio-economic changes), and especially in the 1990s (the second wave of changes), and in the continuation of 21 century the multifaceted nature of inequality and welfare became visible. The importance of social and political aspects of inequality and welfare status, IWS, came up visa vis to economic problems. This article is analyzing the situation of IWS, for Iran and some selected countries amongst its competitors, South-West Asian ones, for 1980-2020. Selected countries include Azerbaijan, Qatar, Turkmenistan, Afghanistan, Uzbekistan, Jordan, Kazakhstan, Tajikistan, Lebanon, Armenia, Bahrain, Egypt, Georgia, Saudi Arabia, Iraq, Oman, Pakistan, Kirghizstan, Yemen, Kuwait, Emirate, Turkey, and Syria. Due to their multidimensional nature of inequality and welfare, applying the ordinary instruments for analyzing their IWS, is not working properly. Hence this article is using Multi-Criteria Decision-Making techniques. Also due to deficiencies of ordinary economic indexes for investigating inequality and welfare status, IWS, this paper is using different indices for exploring the situation of education, health, environmental issues, and so on alongside economic indexes. Meanwhile, as the Iranian economy has a specific structure, we maintain one presupposition in this article. That is: "the trend of any variable in Iranian economy including IWS, is affected by two-pack factors; Usual-Technical Factors, UTFs, on one hand, and Primal or Cause of cause Factors, PCFs on the other hand". The results indicate the calamity of IWS in Iran and a few of the above-mentioned countries. The urgency of sufficient investment in improving the social, environmental and political institutions of countries in question is one policy implication of this research.

Keywords: Welfare Economics, Regional Economics, Multi-Criteria Decision-Making techniques, Iran.

JEL Classification: D63, H12, H11, O12

1-Introductiona

Witness to the popularity of welfare, there is no consensus regarding this concept and there is considerable ambiguity about the meaning of welfare. Welfare in general impression, includes prosperity, happiness, health, success, and the like (Fitzpatrick, 2001; Greve, 2008). Van Praag (1993) sees welfare as another expression of utility. Pigou (1950) considers money as the only way to measure welfare. McGregor (2007) believes that as the development studies are concerned, welfare is not a new concept. Traditionally speaking, the real per capita income has been used as a prevalent index of economic welfare. Also, sometimes consumption has been used as a counterpart for per capita income in the definition of welfare. For different reasons (including distributional concerns), however, consumption and per capita income as effective indexes for welfare have been objectionable. Critics argue that the consumption and per capita income as welfare indicators, disregard the distributional considerations

Thus, welfare authors have been investigating more paramount indices for economic welfare. Osberg and Sharpe (2001) have been considering a more comprehensive measure that includes all dimensions of welfare. Consumption, wealth, economic security and income distribution are typical aspects of the above-mentioned measures. Findings of welfare and inequality studies can potentially help governments and policymakers to resolve the inequality and to improve welfare conditions as well. Thus, ranking the inequality and status, IWS of different countries on one hand and employing compound indices to evaluate the current situation of welfare and inequality are fruitful and necessary efforts.

As inequality can be construed as a sub-index of welfare, thus emphasizing welfare encompasses inequality as well. Sharpe (1999) stresses 3 questions regarding welfare; what is our

current position in welfare? , what are our goals and destination? , and how can we achieve the goal in question? Similarly, this article is going to discuss those questions and their possible answers for Iranian IWS and its competitor countries, among South-West Asian Countries. So, in the beginning, this article discusses the first question of Sharp, that is, what are the place and position of welfare and inequality of Iran and its competitors? Another mission of this research is to offer a ranking status of countries in question in different economic, social and political aspects regarding welfare and inequality. From a welfare and inequality perspective, selected countries (South-West Asian ones), are Iranian competitors in Iran 2025 plan.[1] The second section of this article deals with a literature review, followed by an analysis of welfare and inequality in Iran. Methodology and result analysis come after and finally concluding remarks are the last section of this article. A key presupposition of this article is its two-stage arguments regarding the factors behind IWS of Iran; Usual -Technical Factors, UTFs, and Primal, or cause of the cause Factors, PCFs. For instance, if high inflation, low economic growth, high unemployment among low-income groups and non-standard tax-subsidy framework in Iran are technical factors behind the bad IWS as such, bad governance, lack of well-developed private sector and other similar structural factors are primal and original factors behind the above-mentioned technical factors. In this article the latter factors are called, Primal Cause, or Cause of the cause Factors, PCFs in Iranian economy generally and in case of IWS particularly. Nevertheless, as the main obstacles and primal causes of the Iranian economy are specified in different studies (Dadgar, Nazari 2018, typically), this article does not go through them in detail while considering those findings as the backbone of the main propositions in this article.

2-Theoretical foundations and literature review

One can point out to works of William Ogburn (1950) as the first and seminal works to exemplify the inequality and welfare circumstances. Then "the social indicator movement institute" introduced welfare and inequality as a multidimensional issue in the 1960s. This effort and bailed out the direction of welfare and inequality from the monopoly of economics. For, before that, welfare was excessively maintained on mere economic aspects. After the 1970s, however, some non-economic factors, including health care, education, environmental considerations, and so forth were added to economic ones. Thus, nowadays paying attention to the multidimensional nature of inequality and welfare is an obvious reality (Noll, 2004; Zarzosa Espina & Somarriba Arechavala, 2013).

Historically speaking, the trend of social welfare indicators has been improving during the time. For instance, by launching the social science research council in the USA in 1970, welfare analysis and welfare policies achieved a relatively superior status. By dominating some conservative governance in the 1980s, government support of social welfare declined a great deal. During the same period, however, Osberg (1985) and others recommended a new pack of welfare indices. They suggested the following elements as the components for welfare indices: average consumption, accumulation of productive resources, the income distribution status, and degree of uncertainly with respect to the future income. The weight of each of the above-mentioned components could be different because it was coupled with the mentality and evaluation of different societies. By introducing combined indices for welfare in the 1990s and the continuation of 21-century, the welfare framework entered into a new phase. In other words, a remarkable number of economists and other social scientists accepted that social welfare cannot be measured solely by economic aspects and per capita income. They rather believed to deploy a multifaceted pack indicator to have a reliable investigation about welfare and inequality. For, economic issues

alone and the growth in per capita income perse will not necessarily lead to higher well-being for citizens (Daly, 1996; Falkingham et al, 1997).

Consequently, the welfare experts have been extending the index basket of welfare from sole economic to social-political and institutional ones. In direction to the above development, international organizations including World Bank, and United Nations have been using synthetic indicators for welfare which encompasses, health, education and income. Anyway, and as social welfare is concerned, in continuation of the 21 centuries, the multidimensional and synthetic indicators have been replacing the unidimensional ones. Synthetic indices provide the groundwork for comparing the welfare status of different countries on one hand and are used to describe complicated problems in economic, social, technological and environmental dimensions of life on the other hand (OECD, 2008).

Osberg and Sharpe (1998; 2002), indicated the increasing trend of social welfare in Canada during the 1971-1997 period. They also studied the index of economic well-being, IEWB, for OECD countries and proved that the growth of IEWB has been significantly lower than that of the GDP index. Meanwhile, some studies show that IEWB has had an increasing trend in OECD countries from 1980 through 2007 (Osberg and Sharpe, 2003, 2009). The result of the work of Hosseini and Jafari Samimi (2010) indicated that using per capita income as a welfare index, overestimated the growth of well-being in Iran. They have also proved that the welfare role of economic security and consumption has been greater than that of wealth and income distribution.

Alderson and Doran's (2010) research indicated that the inequality and welfare of both middle-income and higher-income countries are changing in such a way that middle classes are approaching the upper classes. Middle-income countries in above –mentioned countries included the Check Republic, Slovakia, Poland, Russia, and Taiwan, and upper-income countries embraced

the UK, USA, Sweden, and Germany. By looking over inequality in the UK, Jin et al (2011) stressed that despite the fact per capita income in the UK was raising, the distribution of income suffers from inequality. By estimating the synthetic welfare index for Iran in the 1968-2011 period, Mohaqeqi Kamal (2014), specified that the synthetic welfare index illustrated the welfare status in Iran stronger than mere economic indices. By ranking, the welfare of provinces of Iran from an environmental perspective, Lotfi and Rashidi (2015), showed that a few Iranian Provinces do obtain a high rank in improving environmental issues.

By using the TOPSIS method and investigating the welfare of the European Union for the 2004-2013 period, Balcerzak and Pietrzak (2016), showed that the majority of countries in question have had a desirable improvement, as sustainable development indices are concerned. Kiszkiel (2017) in analyzing the inequality status of OECD in the 2011-2013 period, concluded that inequality in France, Denmark, Norway, Iceland, Finland, and Belgium is lower than in Chile, Mexico and Turkey. Thus, the former group is classified as lower inequality countries, whereas the latter is categorized as countries with higher inequality ones. By ranking 27 countries of the European Union, Mateusz et al (2018) indicated that, as goals of sustainable development are concerned, Austria has achieved the best status and Romania the least. Namazi and Mohammadi (2018), Azimifard (2018), Stecyk (2019) and Solangi et al (2021) all have been using the TOPSIS method as an efficient way to evaluate the sustainability of social welfare. They concluded that using reproducible and renewable energies is suitable to safeguard sustainability in different countries including Pakistan and Iran (Abbasian and Daliri 2012; Abdoli et al, 2017).

3-Analyzing welfare and inequality in Iran

Equitable distribution of income has ever been at the center of policymaking, and using inequality indicators are suitable instruments for analyzing the performance of countries in case of welfare

(Dadgar et al, 2008). Investigating the income distribution in Iran indicates that inequality in Iran has been problematic especially in 1982-1983, 2006-2007 and 2018 onwards. Due to the high inflation, the troublesome subsidy program in Iran does not have a significant and positive impact on welfare and equality (CBI, 2021). In addition to high inflation, another reason for the inefficiency of the Iranian subsidy program is its cash centered framework. There is a consensus of experiences in failing of paying subsidies in cash. Thus, high inflation, paying subsidies to consumption, paying subsidies to all population (and not just poor people), and cash style subsidy, are key factors behind the failure of the subsidy program in Iran. Figure 1 indicates the trend of the GINI coefficient in Iran for the 1980-2020 period.

Figure 1. Gini coefficient trend in Iran, 1980-2020
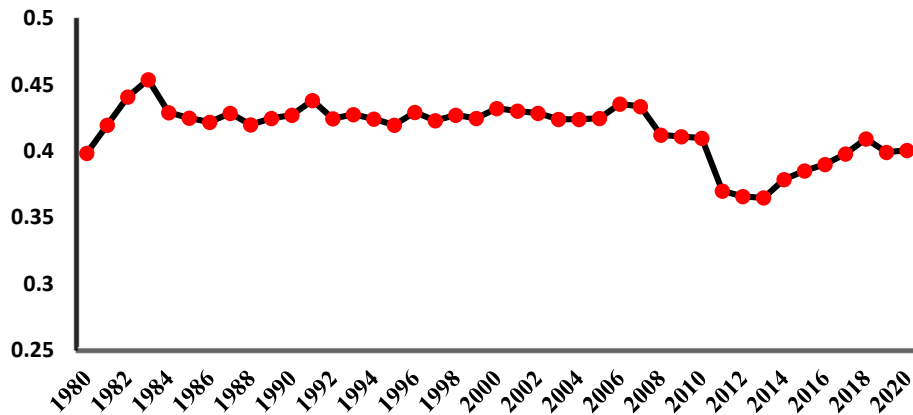
Source: Authors compilation based on data from the Central Bank of Iran (SBI 2021)

At the same time, and as inequality is concerned, the role of high inflation in failing the Iranian subsidy program is number one. Iranian unprecedented inflation rate downgrades the welfare and inequality trend altogether. Falling welfare generally and worsening the standard of living of low-income groups particularly, are two obvious hardships in the trend of IWS, of Iranian citizens. Imposing inflation rate between 31.2% through 47.1% in Iran between 2018 to 2021 led to increasing the cost of living and raising the poverty line to 38%. In addition to Primal and cause

of cause Factors, PCFs, including structural elements, bad governance, and public corruption in Iran, the inflationary expectation from winter 2017, and exiting the US government from the "Joint Comprehension Plan of Action" of Iran Nuclear program, are the main factors behind high inflation in question. Cutting exports and inaccessibility to sell crude oil are other factors behind the current Iranian economic crisis. Continuation of bad governance, and Covid19 aggregated the case in this country (Farzanegan and Alaedini, 2016; MCLSW, 2021; CBI, 2021; SCI, 2021; World Bank, 2021).

Pointing out two structural deficiencies in the Iranian economy could be helpful to illustrate the significance of the economic crisis in question. In addition to bad governance, international sanctions and so on, there are some other difficulties in the Iranian economy. Typically, there is neither an efficient taxing system nor a well-developed private sector in Iran. Due to these two shortcomings, the Iranian economy suffers from a lack of a usual source of financing its public expenditures, and it relies on revenue from selling crude oil. Bad governance and sanctions (albeit as another outcome of bad governance), led to emerging new obstacles in exporting crude oil and thus lessening the main source of financing public expenditures too. The Covid19 aggravated the case, reduced the potential demand and continued the stagflation in this country (MCLSW, 2021; SCI, 2021a; World Bank, 2021). Figure (2) indicates the trend of the inflation rate in Iran for 1980-2020.

Figure 2. The trend of inflation rate, 1980-2020
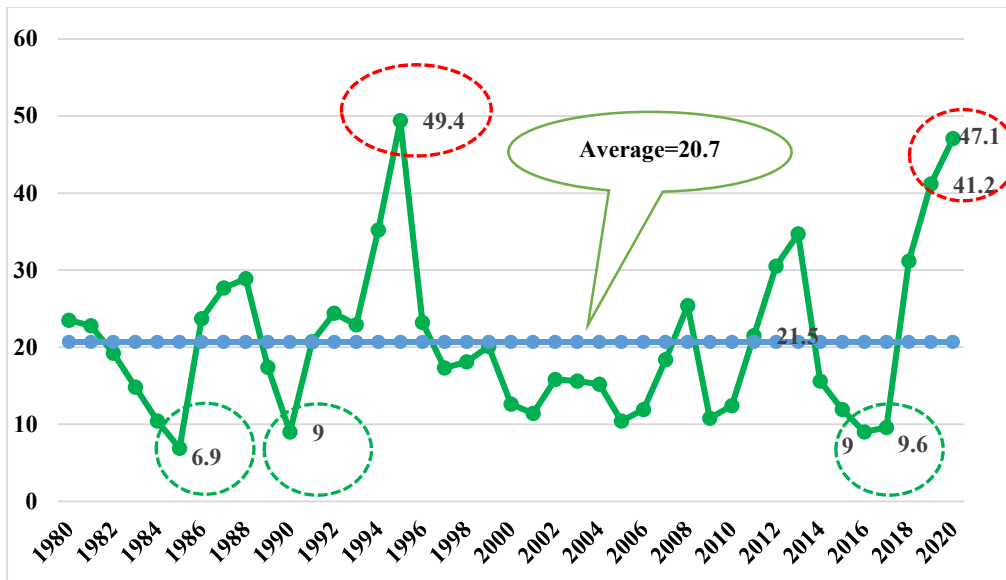
Source: Authors compilation based on data from the Central Bank of Iran (CBI 2021)

As figure (2) shows, the inflation rate in May 2018 raised to 51.1%, it decreased slightly in 2019 and increased rapidly afterwards. Shortage of oil revenue, massive budget deficit and continuation of bad governance are the main factors behind the high inflation rate in 2021. These at the same time have been worsening the IWS as well. A byproduct of bad governance in Iran which intensifies the inflation rate and in turn declines the standard of living is the lack of efficient instruments to finance the budget deficit and letting it rely on borrowing money from the central bank and banking system. Due to low GDP growth, this bad policy will strengthen the raising trend of liquidity, increase government debt and brings about a higher inflation rate. This problematic process will bring the economy into a blind, vicious circle. Imposing 47.1% inflation in 2020-2021 will naturally reduce the well-being of citizens. At least, 30% reduction in Iranian per capita income is a consequence of the above-mentioned bad processing (MCLSW, 2021; SCI, 2021a). One can add the unemployment rate to the above blind circle in the Iranian economy. Iranian economy after a revolution has ever endured a double-digit unemployment rate as well. This rate has fluctuated between 10 to 14 percent. Figure (3) indicates the trend in question. Not surprisingly and due to lower labor participation, 2020 shows lower unemployment which is drastic. The

participation rate fell about 3% and approached 41.3% in 2020. Also, the employment rate of 15 years and above approached 37.3% which is 2.1% lower than 2019. On average, the unemployment rate is about 12% during 1980-2020 (figure 3).

Figure 3. The trend of unemployment rate 1980-2020
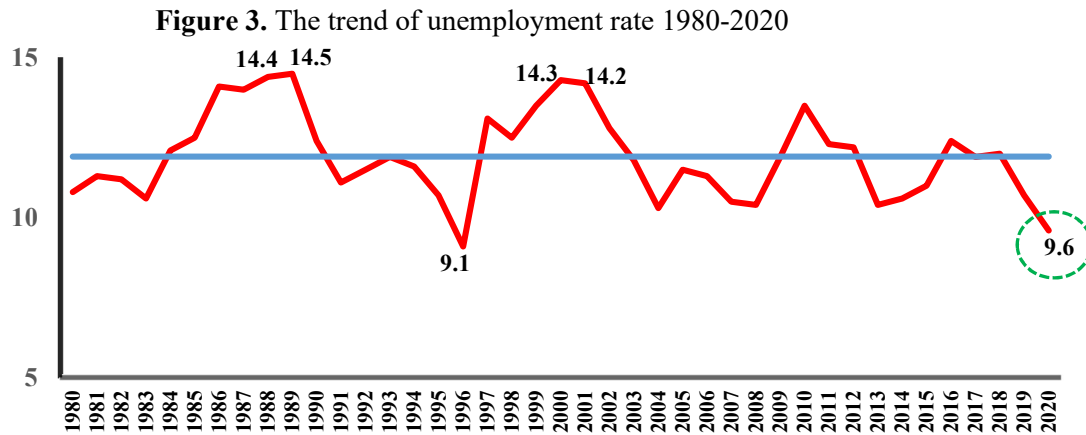
Source: Authors compilation based on data from the Statistical Center of Iran (SCI 2021)

1996 has shown to have the lowest rate of unemployment in Iran which is due to economic reform. The rising unemployment rate along with high inflation worsened the IWS of Iranian citizens much more. Higher unemployment in the low group income led to losing income in these groups as compared to upper-income groups. Thus, the change in all variables including economic growth, inflation rates and unemployment rates, have had a much more declining role on earnings of lower-income groups and eventually intensified the problem of IWS in Iran too. As the three bottom deciles in Iran make up 51% of employees and three deciles of higher-income form 22%, the rising unemployment, the Covid19 period had much pressure on former groups and consequently intensified more the inequality (MCLSW, 2021). Figure (4), indicates the share of different income deciles in Iran.

Figure 4. The share of income deciles in Iran.

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |

■ Share of First Decile (Percent)   ■ Share of Second Decile (Percent)
■ Share of Third Decile (Percent)   ■ Share of Fourth Decile(Percent)
■ Share of Fifth Decile(Percent)   ■ Share of Sixth Decile (Percent)
■ Share of Seventh Decile (Percent) ■ Share of Eighth Decile (Percent)
■ Share of Ninth Decile(Percent)   ■ Share of Tenth Decile (Percent)
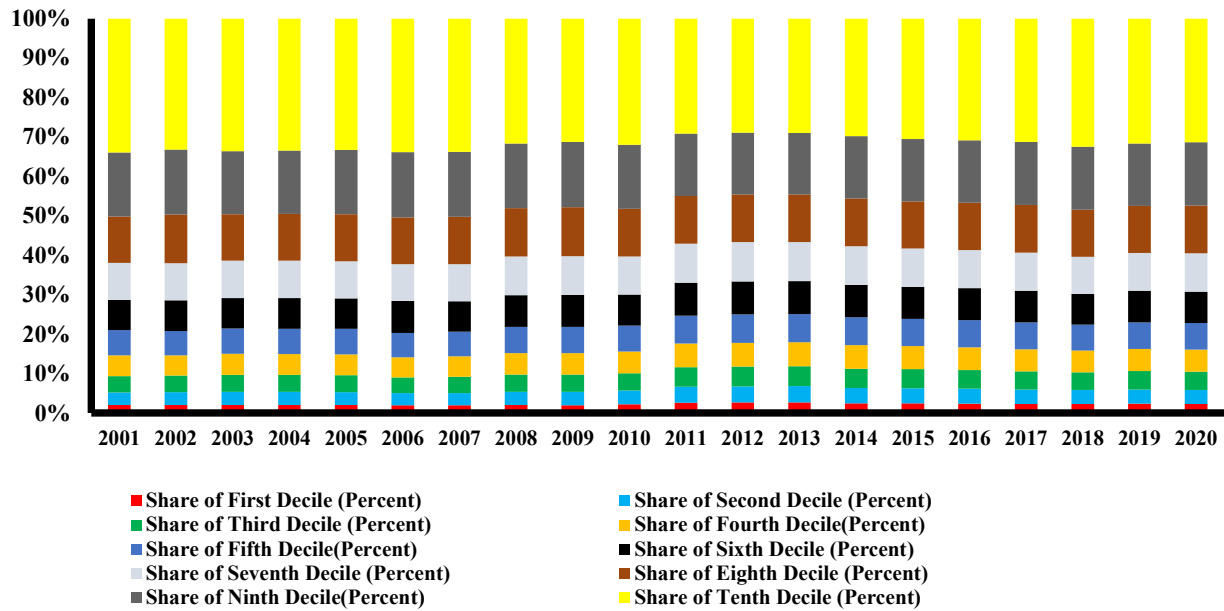
Source: Authors compilation based on data from the Statistical Center of Iran (SCI 2021)

In sum, structural deficiencies in the Iranian economy, and bad governance are the main elements and primal factors, PCFs, that led to low welfare and high inequality for Iranian citizens. Of course, COVID19 aggravated the case especially in 2018-2021. Lack of positive growth in GDP and its reduction in the Covid19 era, raising unemployment of low-income classes and rapid upraising inflation rates are some usual and technical factors, UTFs, that downgrade the IWS in Iran in the period in question. Unlike other governments, the Iran government support during the Covid19 era, was too low to influence the welfare of low-income and unemployed groups. For, the support pack was less than 50-dollar loan (and not transfer payment) for 3 months. Obviously, that support was unable to raise, the demand and consumption of low-income groups significantly. Share of living costs of different groups of households could be construed as another sub-index of income distribution and welfare status of citizens. The increasing trend of cost of living for the last 5 deciles and decreasing trend for the first 5 deciles could be a significant reality to show the hardship status to welfare and inequality in Iran. This is independently a symptom of widening the gap of inequality. The ratio of cost of living of 10, 20 and 40% of highest income group to the lowest one of the populations is used as another sub-index for income distribution (SCI, 2021a). Specifically, the share of 20% of the lowest income and 20% of highest income groups indicates the amount each two lowest and two highest deciles obtain from the national income. Figure (5) shows the share of 10, 20 and 40% of

highest income to that of lowest ones and Figure (6) displays the cost share of 20% of lowest income and 20% of highest income population.

Figure 5. The share of 10, 20 and 40% of highest income to that of lowest ones
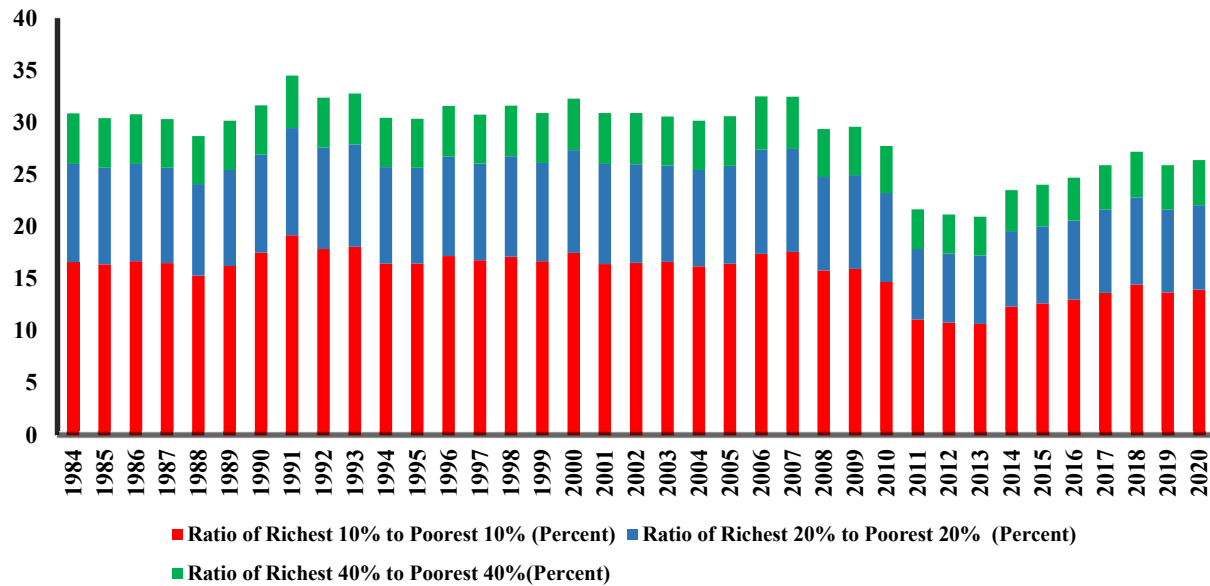
Source: Authors compilation based on data from the Statistical Center of Iran (SCI 2021)

Figure 6. The cost share of 20% of lowest and 20% of highest income population
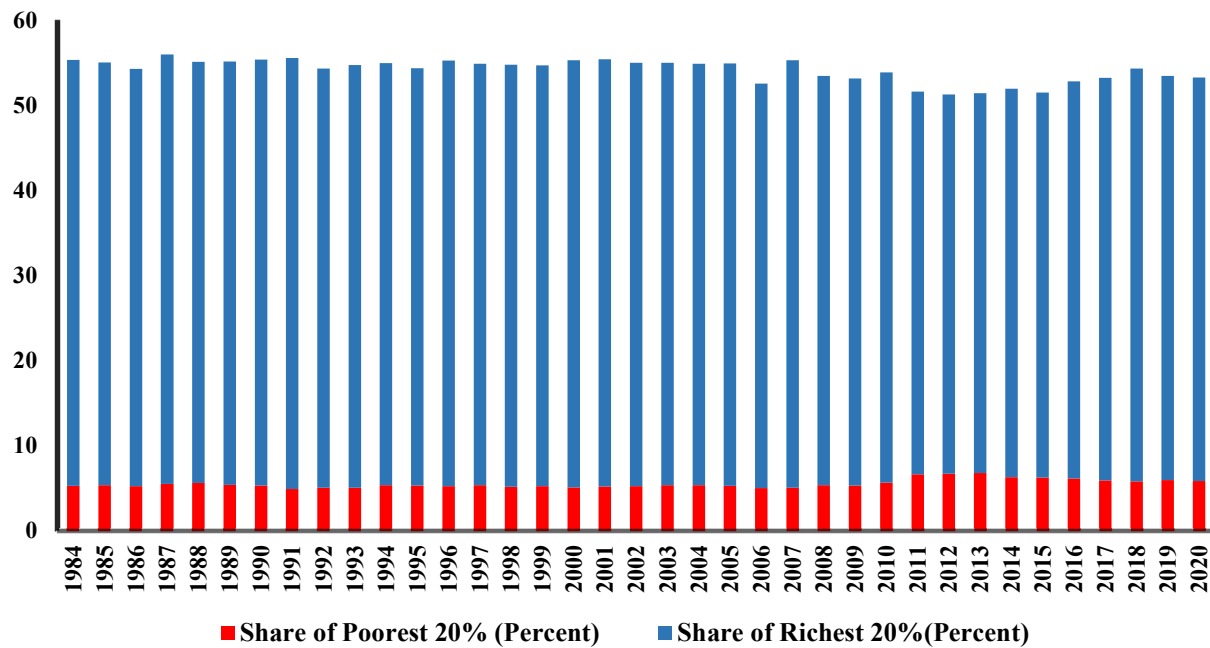
Source: Authors compilation based on data from the Statistical Center of Iran (SCI 2021)

As above mentioned, figures and related analysis show, the inequality gap in Iran is a crucial problem in this country. Palma and Atkinson are other indicators for income inequality and income distribution. Generally speaking, they show the promotion and the demotion of the income distribution. Figure (7), illustrates the Palma index for Iran in 1984-2020.

Figure 7. The trend of Palma index, 1984-2020
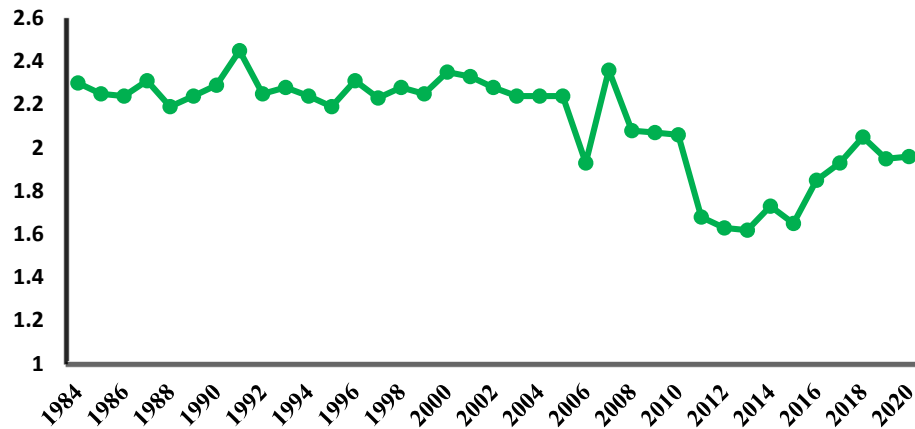
Source: Authors compilation based on data from the Statistical Center of Iran (SCI 2021)

Palma coefficient (belonging to Gabriel Palma, a Chilean economist), is a comparative index among poor and rich. It is the ratio of the richest 10 % of the population share of Gross National Income divided by the share of the poorest 40%, of the same index. This index is significantly conclusive about the change in share of 10% of richest and 40% of poorest from the cost of living. It indicates that especially for 2019-2020, the cost of living of the 10th decile (that is the richest one) is two times the total cost of living of 40% of poorest population income groups from decile 1 to decile 5. Figure (8) shows the trend of two other inequality indices; Theil and Atkinson. The amount of these two indices like the Gini coefficient is between zero and one. Approaching one indicates the worse status of inequality. The increasing trend of all these indices illustrates the undesirable situation as income inequality and welfare are concerned.

Figure 8. Theil and Atkinson indexes in Iran 1984-2020
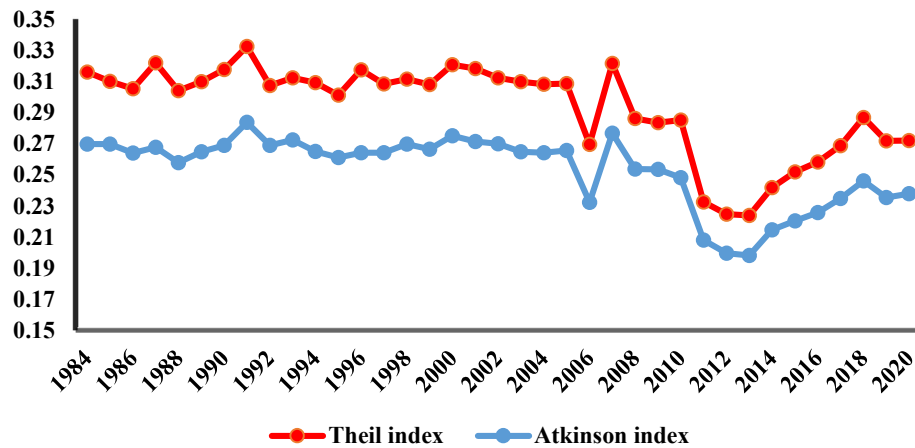
The primal cause and causes of the cause, PCFs, of difficulties of welfare and inequality in Iran are bad governance and some structural issues. We do argue that international sanctions are the effect of bad governance as well. High inflation and double-digit unemployment, Dutch Diseases, rentier government and resource curse are also other effects of those primal factors and not the usual and Technical Factors, UTFs in question. Inefficient distribution of revenue (released from subsidy program) is another effect of bad governance and a crucial factor behind welfare and inequality conditions. Huge speculation in the exchange market and the stock market, distributing rent rents among wealthier groups, all and all intensify the gap between poor and rich. Speculation activity in housing, gold, land and dollar is another factor to worsen the inequality gap. The rapid rise in house rent and housing prices is another factor for widening the gap in inequality and welfare in Iran. Not surprisingly, the share of housing in the cost basket of Iranian citizens has raised from 30% to about 60%. As the majority of poor do not own houses or apartments and are among applicants for renting a shelter, the rapid increase in the cost of housing would impose a new pressure on them (MCLSW, 2021; SCI, 2021a; World Bank, 2021).

4- Methodology

Due to the role of ranking the IWS for Iran and its competitors, in this article, it is necessary to notice the key elements of both TOPSI and VIKOR.

4-1. TOPSIS and VIKOR Methods

Hwang &Yoon (1981) introduced the TOPSIS method or method of ranking according to "similar through the ideal solution". The more similarity an option does have to the ideal solution, the higher its rank would be (Tang et al. 2019). This method is used in Multiple Attribute Decision Making, MADM. According to the TOPSIS method, firstly two reference options are selected. One is a positive ideal solution and another one is the negative ideal solution. The distinctive criterion in TOPSIS is the closeness of the options to the positive ideal and away from the negative ideal solution. For, in positive ideal, we are looking for a maximizing profit and minimizing cost solution (Kacprzak 2019; Li et al, 2020). Reversely, in a negative solution, the cost is maximizing and profit is minimizing. The advantages of TOPSIS are much more than other multi methods. These advantages include avoiding value judgment, simultaneous applying of quantitative and qualitative methods in analysis, diversity of criteria, easiness and speed of calculation, the possibility of weighting and its clear mathematical logic (Shanian, 1987; Srdjevici, 2004; Vidal & Sánchez-Pantoja, 2019). Another advantage of TOPSIS is its clear mathematical logic.

TOPSIS stages and procedures: in a multi-criteria decision-making case, with n criteria and m option, selecting the best option encompasses the following criteria:

1- formation of decision matrix: Considering the number of criteria and different options, the decision matrix would be:

$$X = \begin{bmatrix} x_{11} & \cdots & x_{1n} \\ \vdots & \cdots & \vdots \\ x_{m1} & \cdots & x_{mn} \end{bmatrix}$$

Where x_{ij} is the performance of option i with criterion j.

2- de-measuring the decision matrix and defining matrix R would be:

$$R = \begin{bmatrix} r_{11} & \cdots & r_{1n} \\ \vdots & \cdots & \vdots \\ r_{m1} & \cdots & r_{mn} \end{bmatrix}$$

The following equation is used for de-measuring:

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}}$$

 In case of low distance between measured items, for de-measuring one can use the following equation:

$$r_{ij} = \frac{x_{ij} - \min\{x_{ij}\}}{\max\{x_{ij}\} - \min\{x_{ij}\}}$$

$$r_{ij} = \frac{\max\{x_{ij}\} - x_{ij}}{\max\{x_{ij}\} - \min\{x_{ij}\}}$$

3- Determining the weight vector of criteria: The weight vector of criteria is defined as:

$$W = \begin{bmatrix} w_1 & w_2 & \cdots & w_n \end{bmatrix}$$

Where the elements vector, W, is the significant coefficient of criteria in question. The positive or negative variables indicates the development or non-development of cases in question.

4- Determining weighted and de-measured decision matrix: This matrix is the outcome, multiplying weighted and de-measured decision matrix by vector of weight of criteria as follows:

$$v_{ij} = w_j r_{ij} \qquad j = 1,\ldots, n; \quad i = 1,\ldots, m.$$

5- Finding ideal and anti-ideal solutions: If we define ideal solution with A^* and anti-ideal solution with A^-, we will have:

$$A^* = \{v_1^*, v_2^*, \ldots, v_j^*, \ldots, v_n^*\}$$

$$A^- = \{v_1^-, v_2^-, \ldots, v_j^-, \ldots, v_n^-\}$$

Where, v_j^* ; shows the best value of j criterion and v_j^- ; as the worst value of j criterion.

6- Calculating the distance from ideal and anti-ideal solution: for finding the distance in question we use:

$$S_i^* = \sqrt{\sum_{j=1}^{n}\left(V_{ij} - V_j^*\right)^2}$$

$$S_i^- = \sqrt{\sum_{j=1}^{n}\left(V_{ij} - V_j^-\right)^2}$$

Where j is the criterion and i as the intended option.

7- Calculating the similarity index: we calculate the similarity index from the following equation:

$$Q_i^* = \frac{S_i^-}{S_i^* + S_i^-}$$

The similarity index changes between zero and one. The more similarity of option to the ideal solution, the closer it will be to one. Based on the similarity index we set the option whit the highest similarity as the first ranking and the option with the lowest similarity at the last rank. The option with the highest similarity is the first ranking and the option with the lowest similarity at the last rank.

VIKOR Method: VIKOR Method like the TOPSIS method is a tool for multiple criteria decision making. Both are based on an aggregating function representing closeness to the ideals which originated in the synthetic programming method. In VIKOR linear normalization and in TOPSIS vector normalization is used to eliminate the units of criteria function (Opricovic and Tzeng (2004)). VIKOR is used to analyze the problems with diversified criteria and with different measuring devices. It is used to rank and choose some alternatives and determine the problems of

the consistent solution with contractual criteria, to help decision-makers. The structure of the model is as follows: 1- Formation of data matrix according to alternatives and indices.

2- Calculating the weight of indices according to Entropy and AHP method. 3-Determining the highest value f_i^* and the lowest value f_i^-

$$f_i^* = \overset{max}{j} f_{ij}; \quad f_i^- = \overset{min}{j} f_{ij}$$

1- Calculating R_j and S_j (for $n,...,j = 1$) as following:

$$S_j = \sum_{j=1}^{R} \frac{f_i^* - f_{ij}}{f_i^* - f_i^-} \qquad R_j = \overset{max}{j} \left[W_i \frac{f_i^* - f_{ij}}{f_i^* - f_i^-} \right]$$

2- Measuring the Q_j (for $J,...,j = 1$) as follows:

3- Finally ranking the mentioned factors based on amount of Q_i

$$S = \sum W \frac{f^* - f_{ij}}{f^* - f^-} \qquad R = \max \left[W \frac{f^* - f_{ij}}{f^* - f^-} \right]$$

4-2- data, variables, indexes

In the case of economic welfare two kinds of indices are used; single indicator and synthetic indicators. The analytical capacity of single indicators is limited to a specific dimension of welfare. For instance, GDP is a single indicator that pays attention only to the consumption aspect of welfare. The synthetic indices, however, are combinations of different indices which measure the welfare from different dimensions. One can mention the following list as typical synthetic indicators: a measure of economic welfare, Genuine Progress Index, index of social health, gender-related development index, the index of sustainable economic welfare and the index of economic well-being.

By using TOPSIS and VIKOR methods, this article is going to analyze the position and ranking of welfare and inequality in Iran and its competitors, among South-West-Asian countries (as the

Iranian outlook plan for 2025 is concerned). Countries are ranked for 2018 through 2020 by individual and synthetic indexes. Individual variables include education, gender inequality, misery index, GDP per capita (based on constant 2010 US \$), Gini coefficient and life expectancy index. Synthetic indices encompass Social Progress Index, Human Development Index, Human Wellbeing, Happiness Index, Human Capital Index, Legatum Prosperity Index, economic wellbeing and Environmental wellbeing. After determining the value of synthetic indicators for each state, it can be used for the linear alignment of the analyzed units. This measure will categorize the countries into several classes using the arithmetic mean and standard deviation. Level (1) indicates the lowest inequality, level (2) below average, level (3) average, level (4), high inequality and level (5), very high inequality. Determining the level according to the TOPSIS method would be:

Class I : $q_i \geq \bar{q} + 1.5 * S(q)$

Class II: $\bar{q} + S(q) \leq q_i < \bar{q} + 1.5 * S(q)$

Class III: $\bar{q} \leq q_i < \bar{q} + S(q)$

Class IV: $\bar{q} - S(q) \leq q_i < \bar{q}$

Class V: $q_i < \bar{q} - S(q)$

Determining the level according to VIKOR method would is:

Class I: $q_i < \bar{q} - S(q)$

Class II: $\bar{q} - S(q) \leq q_i < \bar{q}$

Class III: $\bar{q} \leq q_i < \bar{q} + S(q)$

Class IV: $\bar{q} + S(q) \leq q_i < \bar{q} + 1.5 * S(q)$

Class V: $q_i \geq \bar{q} + 1.5 * S(q)$

According to individual indices and the VIKOR method, Qatar, Emirates and Kuwait have had the best and Syria and Yemen the worst status as inequality and welfare are concerned. Table (1) indicates the results based on the VIKOR method with individual indices.

Table 1. Ranking of South-West Asian countries in 2018-2020 by VIKOR method (individual indices)

Position in the ranking	Country	VIKOR 2018	Class 2018		VIKOR 2019	Class 2019		VIKOR 2020	Class 2020
1	Qatar	0.028	1	Qatar	0.031	1	Qatar	0.000	1
2	United Arab Emirates	0.053	1	United Arab Emirates	0.045	1	United Arab Emirates	0.370	1
3	Kuwait	0.256	1	Kuwait	0.227	1	Kuwait	0.380	1
4	Saudi Arabia	0.433	2	Saudi Arabia	0.414	2	Oman	0.464	1
5	Oman	0.452	2	Oman	0.436	2	Saudi Arabia	0.526	2
6	Kazakhstan	0.489	2	Kazakhstan	0.478	2	Kazakhstan	0.587	2
7	Turkey	0.499	2	Turkey	0.513	2	Turkmenistan	0.625	2
8	Azerbaijan	0.623	3	Azerbaijan	0.598	2	Azerbaijan	0.631	2
9	Lebanon	0.634	3	Lebanon	0.621	3	Lebanon	0.693	3
10	Armenia	0.635	3	Armenia	0.631	3	Iraq	0.699	3
11	Georgia	0.642	3	Georgia	0.631	3	Kyrgyzstan	0.719	3
12	Iran	0.655	3	Turkmenistan	0.642	3	Turkey	0.759	3
13	Turkmenistan	0.667	3	Bahrain	0.679	3	Jordan	0.759	3
14	Jordan	0.712	3	Kyrgyzstan	0.684	3	Egypt	0.767	3
15	Kyrgyzstan	0.715	3	Jordan	0.698	3	Pakistan	0.768	3
16	Bahrain	0.716	3	Iran	0.699	3	Armenia	0.773	3
17	Uzbekistan	0.728	3	Iraq	0.714	3	Afghanistan	0.782	3
18	Tajikistan	0.748	3	Uzbekistan	0.721	3	Georgia	0.799	3
19	Egypt	0.750	3	Tajikistan	0.723	3	Tajikistan	0.818	3
20	Iraq	0.772	3	Syria	0.746	3	Uzbekistan	0.840	3
21	Syria	0.804	3	Egypt	0.752	3	Bahrain	0.846	3
22	Pakistan	0.900	4	Pakistan	0.826	3	Yemen	0.907	4
23	Afghanistan	0.944	4	Afghanistan	0.849	4	Iran	0.978	4
24	Yemen	1.000	5	Yemen	1.000	5	Syria	0.998	5

Source: Authors calculations

According to TOPSIS method Qatar and Emirates have obtained high welfare level or low inequality and Syria and Yemen have gotten the lowest rank. By using TOPSIS method table (2) shows ranking status of selected countries.

Table 2. Ranking of South-West Asian countries in 2018-2020 by TOPSIS method (individual indices)

Position in the ranking	Country	TOPSIS 2018	Class 2018	Country	TOPSIS 2019	Class 2019	country	TOPSIS 2020	Class 2020
1	Qatar	0.93	1	Qatar	0.919	1	Qatar	0.976	1
2	United Arab Emirates	0.737	1	United Arab Emirates	0.756	1	United Arab Emirates	0.669	2
3	Kuwait	0.6426	2	Kuwait	0.669	2	Kuwait	0.652	2
4	Bahrain	0.5418	3	Bahrain	0.567	3	Saudi Arabia	0.587	3
5	Saudi Arabia	0.537	3	Saudi Arabia	0.554	3	Oman	0.575	3
6	Oman	0.5045	3	Oman	0.540	3	Bahrain	0.560	3

Position in the ranking	Country	TOPSIS 2018	Class 2018	Country	TOPSIS 2019	Class 2019	country	TOPSIS 2020	Class 2020
7	Kazakhstan	0.4632	3	Kazakhstan	0.513	3	Kazakhstan	0.480	3
8	Turkmenistan	0.4114	4	Azerbaijan	0.478	3	Azerbaijan	0.464	3
9	Lebanon	0.3937	4	Kyrgyzstan	0.447	4	Turkmenistan	0.463	3
10	Kyrgyzstan	0.3922	4	Lebanon	0.437	4	Lebanon	0.444	3
11	Turkey	0.3849	4	Turkmenistan	0.434	4	Kyrgyzstan	0.434	4
12	Iraq	0.3783	4	Iraq	0.430	4	Iraq	0.431	4
13	Azerbaijan	0.3765	4	Afghanistan	0.430	4	Pakistan	0.411	4
14	Armenia	0.368	4	Georgia	0.428	4	Jordan	0.397	4
15	Georgia	0.3662	4	Syria	0.426	4	Afghanistan	0.395	4
16	Pakistan	0.3629	4	Armenia	0.422	4	Armenia	0.377	4
17	Tajikistan	0.3493	4	Pakistan	0.420	4	Georgia	0.367	4
18	Uzbekistan	0.3421	4	Tajikistan	0.420	4	Tajikistan	0.360	4
19	Jordan	0.3262	4	Turkey	0.420	4	Uzbekistan	0.349	4
20	Syria	0.326	4	Uzbekistan	0.385	4	Egypt	0.344	4
21	Afghanistan	0.3058	4	Jordan	0.384	4	Turkey	0.338	4
22	Iran	0.3049	4	Egypt	0.311	4	Yemen	0.252	5
23	Yemen	0.2388	5	Iran	0.259	5	Iran	0.158	5
24	Egypt	0.2386	5	Yemen	0.120	5	Syria	0.146	5

Source: Authors calculations

By using synthetic indices and VIKOR Uzbekistan, Bahrain, Azerbaijan and Qatar have been indicated to have high welfare and low inequality and Yemen and Afghanistan and have had the worst status of welfare and inequality. Table (3), indicates the welfare status of selected countries by the VIKOR method and synthetic indices.

Table 3. Ranking of South-West Asian countries in 2018-2020 by VIKOR method (synthetic indices)

Position in the ranking	Country	VIKOR 2018	Class 2018		VIKOR 2019	Class 2019		VIKOR 2020	Class 2020
1	Uzbekistan	0.092	1	Uzbekistan	0.113	1	Azerbaijan	0.122	1
2	Bahrain	0.169	1	Bahrain	0.165	1	Georgia	0.283	1
3	Azerbaijan	0.202	1	Azerbaijan	0.180	1	Bahrain	0.284	1
4	Qatar	0.271	1	Qatar	0.209	1	Kyrgyzstan	0.323	1
5	Kazakhstan	0.305	2	Kazakhstan	0.307	2	Uzbekistan	0.351	2
6	Georgia	0.380	2	Georgia	0.333	2	Qatar	0.371	2
7	Kuwait	0.417	2	Kuwait	0.414	2	Kuwait	0.390	2
8	Egypt	0.464	2	Kyrgyzstan	0.425	2	Jordan	0.468	2
9	Kyrgyzstan	0.483	2	United Arab Emirates	0.434	2	Egypt	0.478	2
10	United Arab Emirates	0.500	2	Egypt	0.463	2	Kazakhstan	0.497	2
11	Turkmenistan	0.505	2	Turkey	0.479	2	Armenia	0.499	2
12	Armenia	0.533	3	Saudi Arabia	0.504	2	United Arab Emirates	0.500	2
13	Saudi Arabia	0.537	3	Armenia	0.541	3	Turkey	0.546	3
14	Oman	0.558	3	Turkmenistan	0.585	3	Oman	0.552	3
15	Jordan	0.562	3	Oman	0.603	3	Lebanon	0.602	3
16	Turkey	0.569	3	Jordan	0.606	3	Turkmenistan	0.628	3
17	Iran	0.623	3	Tajikistan	0.642	3	Syria	0.643	3
18	Tajikistan	0.649	3	Lebanon	0.676	3	Saudi Arabia	0.658	3
19	Lebanon	0.657	3	Iran	0.741	3	Tajikistan	0.694	3
20	Iraq	0.771	4	Pakistan	0.773	4	Iraq	0.729	3
21	Pakistan	0.785	4	Iraq	0.773	4	Iran	0.729	3
22	Syria	0.794	4	Syria	0.800	4	Pakistan	0.730	3
23	Yemen	0.954	5	Yemen	0.920	5	Yemen	0.880	5
24	Afghanistan	1.000	5	Afghanistan	1.000	5	Afghanistan	1.000	5

Source: Authors calculations

Based on TOPSIS method and by using synthetic indices, however, Bahrain and Qatar have gotten the highest welfare level and Afghanistan, Iraq and Pakistan the worst status ones. Table (4) shows ranking of selected countries with TOPSIS method along with synthetic indices.

Table 4. Ranking of South-West Asian countries in 2018-2020 by TOPSIS method (synthetic indices)

Position in the ranking	Country	TOPSIS 2018	Class 2018	country	TOPSIS 2019	Class 2019	country	TOPSIS 2020	Class 2020
1	Bahrain	0.719	1	Bahrain	0.676	1	Bahrain	0.614	1
2	Qatar	0.696	1	Qatar	0.674	1	Kyrgyzstan	0.590	1
3	Uzbekistan	0.621	2	United Arab Emirates	0.565	2	Qatar	0.586	1
4	United Arab Emirates	0.587	2	Uzbekistan	0.558	3	Azerbaijan	0.525	3
5	Azerbaijan	0.577	3	Azerbaijan	0.536	3	United Arab Emirates	0.515	3
6	Kazakhstan	0.559	3	Kyrgyzstan	0.530	3	Georgia	0.499	3
7	Turkey	0.536	3	Kazakhstan	0.511	3	Uzbekistan	0.485	3
8	Georgia	0.498	3	Georgia	0.497	3	Tajikistan	0.484	3
9	Kuwait	0.498	3	Armenia	0.480	3	Armenia	0.479	3
10	Armenia	0.492	3	Kuwait	0.475	3	Kuwait	0.474	3
11	Kyrgyzstan	0.486	3	Turkey	0.473	3	Syria	0.447	3
12	Turkmenistan	0.467	3	Turkmenistan	0.457	3	Turkmenistan	0.442	3
13	Saudi Arabia	0.458	4	Tajikistan	0.451	3	Turkey	0.440	3
14	Egypt	0.429	4	Saudi Arabia	0.445	3	Kazakhstan	0.439	3
15	Tajikistan	0.425	4	Oman	0.384	4	Saudi Arabia	0.407	4
16	Oman	0.404	4	Egypt	0.383	4	Jordan	0.398	4
17	Jordan	0.402	4	Jordan	0.381	4	Yemen	0.397	4
18	Lebanon	0.376	4	Syria	0.378	4	Egypt	0.392	4
19	Pakistan	0.370	4	Lebanon	0.351	4	Oman	0.346	4
20	Iran	0.354	4	Yemen	0.338	4	Lebanon	0.346	4
21	Syria	0.341	4	Iran	0.321	5	Iran	0.308	5
22	Iraq	0.299	5	Pakistan	0.308	5	Pakistan	0.304	5
23	Yemen	0.290	5	Iraq	0.281	5	Afghanistan	0.302	5
24	Afghanistan	0.239	5	Afghanistan	0.227	5	Iraq	0.266	5

Source: Authors calculations

As table (5) and (6) indicate by combining the individual and synthetic indices, Qatar has obtained the highest and Afghanistan, Yemen and Iran the lowest welfare status.

Table 5. Ranking of South-West Asian countries in 2018-2020 by VIKOR method (individual and synthetic indices)

Position in the ranking	Country	VIKOR 2018	Class 2018		VIKOR 2019	Class 2019		VIKOR 2020	Class 2020
1	Uzbekistan	0.150	1	Uzbekistan	0.159	1	Qatar	0.016	1
2	Azerbaijan	0.152	1	Azerbaijan	0.178	1	Kuwait	0.111	1
3	Qatar	0.199	1	Qatar	0.192	1	Kazakhstan	0.278	1
4	Kazakhstan	0.273	1	Kazakhstan	0.311	1	Oman	0.290	1
5	Kuwait	0.389	2	Georgia	0.377	2	United Arab Emirates	0.317	2
6	Georgia	0.397	2	Kuwait	0.417	2	Turkey	0.384	2
7	Kyrgyzstan	0.464	2	Kyrgyzstan	0.429	2	Azerbaijan	0.400	2
8	Turkmenistan	0.475	2	United Arab Emirates	0.446	2	Bahrain	0.427	2
9	United Arab Emirates	0.512	2	Egypt	0.499	2	Turkmenistan	0.458	2

Position in the ranking	Country	VIKOR 2018	Class 2018		VIKOR 2019	Class 2019		VIKOR 2020	Class 2020
10	Oman	0.534	2	Turkey	0.532	2	Saudi Arabia	0.495	2
11	Saudi Arabia	0.548	2	Saudi Arabia	0.541	2	Armenia	0.518	2
12	Armenia	0.561	2	Armenia	0.567	3	Georgia	0.535	3
13	Jordan	0.581	3	Turkmenistan	0.589	3	Lebanon	0.564	3
14	Bahrain	0.597	3	Oman	0.595	3	Kyrgyzstan	0.590	3
15	Turkey	0.619	3	Bahrain	0.610	3	Jordan	0.598	3
16	Tajikistan	0.648	3	Jordan	0.635	3	Uzbekistan	0.608	3
17	Lebanon	0.661	3	Tajikistan	0.644	3	Iraq	0.629	3
18	Iran	0.668	3	Lebanon	0.681	3	Egypt	0.632	3
19	Iraq	0.770	3	Pakistan	0.768	3	Iran	0.643	3
20	Pakistan	0.782	3	Iraq	0.780	3	Tajikistan	0.758	3
21	Syria	0.802	4	Syria	0.794	4	Syria	0.804	4
22	Egypt	0.823	4	Iran	0.814	4	Pakistan	0.819	4
23	Yemen	0.999	5	Afghanistan	0.967	5	Yemen	0.931	5
24	Afghanistan	1.000	5	Yemen	1.000	5	Afghanistan	1.000	5

Source: Authors calculations

Table 6. Ranking of South-West Asian countries in 2018-2020 by TOPSIS method (individual and synthetic indices)

Position in the ranking	Country	TOPSIS 2018	Class 2018	country	TOPSIS 2019	Class 2019	country	TOPSIS 2020	Class 2020
1	Qatar	0.801	1	Qatar	0.7936	1	Qatar	0.774	1
2	United Arab Emirates	0.709	1	United Arab Emirates	0.7143	2	United Arab Emirates	0.601	2
3	Bahrain	0.701	2	Bahrain	0.7025	2	Kuwait	0.583	2
4	Kuwait	0.659	2	Kuwait	0.6734	3	Bahrain	0.560	2
5	Kazakhstan	0.630	3	Azerbaijan	0.6575	3	Saudi Arabia	0.516	3
6	Saudi Arabia	0.612	3	Kazakhstan	0.6481	3	Oman	0.492	3
7	Oman	0.588	3	Kyrgyzstan	0.6268	3	Azerbaijan	0.453	3
8	Kyrgyzstan	0.571	3	Saudi Arabia	0.6143	3	Kyrgyzstan	0.450	3
9	Turkmenistan	0.570	3	Oman	0.6062	3	Kazakhstan	0.448	3
10	Azerbaijan	0.566	3	Georgia	0.5751	3	Turkmenistan	0.435	3
11	Uzbekistan	0.554	3	Tajikistan	0.5705	3	Lebanon	0.398	4
12	Armenia	0.522	4	Turkmenistan	0.569	3	Armenia	0.388	4
13	Georgia	0.519	4	Uzbekistan	0.5659	3	Georgia	0.383	4
14	Lebanon	0.512	4	Armenia	0.5641	3	Tajikistan	0.380	4
15	Pakistan	0.510	4	Syria	0.5435	4	Jordan	0.375	4
16	Turkey	0.503	4	Lebanon	0.5392	4	Iraq	0.371	4
17	Tajikistan	0.498	4	Pakistan	0.5363	4	Uzbekistan	0.367	4
18	Iraq	0.475	4	Iraq	0.5124	4	Pakistan	0.365	4
19	Jordan	0.456	4	Afghanistan	0.509	4	Turkey	0.361	4
20	Syria	0.444	4	Turkey	0.5087	4	Afghanistan	0.350	4
21	Afghanistan	0.393	5	Jordan	0.4982	4	Egypt	0.339	4
22	Iran	0.387	5	Egypt	0.4201	5	Yemen	0.289	5
23	Egypt	0.350	5	Iran	0.3107	5	Syria	0.255	5
24	Yemen	0.333	5	Yemen	0.2388	5	Iran	0.218	5

Source: Authors calculations

In sum, the IWS of Iran is amongst the countries with the lowest level. This is despite the fact that

Iran, potentially speaking, is one of the wealthiest countries in the region. By benefiting from over

$92000 per capita income, Qatar has obtained the first rank among the selected countries. Qatar

also does have a negative inflation rate, 0.1% unemployment rate, and a superior rank in the human development index. Syria, Iran and Yemen have obtained the worst ranking in welfare and inequality. According to the Legatum welfare index, United Arab Emirates, and Qatar have gotten the highest and Syria, Afghanistan and Yemen the lowest rankings.

5- Concluding remarks

By using TOPSIS and VIKOR method, this article has investigated the inequality and welfare status, IWS of Iran and its competitors amongst South-West-Asian countriesAs Iranian 2025 plan (outlook document) is concerned, the above-mentioned countries are Iranian competitors in diversified indices. According to the findings of this work, firstly, based on individual indices, Qatar, Emirates and Kuwait have had the best and Yemen and Syria the worst status of welfare and inequality. Secondly, based on synthetic indices, Uzbekistan, Bahrain, Azerbaijan and Qatar have obtained the highest and Afghanistan, Iraq, and Yemen the lowest level of welfare. Thirdly, and by using general and synthetic indices (disregarding the classifying indices to an individual or synthetic), Qatar has gotten the best and Afghanistan, Yemen, Iran the worst level of welfare and inequality. As actual circumstances are concerned, high misery index, low and negative GDP growth, limitations in selling crude oil, and inefficient public policies have been influential factors behind the problematic status of inequality and welfare in Iran. As the primal cause and cause and cause, PCFs, of difficulties of Iranian IWS is concerned, bad governance along with structural difficulties are the main element to explain the bad position as such. In other words, the roots of current low welfare and problematic inequality in Iran and some its competitors, are not merely economical, usual and technical, rather the origins of hardships in question are the   structural, economic and non-economic factors including institutional, environmental, government-oriented

ones and so forth. According to the finding of this article and for resolving main difficulties, structural reform is urgent in the region generally and in Iran particularly.

Reference

Abbasian E., & Daliri H. (2012). Estimating and Ranking the Provinces of Iran in Terms of Knowledge - based Economy, Social Welfare Quarterly, 12 (45) :339-367 (in Persian).

Abdoli, G., Kardgar, R., Kazemi, A., & Molaei Qelichi, M. (2017). Ranking the Iran's provinces based on added value in the economic subsectors by means of multi-criteria decision-making models (VIKOR), journal of Regional Planning, 7(26), 1-14 (in Persian).

Alderson, A. S., & Doran, K. (2010). How Has Income Inequality Grown? The Reshaping of the income distribution in LIS countries, Conference on Inequality and The Status of the Middle Class: Lessons from the Luxembourg Income Study, Luxembourg.

Azimifard, A., Moosavirad, S.H., & Ariafar, S. (2018), selecting sustainable supplier countries for Iran's steel industry at three levels by using AHP and TOPSIS methods, Resources Policy, 57: 30-44.

Balcerzak, A. P. & Pietrzak, M. P. (2016). Application of TOPSIS Method for Analysis of Sustainable Development in European Union Countries. In T. Loster & T. Pavelka (Eds.). The 10th International Days of Statistics and Economics. Conference Proceedings. September 8-10, 2016. Prague: Libuse Macakova, Melandrium: 82-92.

CBI (2021). Time series data tables. www.tsd.cbi.ir

Dadgar, Y., Nazari, R., & Mehrabani, F. (2008), The Impact of Fiscal Policy and Gas Price Shock on Welfare and Income Distribution in Iran, Journal Social Welfare Quarterly, 7(28): 129-150 (in Persian).

Dadgar,Y.Nazari,R.(2018), difficulties of public sector structure as main obstacles for economic progress in Iran, international journal of sustainable development ,11(1),41-64.

Daly, H. (1996), Beyond Growth: The Economics of Sustainable Development, Boston, Beacon Press.

Falkingham, J., Klugman, J., Marnie, S., & Micklewright, J. (Eds.). (1997). Household Welfare in Central Asia. New York: St. Martin's Press.

Farzanegan, MR, and Alaedini, P. (2016). Economic Welfare and Inequality in Iran: Developments since the Revolution, Palgrave Macmillan/Springer Nature.

Fitzpatrick, T. (2001). Welfare theory: An introduction. New York: Palgrave.

Greve, B. (2008). What is Welfare? Central European Journal of Public Policy, 2(1): 50–73.

Hosseini, M.R., & Jafari Samimi, A. (2010). Economic Welfare in Iran: An application of Composite Index of Economic Well-Being (CIEWB), Iranian Journal of Economic Research, 14(42): 101-122.

Kiszkiel, Ł. (2017). Application of TOPSIS method for the evaluation of economic inequality in OECD countries, Studies in logic, Grammar and Rhetoric, 50 (63): 165-179.

Lotfi, H., & Rashidi, M. (2015). Analysis and ranking of provinces of Iranian terms of strategic territorial potentials, Environmental Based Territorial Planning, 7(27): 143-165 (in Persian).

Mateusz, P., Danuta, M., MałgorzataŁ, A., Borawski, M., & Kesra, N. (2018), TOPSIS and VIKOR methods in study of sustainable development in the EU countries, Procedia Computer Science, 126: 1683-1692.

McGregor, J. (2007). Wellbeing and International Development: Promises and Pitfalls, Conference on Wellbeing and International Development, University of Bath.

MCLSW (Ministry of Cooperatives, Labor and Social Welfare), (2021). Poverty monitoring in 2020, summer.

Mohaqeqi Kamal H., Rafiey H., Sajjadi H., Abassian E., &Rahgozar M. (2014). Estimating social welfare in Iran using a new composite index, Social Welfare Quarterly,14 (52) :7-32.

Namazi, M., & Mohammadi, E. (2018). Natural resource dependence and economic growth: A TOPSIS/DEA analysis of innovation, Resources Policy, 59: 544-552.

Noll, H.-H. (2004). Social Indicators and Quality of Life Research: Background, Achievements and Current Trends. In: N. Genov (ed.), Advances in Sociological Knowledge Over Half a Century. Wiesbaden: VS Verlag für Sozialwissenschaften, 2004: 185-212.

OECD. (2008). Handbook on constructing composite indicators: Methodology and user Gude. Paris. ISBN 978-92-64-04345-9.

Ogburn, W.F. (1950). Sociology, Houghton Mifflin Press.

Opricovic, S., & Tzeng, G-H. (2004). Composite Solution by MCDM methods, European Journal of Operational research, 156(2): 445-455.

Osberg, L. (1985), The Measurement of Economic Well-Being, in Laider, Approaches To Economic Well-Being, Vol.26, Research Studies of the MacDonald Commission.

Osberg, L., & Sharpe, A. (1998). An Index of Economic Well-being for Canada, Research Paper R-99-3E, Applied Research Branch, Strategic Policy, Human Resource Development Canada, Hull, Quebec, December.

Osberg, L., & Sharpe, A. (2001). The Index of Economic Well-being: Overview, Revised version of a paper presented at the National Conference on Sustainable Development Indicators organized by the National Round Table Environment and the Economy, March 27.

Osberg, L., & Sharpe, A. (2002). An index of economic well-being for selected OECD countries, Review of Income and Wealth, 48 (3): 291-316.

Osberg, L., & Sharpe, A. (2003). An index of labor market wellbeing for OECD countries, Centre for the Study of Living Standard (CSLS) research report, September.

Osberg, L., & Sharpe, A. (2009). New estimates of the index of economic well-being for selected OECD countries 1981-2007, Centre for the Study of Living Standard (CSLS) research report, November.

Pigou, A. C. (1950). The economics of welfare. Fourth edition. London: Macmillan.

SCI (2021a). Income distribution in Iran in 2020, August.

SCI (2021b). Time series data tables. www.amar.org.ir

Sharpe, A. (1999). A Survey of Indicators of Economic and Social Well-being, Paper prepared for Canadian Policy Research Networks, Centre for the Study of Living Standards.

Solangi, Y. A., Longsheng, C., & Shah, S. A. A. (2021). Assessing and overcoming the renewable energy barriers for sustainable development in Pakistan: An integrated AHP and fuzzy TOPSIS approach. Renewable Energy, 173 (C): 209-222 .

Stecyk, A. (2019). The AHP-TOPSIS Model in the Analysis of the Counties Sustainable Development in the West Pomeranian Province in 2010 and 2017. Journal of Ecological Engineering, 20 (7): 233-244.

Van Praag, B. M. S. (1993). The relativity of the welfare concept, In The Quality of Life, ed. M. Nussbaun and A. Sen. Oxford: Oxford University Press.

World Bank, (2021). Iran Economic Monitor (Poverty and Inequality in Iran at the Outset of the COVID19 Pandemic), Spring. https://www.worldbank.org/en/country/iran/publication/iran-economic-monitor-spring-2021

Jin., W., Joyce, R., Phillips, D., & Sibieta, L. (2011), Poverty and Inequality in the UK: 2011, The Institute for Fiscal Studies, May.

Zarzosa Espina, P., & Somarriba Arechavala, N. (2013), An Assessment of Social welfare in Spain: territorial analysis using a Synthetic Welfare Indicator, Social Indicators Research, 111: 1-23.