

The Saudi Women Participation in Development Index

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Abstract: We present an overview of a composite index measuring the participation of Saudi women in the national development given through certain broad dimensions of measurements, to be employed on Saudi Arabian dataset. In terms of method and technique, our composite index consists of weighted components from selected variables chosen by local experts in order to provide a well representative index measuring local priorities and development needs. The Index is a product of the National Observatory for women in Saudi Arabia. Construction of the index goes through stages such as data allocation, national surveys, data normalizing, weight assignment, focus groups, pilot testing, and finally measurement of the index and its components. The index incorporates a range of indicators to capture the complexity of the national development and ranks regions in Saudi Arabia according to calculated components and on gender gap between women and men in five key areas: health, education, economy, social and organizational to gauge the state of gender equality in the country. The index will be beneficial to decision makers to allocate the right strategic policies that will help increase women participation in development and to play their anticipated role in achieving the goals of the Saudi Vision 2030.

Keywords: Composite Index, Economic Development Index, Gender Gap, Women's Empowerment, Index Construction, Sustainable Development Indicators.

JEL classification: Y8, D63, O15, I0, I3, C8

1. INTRODUCTION

As a society we are always interested in knowing where we are and where we are heading. No one could deny that information and measurement are essential tools to achieve this purpose and without them it will be difficult to perform an assessment on how much progress the society has made, or on what aspects to measure and how to measure them, also how much advancement is considered a real progress. Generally measuring development, involves a series of indicators in different fields, mainly economics. However, there are other phrases that have become important in the public debate trying to explain what development really

means to a specific society. Among these phrases: “Quality of Life”, “Well-being”, “Societal Progress”, “Human Development”, “Social Capital Index” and many more. Each particular society has its own consideration about the real meaning of development, how to measure it, and how to interpret the resulting development index. Moreover, only local experts can provide this understanding and construct a well representative index measuring their local priorities and development needs. This is one of the reasons that a need has emerged to develop a more comprehensive view of development and progress, considering social, environmental and economic concerns, and taking in account the local needs and customs of the specific region. Saudi Vision 2030 is a plan to reduce Saudi Arabia's dependence on oil, diversify its economy, and develop public service sectors such as health, education, infrastructure, recreation and tourism. Goals include reinforcing economic and investment activities, increasing women participation in the workforce and reducing the unemployment rates. The first details of Vision 2030 were announced on 25 April 2016 by Crown Prince Mohammad bin Salman. The Council of Ministers has tasked the Council of Economic and Development Affairs with identifying and monitoring the mechanisms and providing accurate measurements that are crucial for the implementation of “Saudi Arabia’s Vision 2030”. In January 2013, women were announced as members of the nation’s Consultative Assembly. In 2015, they were allowed to run for office in municipal elections. The role of women will be key to determining success of the Saudi 2030 Vision plan, and their participation is required in many vision 2030 programs. Saudi women were not fulfilling their full potentials, and the country is ranked at 138 out of 144 on the World Economic Forum’s Global Gender Gap index. Female participation in the workforce is just 28% of the rate for men. Saudi women already have the tools to close those gaps. They are well-educated and ready to add their share to the economy. The more the status of women improves, the more they contribute to the Saudi development and hence to the success of Vision 2030.

In this paper we will construct an index that measures the Saudi women participation in the development of Saudi Arabia. The index will be composed of five major pillars that effect women participation in development: education, health, political, economic and social. With each pillar divided into relevant components that reflect the needs of the changing Saudi economy but within mind the local cultural considerations. All 72 components and sub-components will be weighted and averaged into the final index. This index is aiming to both help decision makers around Saudi Arabia, and local Saudis in highlighting their great achievements and finding solutions to improve their weak aspects. The Index can also be used as a tool by the government and planning commissions to measure

women's progress against national and international commitments to improve their status in economic, social and political spheres.

The paper starts with a background review of the world indices and the Saudi's rank at these indices. Next, the methodology section follows with all the local considerations and needs, dataset, and weight determinations. Lastly there will be an analysis of the results and future studies.

2. INSIGHT AT SOME WORLD INDECIES

Since the first Human Development Report was published in 1990, human development (HD) was defined as a process of enlarging people's choices and enhancing their capabilities. The process requires a creation of an enabling environment in which people can develop their full potential and live productive lives according with their needs, interests and values. In this sense, human development paradigm promotes well-being in any society. Even though human development is a broad concept with infinite dimensions, the most important ones are: a long and healthy life, access to knowledge, and a decent standard of living. Moreover, these dimensions lead to other indirect ones such as the ability to participate in one's community, self-respect and having full economic opportunities. Measuring human development is not an easy task, and any index of human progress should incorporate a range of indicators to capture this complexity. But the problem is that not all countries in the world have similar and comparable statistical information. Therefore, customizing to the local priorities and needs is key. In addition, it is thought that too many indicators could produce a confusing picture. The Human Development Index (HDI) was developed by the United Nations as a metric to assess the social and economic development levels of countries. This index focuses at three basic dimensions using four basic indicators: life expectancy at birth, to measure population's health and longevity; adult literacy rate and combined gross enrolment ratio, to measure knowledge and education; Finally, GDP per capita at purchasing power parity (PPP) to measure a decent standard of living. HDI was one of the first indicators to challenge the supremacy of GDP and has become widely referenced. The basic use of HDI is to rank countries, or territories by level of human development. The HDI objective is to obtain a broad sense of views, contributions and innovations to the human development paradigm to ensure its continuing salience and influence.

A woman is economically empowered when she has both the ability and the power to make and act on economic decisions by: first, succeeding and advancing economically; and secondly, having the power and agency to benefit from economic activities. Women's economic empowerment to participate in the

development of their countries has been a defining feature of the last century. To gain a better understanding of the aspects that influence women's economic opportunity and how countries should address them many Women's economic opportunity indices were developed. These indices build on work done by the UN Development Program on its Gender-related Development Index (GDI) and the World Economic Forum's Global Gender Gap Index (GGI). The Global Gender Gap Report was first published in 2006 by the World Economic Forum. The 2017 report covers 144 major and emerging economies. The Global Gender Gap Index is an index designed to measure gender equality. Its report's ranks countries according to calculated gender gap between women and men in four key areas: health, education, economy and politics to gauge the state of gender equality in a country. The report measures women's disadvantage compared to men, and is not strictly a measure of equality. The three highest ranking countries have closed over 84% of their gender gaps and are role models in dividing these resources equitably between women and men, while the lowest ranking country has closed only a little over 50% of its gender gap. The report examines four overall areas of inequality between men and women in 144 economies around the globe, and over 93% of the world's population:

- Educational attainment – relies on access to basic and higher level education
- Economic participation and opportunity – relies on salaries, participation levels and access to high-skilled employment
- Health and survival–relies on life expectancy.
- Political empowerment–relies on representation in decision-making structures.

The Gender Inequality Index (GII) is an index for measurement of gender disparity that was introduced in the 2010 Human Development Report 20th anniversary edition by the United Nations Development Program (UNDP). According to the UNDP, this index is a composite measure to quantify the loss of achievement within a country due to gender inequality. It uses three dimensions to measure opportunity cost: reproductive health, empowerment, and labor market participation. The new index was introduced as an experimental measure to remedy the shortcomings of the previous indicators, the Gender Development Index (GDI) and the Gender Empowerment Measure (GEM), both of which were introduced in the 1995 Human Development Report.

The Women Economic Empowerment Index (WEE) measures 114 districts for which data was available. The WEE index draws attention to the dearth of robust data available at district level for a number of indicators that are important to assess women's economic empowerment. Women empowerment refers to increasing the spiritual, political, social, educational, gender or economic strength of individuals

and communities of women. Women's economic opportunity is defined as a set of laws, regulations, practices, customs and attitudes that allow women to participate in the workforce under conditions roughly equal to those of men, whether as wage-earning employees or as owners of a business. the index measures the factors that affect women's ability to access jobs and business opportunities. It is also intended to prompt improvements in policy and programs that will encourage women's participation in the workplace and thus create more productive economies overall. Usually, gender-related data is collected and analyzed from a wide range of trusted sources, including the World Bank, the UN, the International Labor Organization (ILO), the World Economic Forum and the OECD. Importantly, the weights assigned to each indicator can be changed to reflect different assumptions about the importance of variables and indicators. The results ultimately can be validated against existing external benchmarks, such as the ratio of female-to-male participation in the labor force. The scores can also be correlated against other standards of women's achievement, such as the UN Development Program Gender Empowerment Measure.

Another world index is The Gender Empowerment Measure (GEM), which is a measure of inequalities between men's and women's opportunities available in a region. It combines inequalities in three areas: political participation, decision making, economic participation decision making, and power over economic resources. It is one of the five indicators used by the United Nations Development Program in its annual Human Development Report. Calculating the GEM involves several steps. The percentages for females and males are calculated in:

- Professional and technical positions.
- The number of parliamentary seats held.
- Legislators, senior officials, and managers.
- The estimated earned income.

The pair of gender percentages are combined into an Equally Distributed Equivalent Percentage (EDEP) that rewards gender equality and penalizes inequality. It is calculated as the harmonic mean of the two components. The EDEP for economic participation is the unweighted average of the EDEP for each of its sub-components. The EDEP for income is computed from gender sub-values that are indexed to a scale from 100 to 40,000. The limitations of GEM have been discussed at length in the 10-year review published in the special issue of the Journal of Human Development and Capabilities (2006).

Figure 1 shows the Saudi Arabia rankings in some of these major world human development indices. In most of these indices the low position that Saudi Arabia scores does not reflect the real Saudi status. There is sometimes data collection

error, or unknown survey collection methods and in some cases the neighboring regions averaged score is used to fill in some of the Saudi missing data. Therefore, a local index measured by local experts from the region is highly needed. The data must be collected correctly and provided by authorized national consensus units based on true data that reflects the Saudi society.

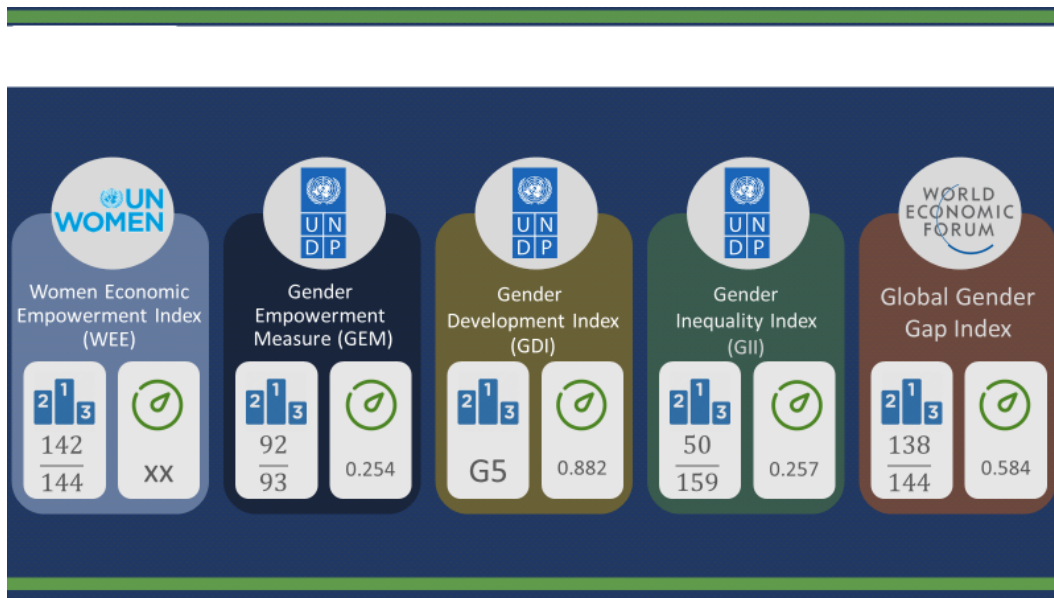


Fig. 1. The rank of Saudi Arabia in some world indices shown in the numerator of the ratios

3. SAUDI VISION 2030

The Saudi Vision 2030 is based on three major themes: a vibrant society, a thriving economy and an ambitious nation. The goal is to achieve a strong foundation for a thriving economy, that provides opportunities for all Saudis by building an education system aligned with market needs, and creating economic opportunities for the entrepreneurs, the small enterprises and for the large corporations. Therefore, developing investment tools is needed to unlock promising economic sectors, to diversify the economy and to create job opportunities. At the same time, there is a need to improve the quality of government services, by privatizing some government services, and improving the business environment by attracting the finest talent and the best investments globally. Saudi economy comprises of 30-40% on oil. Decreasing this dependency on oil resources has been one of the goals

of the government since the 1970s. One way to accomplish this is to lower the dependency of the Saudis on public spending and to increase the portion of the economy contributed by the private sector to provide more employment opportunities and to provide growth in the GDP. The National Transformation Program was designed and launched in 2016 across 24 government bodies to enhance the economic and development centers. Saudi Arabia Vision 2030 lays out targets for diversification and improving competitiveness through three main themes which set out specific objectives:

1. A vibrant society: urbanism, culture, sports, UNESCO heritage sites, life expectancy.
2. A thriving economy: employment, women in the workforce, international competitiveness, non-oil exports, public investment fund, foreign direct investment.
3. An ambitious nation: non-oil revenues, e-government, household savings and income, non-profits and volunteering.

To achieve Saudi Vision 2030, many new actions will be encouraged in different sectors, such as financial institutions will be encouraged to allocate up to 20% of their overall funding to small and medium-sized enterprises by 2030. Foreign direct investment will be raised to 5.7% of GDP from 3.8%. Household savings are to rise to 10% of total household income from 6%. The share of non-oil exports in GDP is to rise to 50% of GDP from 16%. Doubling the number of archaeological sites recognized by UNESCO. Having three Saudi cities recognized as among “the top 100 cities in the world”. Increasing the number of Saudis who play sports at least once a week to 40% from 13%. Also, unemployment among Saudi nationals is to fall to 7% from 11.6 %, specifically, women unemployment is to decrease, hence increase women participation in workforce from 28% to 38%. To achieve these goals there is a great need for an accurate measuring local index, which gives accurate metrics for the role of women in the national development. Such an index developed subsequently, will be an important resource for researchers and policy makers interested in gender disparities, relying on a framework that synthesizes key guidelines concerning the methodology of measurement.

4. METHODOLOGY FOR BUILDING THE NOW INDEX

To construct a suitable index, the National observatory for women (NOW) in King Saud University made agreements with different beneficiaries such as the general Authority for Saudi Statistics (GASTAT) for data allocation, the Council of Family affairs to conduct related studies on the women participation in development index construction, and with experts in the different fields for index construction and components validations. After, the intense research done on the methodology and

the existing world indices to benchmark and determine the best practices in these fields, the index was designed to meet all the necessary requirements. The index reflects the national development needs and is based on the national statistics therefore it is intended to help decision makers to guide the nation towards Vision 2030 and towards the full development of Saudi Arabia in all fields concerning women empowerment. Moreover, the index can measure Saudi Arabia's score in the different world indices as well. Composite indexing involves four steps, selection; scaling; weighting and aggregation; and validation (McGranahan et al., 1972). It is a concurrent effort during which selection can be altered, weights adjusted and variables rescaled in order to arrive at final index estimates. The index features should include being comprehensive based on specific and measurable outcomes, robust but sensitive to change, relative to stakeholders and mutually exclusive.

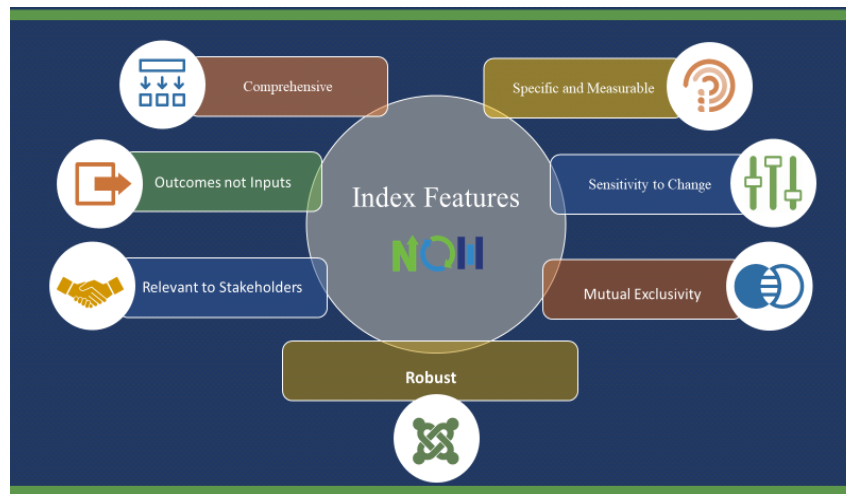


Fig. 2. The features of the NOW index

Five meetings with the experts in the different fields influencing the Women participation in the national development were conducted. These meetings were necessary to come up with the major five pillars, and the relative components, and the associated weights related to the components in the index. Overall there were 2 workshops, 3 focus groups and one major conference (Table 1). The conference “The Role of Women in the National Development: Towards a thriving economy” held in King Saud University/women campus on April 4, 2018, involved contributions from many ministries and top decision makers together with a group of experts in the national development areas, and hosted the launch of the NOW index representing the Saudi women participation in development index.

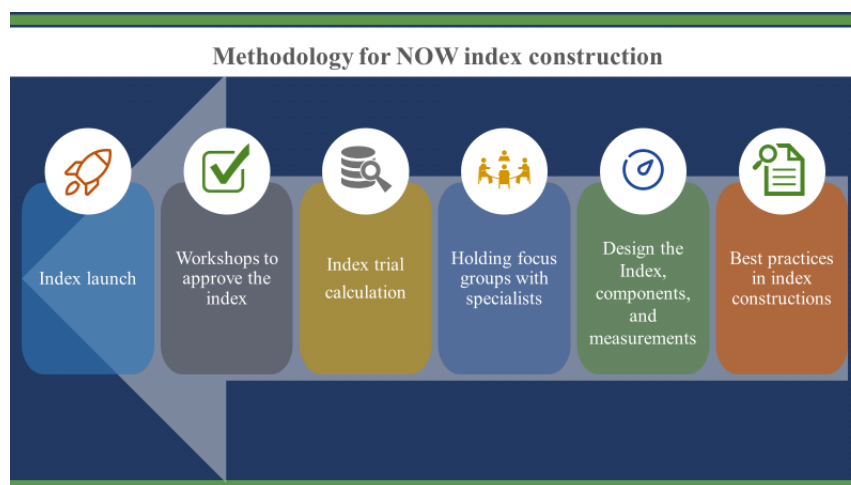


Fig. 3. The steps for construction of NOW index

Table1: Focus groups and conferences schedules

Time	Field of experts	Type	Pillar
January 28 ,2018	Ministry of health Pharmacy & Applied medical sciences colleges	focus groups	Health pillar
February14 , 2018	Council of Saudi commercial chambers	Work shop-electronic surveys	Economic pillar
March 5, 2018	Family affairs Council of Sociology college	Work shop-electronic surveys	Social Pillar
March 19, 2018	Institute of public administration	Focus group-electronic surveys	Legislation empowerment pillar
March 21, 2018 April 1, 2018	Ministry of education Mawhiba-National center for Giftedness and creativity	Focus group	Educational pillar
April 4-5, 2018	King Saud university- Women campus	The first conference “The role of women in national development- towards a thriving economy”	Women participation in development index

A. THE INDEX CONSTRUCTION

Our composite Now index consists of weighted components from selected variables chosen by local Saudi experts in order to provide a well representative index measuring their local priorities and development needs. Construction of the

index goes through stages such as data allocation, national surveys, data normalizing, weight assignment, focus groups, pilot testing, and finally measurements of the index and its indicators. The index incorporates a range of indicators to capture the complexity of the national development and ranks regions in Saudi Arabia according to calculated components and on gender gap between women and men in five key areas: health, education, economy, social and organizational to gauge the state of gender equality in the country. According to the meetings and focus groups that were conducted. In the aim that The NOW index will be beneficial to decision makers and high officials to allocate the right strategic policies that will help increase women participation in development. Several processes are used to scale the variables in the collected data from the general authority of statistics such as:

- a) Gender gap variables calculated as ratio of female over male. The range of these kind of variables is between 0 and 1. As it approaches 1 the gender gap is closed. In some cases where the value of the female variable exceeds the corresponding male value, this ratio is truncated to one as in the life expectancy gender gap.
- b) Opinion variables calculated using a 0-10 Likert scale. In this case, the approach used to rescale the variable to 0-1 is

$$\text{rescaled opinion variable} = \frac{\text{value}}{10} \quad (1)$$

- c) Proportion variables scaled from 0 to 1. These variables represent proportion of the sample with specific characteristic that we are interested in.
- d) Rate variables are rescaled to 0-1 using minimum maximum approach as follows:

$$\text{rescaled rate variable} = \frac{\text{rate}_{\text{district}(i)} - \text{minimum rate}}{\text{maximum rate}} \quad (2)$$

Where the minimum (maximum) rate is the minimum (maximum) value of the specific rate obtained among the 13 Saudi districts.

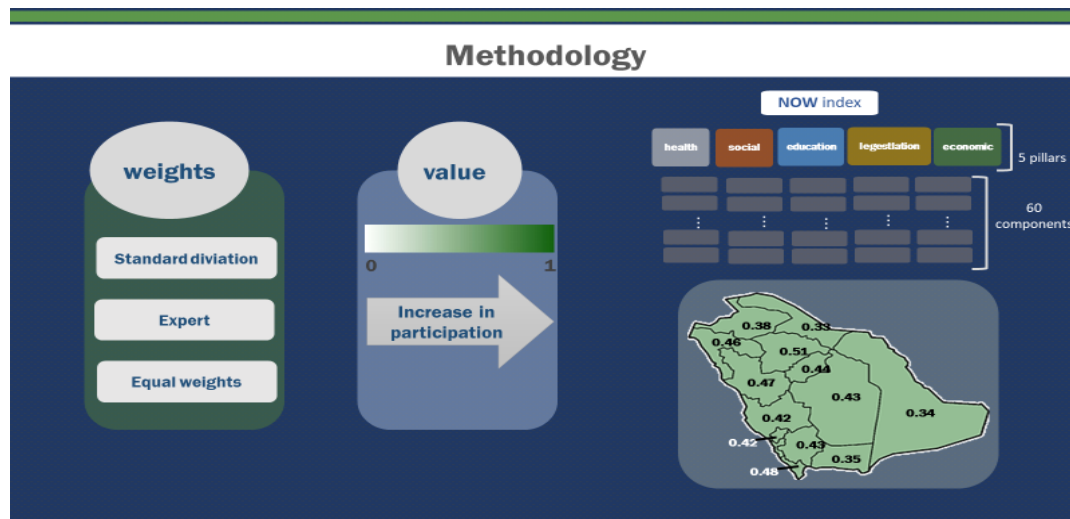


Fig. 4. The overall results of the NOW index

B. SELECTION OF WEIGHTS

The five pillars are equally weighted in calculating the overall index. Whereas, three different methods of weighing the variables within each pillar are used following best practices.

a) First method: weights by standard deviation

In each pillar, the standard deviation of each component is calculated among the 13 Saudi districts. Then the 1% change for each component in terms of standard deviation is calculated by dividing 0.01 by the standard deviation. These normalized values are used as weights to calculate the weighted average of the components in each pillar. This method is used for weighing the indicators in the global gender gap index GGGI.

b) Second method: weights by importance

Adoption of the experts' opinion in each relevant area in determining the importance of the components within each pillar. The expert's opinion are collected during workshops and focus groups through an electronic survey.

c) Third method: Equal weights

In this method, equal weights are allocated to all components within each pillar.

Table 2 shows the first two methods for allocating the weights on the economic pillar where an electronic survey was sent to over 150 experts in the conference conducted in the Council of Saudi commercial chambers. The experts were asked

to rank the components according to the importance in the economic pillar from 1 to 5, shown as importance percentages shown in Figure 5.

C. CALCULATION OF THE INDEX

Each variable is calculated among the Kingdom of Saudi Arabia and its 13 districts, and then fed to the calculation of the five pillars and the final NOW index. The value of each pillar ranges from 0 to 1, where 1 represents the best participation and representation of women related to this pillar. On the other hand, the 0 value represents imparity and reflects neither participation nor representation of women. The Saudi women participation in the national development index is then calculated by averaging all the five pillars. Comparison between districts in terms of the Saudi women participation in the national development index as well as in the pillars and their components will help decision makers to develop policies that has high impact in women participation in development and discover strengths and weaknesses around the different districts.

The major equation for calculating the NOW index is

$$NOW_{index} = \frac{\sum_{i=1}^5 x_i}{5}$$

Where x_i is the value of the i^{th} pillar, and as an example the economic pillar is calculated by

$$x_{economic} = \sum_{j=1}^7 y_j w_j$$

where y_j is the value of the component and w_j is the associated weight determined by standard deviation method or the expert opinions or equal weights over all 13 districts. As illustrated in Table 2 shows the weights for the 13 districts in the economic pillar.

D. NOW SURVEY

While constructing the index and choosing the right components there were a lot of new aspects that were agreed on in focus groups with the experts that effect women participation in development, but they were not measured before, especially in the social, socioeconomic and organizational pillars. The national observatory for women decided to design a national survey that would address theses issues and provide accurate data to measure. Hence, the NOW survey was conducted on

15,000 households and more than 30,000 individuals covering all 13 districts of Saudi Arabia, by the aid of the National Authority for statistics GASTAT and the sponsorship of the AL-Waleed Philanthropies. The Now survey was successful in providing all missing data and helped provide accurate index measurements. The NOW survey included 63 questions within 10 segments embedded electronically on GASTAT tablets, and more than 100 trained GASTAT officers were covering the face to face survey collection. Figure 6 shows segments of the survey.

5. RESULTS

The NOW Index is constructed to consist of five main pillars and 72 relative components given in Table 4 with the data source for each variable. Now index pillars are:

- ❖ Economic pillar
- ❖ Educational pillar
- ❖ Organizational pillar
- ❖ Social pillar
- ❖ Health pillar

Table 4 present all 72 components of the NOW index with the source of data whether it is a ministry or GASTAT or the NOW survey and the question used in the survey for this component. Figure 8 shows the dashboard that will be launched on April 2019 on the second NOW conference. It will display the value of the index, equations, weights and measurements in the different age groups, educations levels and 13 Saudi districts. Any user could benefit from the index, and make her or his own calculations, customize the weights and the dimensions, and highlight the part of the index that he or she seeks. Upon registering to the NOW Website the index would be available for the user. The website will also show other important information on Saudi Women such as the abstracts of all Women studies and research papers published around Saudi Arabia. It will also monitor and summarize all the new legislations and decrees concerning women empowerment and shed the light on Saudi women achievers in different sectors such science, medicine, social work, inventions and break throughs, government bureaus, business, media and many more. It will also provide a database of all Saudi women academics with their field of expertise. Table 5 shows the results for simulated index calculations on trial data that was available in 2017 from GASTAT, using the expert weight allocation method. Values are presented for each of the five pillars and final NOW index.

The figure displays two screenshots of a survey questionnaire. The left screenshot shows the 'البيان الشخصي' (Personal Statement) section, which includes questions about the respondent's name, age, gender, and education level. The right screenshot shows the 'البيان العام' (General Statement) section, which includes questions about the respondent's opinion on the government's performance in various sectors like health, education, and economy.

Fig. 5. Sample of the NOW survey questions

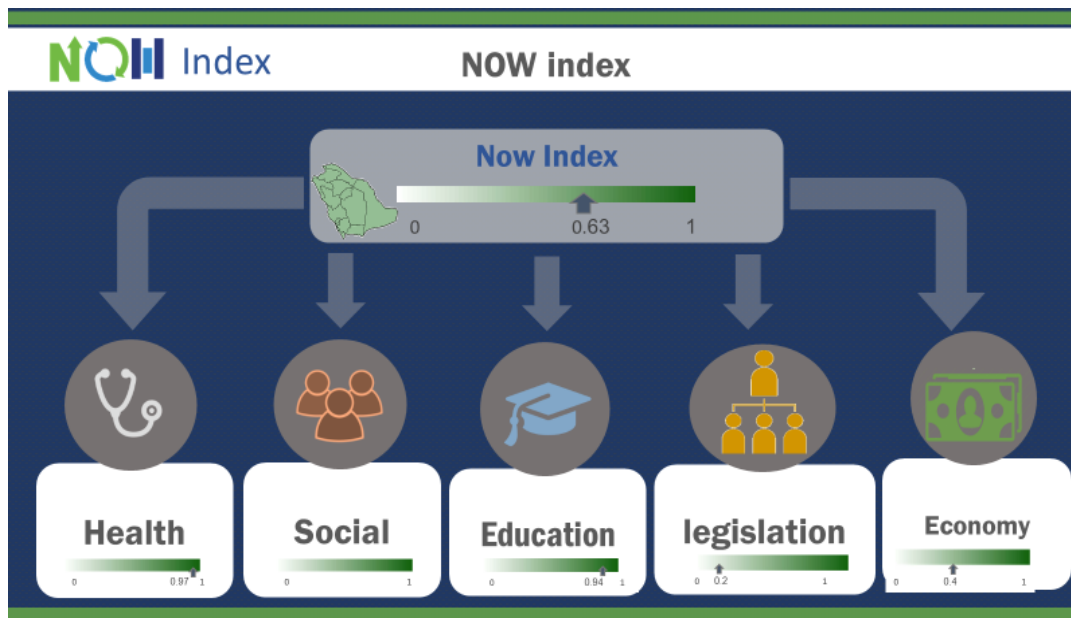


Fig.6. The five pillars in NOW index

Table 2: Weight assignment in economic pillar

Economic Pillar	Component	Weights by standard deviation from 13 districts	Weights from experts	Average value	5	4	3	2	1
	Gender gap in government sector workers.	0.231	0.1114	3.75	25	7.5	2.5	10	5
	Gender gap in private sector workers.	0.132	0.1367	4.6	35	10	5	0	0
	Gender gap in monthly wage.	0.065	0.0564	1.9	0	0	10	25	15
	Gender gap in monthly income.	0.154	0.13670	4.6	35	10	5	0	0
	Unemployment rate.	0.071	0.08023	2.7	5	10	5	25	5
	Gender gap in careers of professionals and technicians.	0.1231	0.13967	4.7	40	5	5	0	0
	Gender gap in high ranking jobs managers, legislators or business executives	0.131	0.13670	4.6	35	10	5	0	0
	Gender gap in the number of small and medium enterprises	0.201	0.13670	4.6	35	10	5	0	0
	Gender gap in entrepreneurship	0.0531	0.06530	2.2	5	5	5	15	20

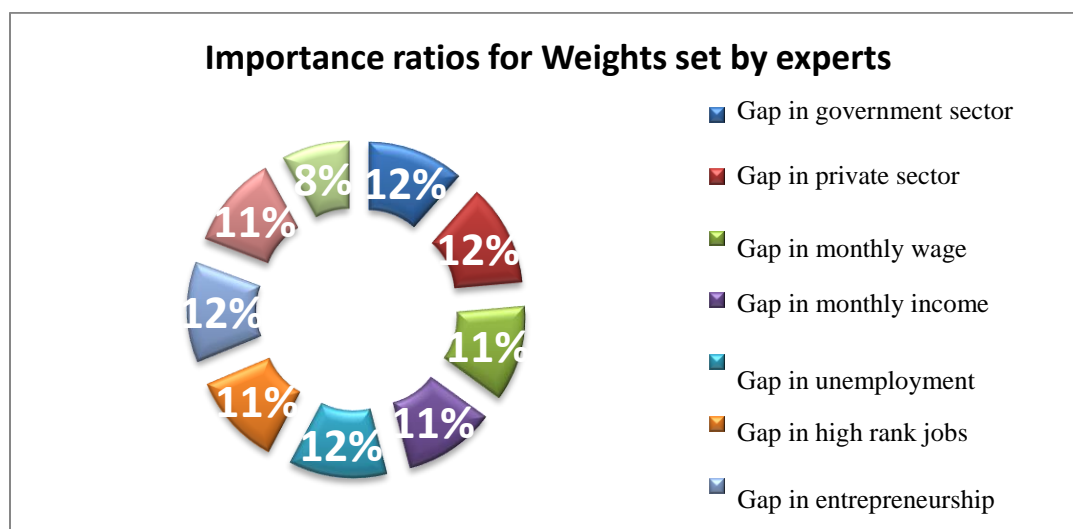


Fig. 7. The weights by experts survey for economic pillar

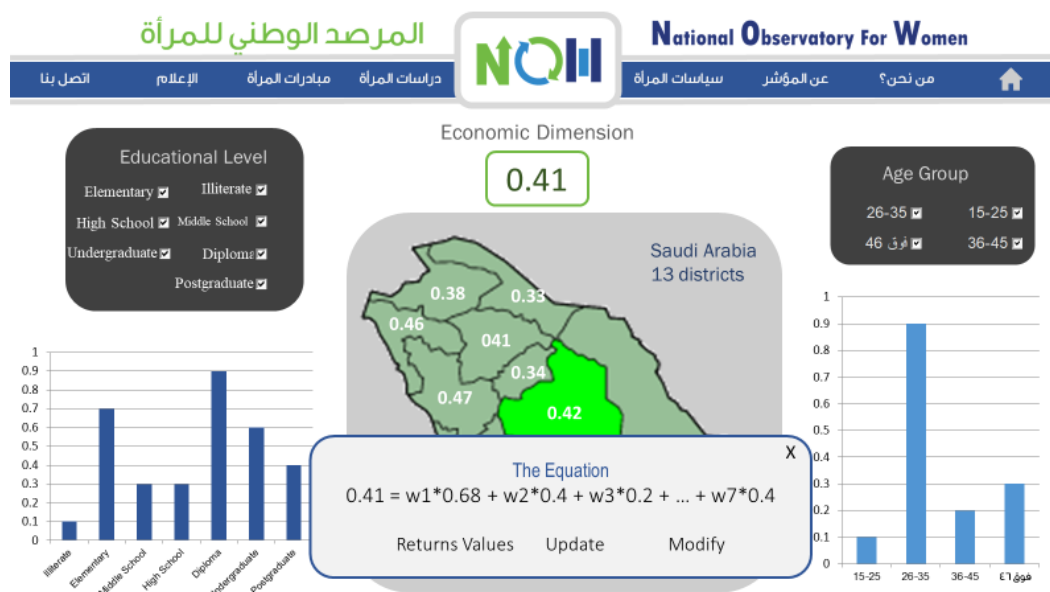


Fig. 8. The NOW dashboard in the National observatory for women website

Table 4: The NOW index 72 components distributed among the 5 pillars

Pillar	Components	Source and Description
Economic	Gender gap in government sector workers	Ministry of Civil Services MCS (Data do not include employees in the security and military sectors)
	Gender gap in private sector workers	General Organization for social insurance law GOSI
	Gender gap in monthly wage	GASTAT
	Gender gap in income	GASTAT
	Unemployment rate	GASTAT
	Gender gap in the careers of professionals and technicians	Ministry of Civil Services MCS and General Organization for social insurance law GOSI
	medium in small and Gender gap enterprises	Council chamber of commerce
Social	Capital Social	

	Social Relations Network :social media affiliation).	Survey (Percentage of women who answered yes to the following question: . Do you have an account in any of social network?)
	rate of the existence of a network of crises in society.	Survey (Percentages of Women who answered choices 2-6 to the question: On who you rely on the crises? 1- nobody, 2-relatives, 3-friends, 4-family support fund, 5-Charities, 6-others
	Civil Participation (volunteering age 15 and above – volunteering in the neighbourhood)	NOW survey (Percentage of women who answered yes to the question: Have you ever worked as volunteer in the neighbourhood over the past year?)
	The confidence (confidence in Community institutions (political, economic,...etc.) confidence in non-profit organizations). Social Relations Network (social media affiliation – family support or social support).	NOW Survey (Do you trust community care institutions? Such as social development centers, orphanages, nursing home, support centers, divorcees, widows)
	Basic human needs	
	Social Progress Index-availability of adequate housing.	NOW Survey (living space per person)
	Percent of women living below the national poverty line.	Ministry of economy and planning + NOW Survey
	Percent of households headed by women to total families.	NOW Survey (is the family headed by women?)
	The average income of a woman's headed household to the average income of a male-headed household.	NOW Survey (ratio)
	Percent of government expenditure directed to sectors that disproportionately benefit women, the poor and other vulnerable groups.	GaStat -
	Percent of women without primary health care	NOW Survey (Do you have primary health care)
	Opportunities	
	Freedom of marriage choice Index	NOW Survey (Percentage of participants who replied that they were satisfied with the next question "How are you satisfied about your freedom to choose marriage? " from 0-10.)
	Freedom of lifestyle choice Index	NOW Survey (How are you satisfied about your freedom of reproduction? from 0-10.)
	Freedom of profession choice Index	Now Survey (How are you satisfied about your freedom to choose work? from 0-10.)

	Freedom of education choice Index	NOW Survey How are you satisfied about your freedom of studying)? from 0-10.
	The Transport Availability Index	NOW Survey percent of women who have easy access to public or private transportation.
	Satisfaction with facilities and comprehensive access programs and the suitability of the working environment for the female disabled (scale of 0-10).	NOW Survey Are you Satisfied with facilities and comprehensive access programs and the suitability of the working environment for the female disabled (scale of 0-10).
	Percent of institutions providing kindergarten of those with 50 or more employees.	GaStat –Ministry of labNOWor
	Personal security	
	Death rate from road traffic injuries.	GaStat
	Percent of women who have experienced gender-specific discrimination.	NOW Survey
	Percent of women and girls aged 15 and over who have experienced physical, sexual or psychological violence during the past 12 months.	NOW Survey
	The percent of women aged 20 to 24 who have married before they reach the age of 16 years.	NOW Survey
	Percent of women who reported personal feelings of harassment during the past 12 months.	NOW Survey
	A sense of security in wandering around the residence.	NOW Survey , ratio of positive answers (Do you feel safe walking alone?)
	rate of suicided women during the last 12 months	GaStat
	Community Culture	
	Society accepts women in leadership positions.(NOW Survey (do you accept to work with a woman-headed administration?)
	Community acceptance of women's sports and physical activity	NOW Survey
	Society accepts women's work in Trades and crafts.	NOW Survey (do you accept women working in crafts or service jobs?)

	The Community acceptance of women's independent in individual housing	NOW Survey (do you accept an independent home for women if needed?)
	Happiness and prosperity	
	average of hours spent in leisure and personal care	NOW Survey
	Gender gap in the percent of time devoted to housework and unpaid family care work.	NOW Survey
	The index of how you feel about the place you now stand in your life you wish from 0-10, so that 10 is the best life for you.	NOW Survey
Legislation	Gender gap (ratio of women to men) in senior positions in the government sector	Ministry of Civil Services MCS (Data do not include employees in the security and military sectors)
	Gender gap in managerial positions in the private sector (medium and high).	General Organization for social insurance law GOSI
	Gender gap in Shura Council	GaStat
	Gender gap in municipal councils.	GaStat -
	Gender gap in leadership functions in financial departments.	GaStat
	Gender gap in government employments in private sector council.	GaStat
	Gender gap on the rank of minister or equivalent compared to males.	GaStat
	Gender gap in promotions (number of those who promoted – Average number of years of service at the same level).	GaStat- Ministry of Civil Services MCS (Data do not include employees in the security and military sectors)- General Organization for social insurance law GOSI
	Gender gap in job security.	NOW Survey (Assess your sense of job security from 0 to 10?)
	The gender gap in the committees in decision making.	NOW Survey
	Gender gap in participation in municipal elections	GaStat
	gender gap in employment engagement	NOW Survey (Assess how closely you associate with the job you are working in and want to complete in the same job from 0 to 10?)
	Measure the reflection of the organizational structure of the Women section in the entity and the consequent administrative and financial implications (Budget for women administrative offices).	NOW Survey

	Measuring the impact of royal orders and on women on stakeholders (political Commitment).	Register data related to the entity concerned with the reference royal order
	administrative corruption cases/lawsuits	GaStat
Educational	Infrastructure:	
	number of schools available per 1000 female students.	Ministry of Education
	Percentage of children whose school is more than 30 minutes away from their residence.	Now Survey
	Percentage of schools with female student per class: Primary> 30, intermediate and secondary > 35.	Ministry of Education
	The Number of female students per teacher at primary level – intermediate and secondary.	Ministry of Education
	Average female teachers training hours.	Ministry of Education
	Percentage of female teachers with the education profession license.	Ministry of Education
	Outputs Educational	Ministry of Education
	Gender gap in Literacy.	GASTAT
	Gender gap in primary education.	GASTAT (gender gap in net enrolment rate for primary education)
	Gender gap in intermediate education.	GASTAT (gender gap in net enrolment rate for intermediate education)
	Gender gap in secondary education.	GASTAT (gender gap in net enrolment rate for secondary education)
	Gender gap in intermediate diploma (post-secondary and sub-university).	Ministry of Education
	Gender gap in higher education.	Ministry of Education

	Gender gap in students studying abroad.	Ministry of Education
	Gender gap in technical and vocational training.	Ministry of Education
Health	Gender gap in life expectancy (life expectancy at birth).	GASTAT
	Death rate during birth or pregnancy.	GASTAT
	Adolescent births (age group 10-14 and 15-19 years) per 1,000 women in that age group.	GASTAT
	Health births (birth rate under the supervision of health workers).	GASTAT
	Percent of women aged 15 and over Practitioners of sports activities (on a regular basis) at least once a week.	GASTAT

Table 5 Simulated results of the NOW index using the experts' weights calculated for each of the five pillars and trail data obtained from GASTAT.

Experimental Results	
Value	Category
0.63	The Women participation in the national development index
0.40	Economic pillar
0.97	Health pillar
0.94	Educational pillar
0.2	Legislation empowerment pillar
-	Social Pillar

6. CONCLUSIONS

In this study, we introduced the Now index which measures the Saudi women participation in development as a product of the National observatory for women. The index consists of five pillars averaged equally into the main index and 72 components with weights constructed through deferent methods suitable to each pillar. The dataset had three dimensions education levels, age, and covered all 13 districuts of Saudi Arabia. A national NOW survey was conducted to provide some the missing data. The index is important to Saudi development

specifically to highlight the role of women in the national development, hence helping the nation reach the Saudi vision 2030.

Future work will require calculating the NOW index yearly using data obtained regularly from GASTAT and providing an update to the weights according to the nation development needs. Moreover, the general trend of the index could be analyzed after accumulating several consecutive years measurements, to monitor progress towards specific goals, measure change and find a time series for Now index values to give a more comprehensive picture of the Saudi women development.

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