Healthy Life Expectancy Index reveals a regional paradox

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Healthy Life Expectancy Index reveals a regional paradox

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This report is authored by Khalid Abu-Ismail, Phoebe W. Ishak and Oussama Safa.

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Introduction

The achievement of Sustainable Development Goal 3, namely "Ensure healthy lives and promote well-being for all at all ages" will prove critical in sustaining sustainable development in the years ahead.[1] Measuring health achievements is not a straightforward endeavour, however. The most widely used indicator to assess improvements in the area of health is life expectancy at birth, which is, moreover, also used to calculate the Human Development Index (HDI). However, despite its importance and prominence in research and policy, life expectancy at birth is an indicator for which there is considerable scope for improvement.

The term "life expectancy" refers to the number of years a person within a particular community can expect to live. However, a distinction needs to be made between *cohort* and *period* life expectancy. The former is the average life length of a particular age group, namely those born in a given year, which can be tracked and predicted using a combination of observed mortality rates for past years. The latter estimates the average length of life for a *hypothetical* cohort that is assumed to be exposed, from birth through death, to the mortality rates observed in one particular year. The latter is the more commonly used life expectancy metric and the authors have made use of period life expectancy figures in the present paper.[2]

Despite its importance, life expectancy may not be suitable as the sole indicator of human development in the area of health. This is particularly the case in countries with very high HDI scores, where further improvements in life expectancy are unlikely. Furthermore, as their societies age, those countries must seek to extend the period of healthy life enjoyed by their populations in order to reduce the socioeconomic costs of ageing. Several middle-income Arab countries face similar challenges, since many of them face daunting gaps between the life expectancy and healthy life expectancy of their citizens as a result of health policies and other lifestyle-related factors. In the present paper, the authors seek to help address that issue through the formulation of a "Healthy Life Expectancy Index" (HLEI).

With that objective in mind, this paper is structured as follows: section 1 provides a conceptual framework and explains the motive for the inclusion of a healthy life expectancy indicator; section 2 briefly describes the methodology used to calculate that indicator; section 3 provides an overview of HLEI scores at the global level while focusing, in particular, on the implications of those scores for Arab

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1 Adopted by the United Nations General Assembly in 2015, the 17 Sustainable Development Goals are available at: sdgs.un.org/goals.

2 For further information, see: Esteban Ortiz-Ospina, ""Life Expectancy" – What does this actually mean?", Our World in Data (Global Change Data Lab, 28 August 2017). Available at: ourworldindata.org/life-expectancy-how-is-it-calculated-and-how-should-it-be-interpreted.

countries. That section also assesses the extent to which two national health policy inputs, namely the availability of hospital beds and the number of doctors per capita, correlate with health achievements. In Section 4, the paper concludes with a number of observations by the authors.

1. Conceptual framework

Promoting well-being, particularly in the area of health, requires individuals to make optimal use of the opportunities granted to them to modify health outcomes. Improving health therefore requires the exploitation of "conversion factors" to the best of one's ability with the purpose of attaining a higher quality of life and commensurate longevity. Conversion factors are factors that affect people's decisions and the choices they make, and include environmental, personal and social factors.[3] Personal characteristics have to do with the individual and the choices they make, and are influenced by the individual's endowments (education, wealth, etc.), while the environment and social factors have to do with the ecological context and societal norms and values, respectively.

Concomitantly, social justice requires that attention be paid to the crucial issues of equality, equity, rights and social engagement.[4] In other words, in a climate of severe disparities or where conversion factors adversely affect opportunities; the achievement of social justice becomes extremely challenging. The absence of equity and concerted efforts to redress exclusion and vulnerabilities also hinder the achievement of social justice. A functional approach based on citizen participation and rights-based policymaking are prerequisites for the achievement of social justice. Social justice, and hence health well-being, is a right that ensures participation and can be a contributing factor to attenuating negative conversion factors and improving outcomes; the Covid-19 pandemic is a case in point.

While the pursuit of well-being is contingent on freedom of choice and the liberty to make the decisions, it follows that the decision to pursue a healthy lifestyle is a personal choice that is intimately linked to a person's agency. The latter facilitates the conversion of capabilities into material opportunities to achieve and prosper. Otherwise labelled as functioning, these achievements become a major indicator of what the person is and has achieved.[5] From a capability-based perspective, the improvement of an individual's well-being without impinging on the well-being of others should be seen as an improvement in overall societal well-being. Hence, improvements in health do not exclusively mean the maximization of life expectancy but also, naturally, the amelioration of life quality by using the maximization of capability to the best of one's agency to achieve

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3 Amartya Sen, *Development as freedom*.(Oxford University Press, 2000); Ingrid Robeyns, The capability approach: a theoretical survey, *Journal of Human Development* 6, pp. 93-114 (2005). Available at: citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1040.7657&rep=rep1&type=pdf.

4 Economic and Social Commission for Western Asia (ESCWA) *Social Protection as a Tool for Justice*. Vol. 5, No. 2 (Beirut, 2015). Available at: www.unescwa.org/sites/www.unescwa.org/files/publications/files/social-protection-tool-justice-english.pdf.

5 Amartya Sen, "Well-being, Agency and Freedom: The Dewey Lectures 1984", *Journal of Philosophy* 2(4), pp. 169-221 (1985). Available at: www.ophi.org.uk/wp-content/uploads/Sen-1985_WellBeing-Agency-Freedom.pdf; Marta Nussbaum, "Capabilities as Fundamental Entitlements: Sen and Social Justice", *Feminist Economics* 9(2–3), pp. 33-59. Available at: https://philpapers.org/archive/nuscaf.pdf.

a higher functioning, namely a healthier life. Conversely, attaining a healthier life will contribute directly to enhancing one's capabilities and, in turn, strengthen freedom of choice and enhance the abundance of commodities that people value.

The concepts of agency, capability, functioning, conversion factors and endowment are interrelated, with freedom of choice lying at the core of all five concepts. A society that enjoys social justice must uphold those concepts simultaneously and provide individuals with the prerequisites for attaining the highest form of well-being that they value. Although additional nuances, such as cultural contexts, dignity, values and norms also come into play in

people's choices, achieving a healthier life is a rational decision that people pursue when they feel an equilibrium among the five aforementioned concepts. In sum, a capability-based approach requires that policy and, by extension, the social contract promotes people's capabilities (opportunities) as well as their functioning (outcome) on an equitable basis by providing the means necessary for a healthier life, better access to health care and other key necessities.

Although 60 per cent of the population of the Arab region is under 30 years of age, the region is expected to see a huge increase in older persons, whose numbers are predicted to increase from 29 million in 2017 to more than100 million by 2050.[6] The good news is that the region has achieved major improvements on key health and development indicators, including a major decrease in infant, child and maternal mortality, improved reproductive health and family planning services, improved access to safe water and sanitation, and a decline in extreme poverty.[7] All these improvements are positively affecting people's capabilities and their options for improving functioning and enjoying more favorable conversion factors. However, the region lacks a universal approach to health care and access to health services remains far from equitable, thereby impeding people's agency to bolster their capabilities to enhance their well-being. In addition, while significant improvements in life expectancy have been achieved since the 1990s, the burden of non-communicable diseases and injuries has increased. As noted in a study published by the Lancet, "the changes in the burden of disease will challenge already stretched human and financial resources because many Arab countries are now dealing with both non-communicable and infectious diseases."[8]

In summary, both conceptually and from a regional perspective, the inclusion of an indicator on healthy life expectancy is strongly justified. In that regard, there are two approaches that can be adopted to quantify the quality of health, namely by using either output or input indicators. The former approach is often expressed in terms of healthy life expectancy at birth (HLE), defined by the World Health Organization (WHO) as the average number of years that an individual is expected to live in full health after taking into account

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6 ESCWA, *Arab Regional Review: Five years after the 2013 Cairo Declaration*, (Beirut, 2018). Available at: www.unescwa.org/sites/www.unescwa.org/files/publications/files/arab-regional-review-cairo-declaration-english.pdf.

7 Ibid.

8 Ali Mokdad and others, "The state of health in the Arab world, 1990-2010: an analysis of the burden of diseases, injuries, and risk factors", *The Lancet*, vol. 383, issue 9914 (25 January 2014), pp 309-320. Available at: www.thelancet.com/journals/lancet/issue/vol383no9914/PIIS0140-6736(14)X6067-8.

years lived in less than full health due to disease and/or injury. In other words, HLE is life expectancy at birth adjusted for non-healthy years and will always be lower than conventional life expectancy. The latter approach focuses on assessing the capacity of health-care systems, as measured by the per capita number of hospital beds and doctors.

The input approach corresponds to structural interventions aiming at strengthening health system capacity and processes. The output approach is, more or a less, an evaluation of the impact of those interventions, inter alia, on health status. It follows that, in tandem with the currently-used HDI health index approach, which focuses on achievements in prolonging life expectancy, an output approach based on HLE should also be adopted in order to assess the quality of health.[9] The next section presents the data and describes the methodology used by the authors to that end.

[9] The authors have refrained from using the difference between life expectancy and healthy life expectancy as an indicator for health. This is because, for low-income countries where life expectancy at birth is already low (62 years old on average), HLE will be also low (around 55 years old in 2018). Hence, the gap between the two may be small, indicating that those countries are doing well on the lost health scale. In contrast, in high income countries, average life expectancy was 80 years old in 2018, but HLE was only 68 years old, making the gap between the two relatively large compared with the gap for low-income countries. This could falsely lead to the conclusion that Rwanda has achieved a higher quality of health for its citizens, as measured by lost health expectancy, than has Norway.

2. Methodology and data sources

A quality of health index was formulated by standardizing the HLE indicator using the min-max formula.

The authors also formulated an index to measure the absorptive capacity of the health sector (Health Sector Capacity Index (HSCI)). That index was based on two indicators: (i) the number of doctors per 1,000 people and (ii) the number of hospital beds per 1,000 people. The indicators were transformed into indices using the standard min-max formula and the quality of heath index was formulated as a simple average of the two indices.

Formally,

$$\text{Health Sector Capacity Index} = \frac{Physicians\ index + Hospital\ beds\ index}{2}$$

Data on healthy life expectancy at birth were derived from the WHO World Health Statistics database for 2020.[10] Data on the number of doctors per 1,000 people and the number of hospital beds per 1,000 people were derived from data for the years 2010 and 2016 contained in the World Bank World Development Indicators database.[11] Hospital beds include inpatient beds available in public, private, general, and specialized hospitals and rehabilitation centres. In most cases, beds for both acute and chronic care are included. Doctors include generalist and specialist medical practitioners. HDI health index data was derived from data collated by the United Nations Development Programme (UNDP).[12]

10 WHO, *World Health Statistics: a visual summary* (2020). Available at: www.who.int/data/gho/whs-2020-visual-summary The full report, entitled *World health statistics 2020: monitoring health for the sustainable development goals* is available at: apps.who.int/iris/handle/10665/332070.

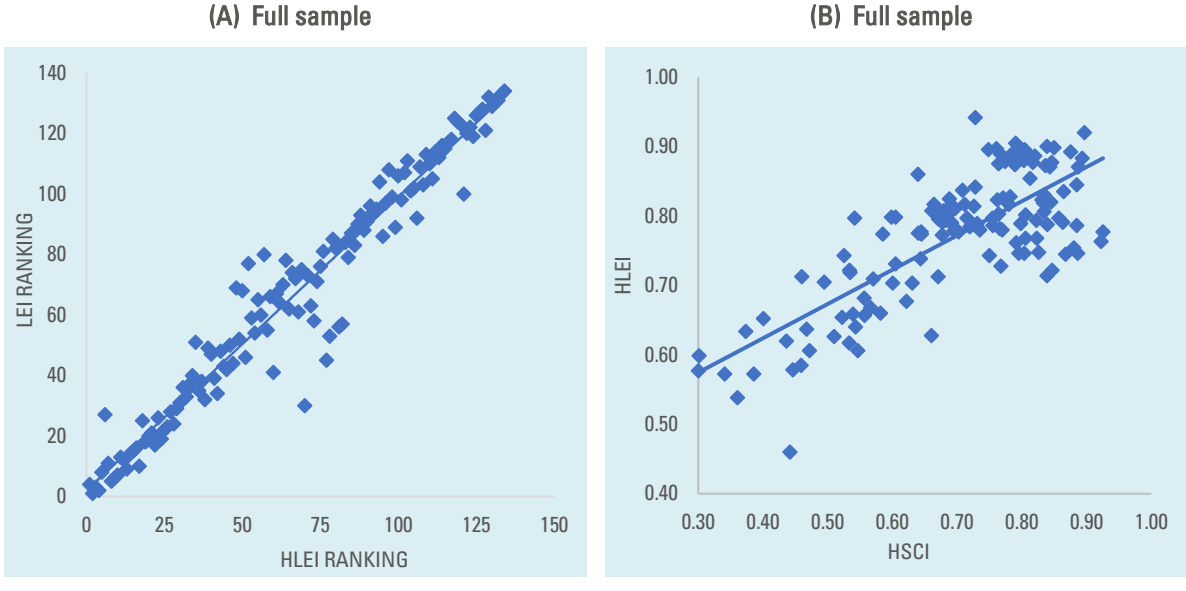
11 World Bank, *World Development Indicators*. Available at: datatopics.worldbank.org/world-development-indicators/.

12 UNDP, Human Development Data Center database. Available at: hdr.undp.org/en/data.

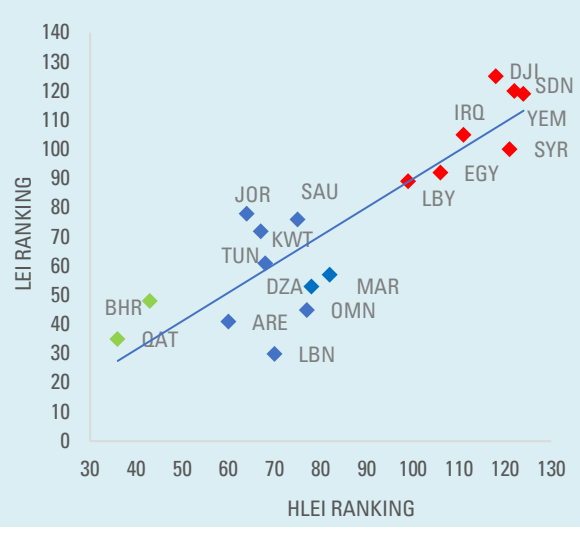
3. Results

As expected, a very high score and rank correlation is apparent between countries' Life Expectancy Index (LEI) and HLEI. Although there is strong correlation, figure 1A provides justification for the calculation of the latter, as some countries, and most Arab countries, show significant deviation from the norm in that regard. This is clearly shown by the position of most Arab countries below the regression line, indicating disproportionately lower scores on HLEI relative to LEI. Many countries score higher than Arab countries in terms of HLEI. Indeed, as illustrated in table A.2, contained in annex 2, certain countries, notably Colombia, Cyprus, Honduras and Peru, show are ranked particularly high in terms of HLEI compared with LEI. For the majority of countries, however, there is strong correlation between the two scores, with many countries scoring well on both LEI and HLEI. Among Arab countries, only Jordan scores well on both indices.

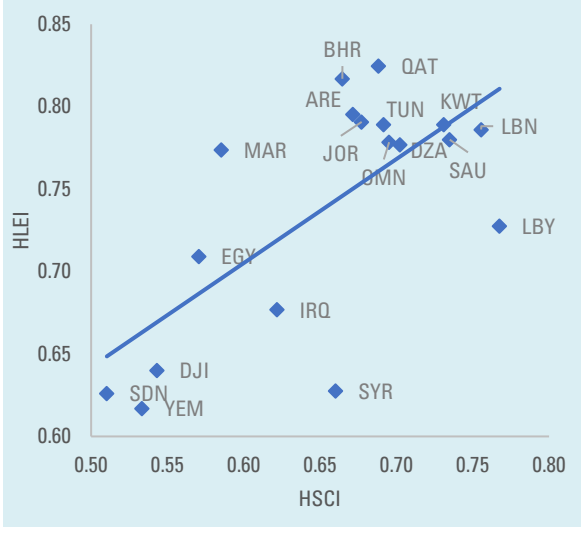
Figure 1. LEI and HLEI rankings (A and C) and HLEI and HSCI scores (B and D) (2018)



(C) Arab countries



(D) Arab countries



Source: Authors' calculations on the basis of WHO and World Bank data.

Notes: ARE = United Arab Emirates; BHR = Bahrain; DJI = Djibouti; DZE = Algeria; EGY = Egypt; IRQ = Iraq; JOR = Jordan; KWT = Kuwait; LBN = Lebanon; LBY = Libya; MAR = Morocco; OMN = Oman; QAT = Qatar; SAU = Saudi Arabia; SDN = Sudan; SYR = Syrian Arab Republic; TUN = Tunisia; YEM = Yemen.

Figure 1B illustrates clearly that, as expected, the authors' proposed HLEI correlates well with HSCI. The table below illustrates, however, that certain countries, particularly those that came into existence following the break-up of the Soviet Union, are distinct outliers in that regard. In those countries, health capacities are much higher than health outcomes, suggesting that health system resources are being used relatively inefficiently in those countries.

Figure 1C reveals strong positive correlation between LEI and HLEI for Arab countries. In that figure, Arab countries have been placed in three categories. Category 1 countries (green) rank below 50 on both HLEI and LEI and include only Bahrain and Qatar. Category 2 countries (blue) show limited correlation between LEI and HLEI: Algeria, Lebanon, Morocco, Oman, and the United Arab Emirates all rank lower in terms of HLEI relative to LEI, while Jordan, Kuwait, Saudi Arabia and Tunisia, rank higher in terms of HLEI relative to LEI. Category 3 countries (red) perform poorly in terms of both indicators. Those countries include Djibouti, Egypt, Iraq, Libya, the Sudan, the Syrian Arab Republic and Yemen, these groupings are also confirmed in the table below, in which a column shows HLEI rank minus LEI rank. Figure 1D provides a powerful overview of those results. With the exception of Libya, all Category 3 countries achieve very low scores (Djibouti, the Sudan and Yemen) to low scores (Egypt, Iraq and the Syrian Arab Republic),) in terms of HSCI. Interestingly, Morocco is the only country from Category 2 which reports a low HSCI score. This may indicate that, compared with other countries in that category, Morocco has a relatively efficient health sector.

HLEI and HSCI for Arab countries (2018): scores and global rankings

Country	HLEI	LEI	HSCI	HLEI rank	LEI rank	HLEI minus LEI rank
Qatar	0.82	0.9	0.69	36	35	1
Bahrain	0.82	0.88	0.66	43	48	-5
United Arab Emirates	0.8	0.88	0.67	60	41	19
Jordan	0.79	0.84	0.68	64	78	-14
Kuwait	0.79	0.84	0.73	67	72	-5
Tunisia	0.79	0.86	0.69	68	61	7
Lebanon	0.79	0.92	0.76	70	30	40
Saudi Arabia	0.78	0.84	0.73	75	76	-1
Oman	0.78	0.88	0.7	77	45	32
Algeria	0.78	0.86	0.7	78	53	25
Morocco	0.77	0.86	0.59	82	57	25
Libya	0.73	0.8	0.77	99	89	10
Egypt	0.71	0.79	0.57	106	92	14
Iraq	0.68	0.77	0.62	111	105	6
Djibouti	0.64	0.65	0.54	118	125	-7
Syrian Arab Republic	0.63	0.77	0.66	121	100	21
Sudan	0.63	0.68	0.51	122	120	2
Yemen	0.62	0.69	0.53	124	119	5

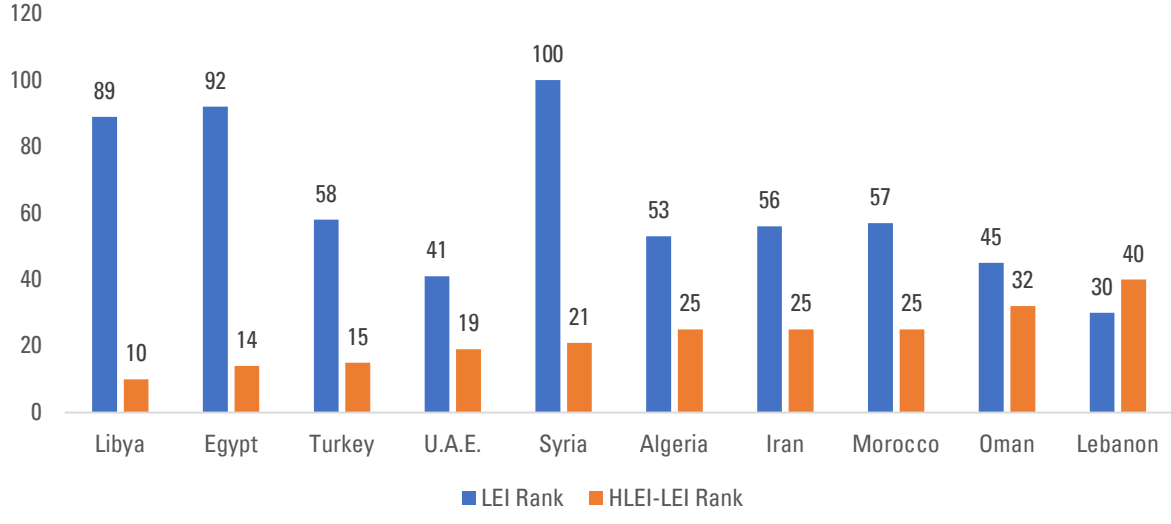
Source: Authors' calculations on the basis of WHO and World Bank data.

Note: The green colour is an indicator of a high level of achievement, orange and yellow for upper- and lower-medium achievement, respectively, and red is an indicator of a low level of achievement. This colour scheme does not correspond precisely with HDI thresholds.

Figure 2, below, illustrates the 10 highest rank discrepancies at the global level, and shows that 8 of those 10 countries are within or border the Middle East and North Africa region. The factors accounting for the relatively low ranking in terms of healthy life expectancy for those countries, which presumably have similar health systems to other countries that display no such discrepancy, merits further investigation The significant rank discrepancy for Lebanon, (the highest world-wide) is particularly confusing given its very high LEI ranking. More

paradoxical is the observation that these countries have very different levels of life expectancy and health sector capacity. Lebanon and the United Arab Emirates, for example, both have a high LEI ranking while Algeria and Morocco both achieve a medium ranking and Egypt, Libya and the Syrian Arab Republic all achieve a low ranking.

Figure 2. LEI rankings and 10 greatest discrepancies between LEI and HLEI (2018)



Source: Authors' calculations on the basis of WHO and World Bank data.

4. Conclusion

In this paper, the authors have sought to re-examine the HDI health dimension by calculating different countries' HLEI scores. The development of the healthy life expectancy indicator has a strong conceptual basis and is grounded in a capability approach. HLEI is, moreover, relatively easy to calculate and is regularly updated for different countries by WHO. The authors have also formulated an index to measure the absorptive capacity of the health sector (HSCI) on the basis of two established indicators, namely the number of doctors per 1,000 people and the number of hospital beds per 1,000 people.

The results of the exercise are in line with expectations regarding health sector capacity and health outcomes, and countries with higher HLEI scores also tend to score well higher in terms of HSCI. Certain countries, particularly those that came into existence following the break-up of the Soviet Union, are anomalous in that regard, however. In those countries, health capacities are much higher than health outcomes, suggesting that their populations tend to make lifestyle choices that negatively affect their health, and/or that health system resources are being used relatively inefficiently. Other countries, including Morocco, show a lower health sector capacity than expected given their HLEI scores, which may be the result of healthy lifestyle choices and/or the relatively efficient use of health sector resources.

The results also reveal that, as expected, there is strong correlation between most countries' HLEI and LEI scores and rankings. However, for many Arab countries, there is a striking discrepancy in that regard and 8 the 10 countries with the highest rank discrepancies at the global level are in the Middle East and North Africa region (the other 2 countries being Turkey and Iran). Why is HLE significantly shorter in those countries than in other countries with similar life expectancies? Explaining this Middle East and North Africa regional paradox will require further in-depth analysis of morbidity across the region and the specific factors that can reduce HLE.

Annex 1

Healthy Life Expectancy Index

The Healthy Life Expectancy Index (HLEI) is drawn up by standardizing the healthy life expectancy at birth indicator (HLE) using the standard min-max formula.

Health Sector Capacity Index

The Health Sector Capacity Index (HSCI) is a simple average of two indicators, namely the number doctors per 1,000 people and the number of hospital beds per 1,000 people.

$$\text{Health Sector Capacity Index} = \frac{Physicians\ index + Hospital\ beds\ index}{2}$$

To formulate the two indices, we followed the below steps:

1. Missing values were replaced by the average of the nearest 3-5 years. In some cases, the only available data point in the periods 2000-2009 and 2011-2015 were simply substituted in years 2010 and 2016.
2. To deal with outliers and obtain a smoother distribution, a log transformation of the indicators was undertaken.
3. Country scores were standardized by means of the following formula:

$$\frac{Dependency\ indicator_i - Minimum}{Maximum - Minimum}$$

The minimum and maximum values were chosen in accordance with the HDI methodology. The minimum (maximum) was set based on the minimum (maximum) observed value in raw data for both indices. The data available showed that the lowest (highest) value scored by a country during the period 2010-2016 was 0.008 (7.9) and 0.1 (15.1) for the per capita number of doctors and hospital beds, respectively. Therefore, the minimum values were set at 0 and 0.07, while the maximum values were set at 8.1 and 18. Ranks were then calculated for the conventional and proposed health indices (annex 2).

Annex 2

Table A.2 Healthy Life Expectancy (HLE), Heathy Life Expectancy Index (HLEI), Life Expectancy Index (LEI) and Health Sector Capacity Index (HSCI): country scores and rankings

Country (134 countries)	HLE (Years)	HLEI	LEI	HSCI	HLEI rank	LEI rank	HLEI-LEI rank
Singapore	76.2	0.94	0.97	0.73	1	4	-3
Japan	74.8	0.92	0.98	0.90	2	1	1
Spain	73.8	0.90	0.97	0.79	3	3	0
Switzerland	73.5	0.90	0.97	0.84	4	2	2
France	73.4	0.90	0.96	0.85	5	8	-3
Cyprus	73.3	0.90	0.93	0.76	6	27	-21
Canada	73.2	0.90	0.96	0.75	7	11	-4
Italy	73.2	0.90	0.97	0.80	8	5	3
Australia	73	0.89	0.97	0.81	9	6	3
Iceland	73	0.89	0.97	0.80	10	7	3
Republic of Korea	73	0.89	0.96	0.88	11	13	-2
Norway	73	0.89	0.96	0.79	12	12	0
Israel	72.9	0.89	0.96	0.79	13	9	4
New Zealand	72.8	0.89	0.95	0.77	14	14	0
Luxembourg	72.6	0.89	0.95	0.82	15	15	0
Austria	72.4	0.88	0.95	0.89	16	16	0
Sweden	72.4	0.88	0.96	0.78	17	10	7
Malta	72.2	0.88	0.94	0.80	18	25	-7
Ireland	72.1	0.88	0.95	0.77	19	18	1
Greece	72	0.88	0.94	0.85	20	20	0
Portugal	72	0.88	0.94	0.82	21	21	0
United Kingdom	71.9	0.88	0.95	0.76	22	17	5

Country (134 countries)	HLE (Years)	HLEI	LEI	HSCI	HLEI rank	LEI rank	HLEI-LEI rank
Denmark	71.8	0.87	0.93	0.79	23	26	-3
Finland	71.7	0.87	0.94	0.84	24	19	5
Belgium	71.6	0.87	0.94	0.84	25	22	3
Germany	71.6	0.87	0.94	0.89	26	23	3
Costa Rica	70.9	0.86	0.92	0.64	27	28	-1
Slovenia	70.5	0.85	0.94	0.81	28	24	4
Cuba	69.9	0.84	0.92	0.89	29	29	0
Chile	69.7	0.84	0.92	0.73	30	31	-1
Panama	69.4	0.84	0.89	0.71	31	36	-5
Czechia	69.3	0.84	0.90	0.86	32	33	-1
Croatia	69	0.83	0.89	0.83	33	37	-4
Uruguay	68.8	0.83	0.89	0.78	34	40	-6
China	68.7	0.83	0.87	0.77	35	51	-16
Qatar	68.6	0.82	0.90	0.69	36	35	1
Poland	68.5	0.82	0.89	0.83	37	38	-1
United States of America	68.5	0.82	0.91	0.76	38	32	6
Argentina	68.4	0.82	0.87	0.83	39	49	-10
Slovakia	68.3	0.82	0.88	0.85	40	47	-7
Estonia	68.2	0.82	0.89	0.83	41	39	2
Albania	68.1	0.82	0.90	0.71	42	34	8
Bahrain	68.1	0.82	0.88	0.66	43	48	-5
Montenegro	68.1	0.82	0.88	0.78	44	43	1
Brunei Darussalam	67.9	0.81	0.88	0.73	45	42	3
Ecuador	67.9	0.81	0.87	0.69	46	50	-4
Mexico	67.7	0.81	0.88	0.70	47	44	3
Peru	67.5	0.81	0.85	0.66	48	69	-21
Viet Nam	67.5	0.81	0.87	0.68	49	52	-3
Serbia	67.4	0.81	0.85	0.83	50	68	-18

Country (134 countries)	HLE (Years)	HLEI	LEI	HSCI	HLEI rank	LEI rank	HLEI-LEI rank
Bosnia and Herzegovina	67.2	0.80	0.88	0.76	51	46	5
Colombia	67.1	0.80	0.84	0.69	52	77	-25
North Macedonia	67.1	0.80	0.86	0.81	53	59	-6
Jamaica	66.9	0.80	0.86	0.61	54	54	0
Nicaragua	66.9	0.80	0.85	0.60	55	65	-10
Bahamas	66.8	0.80	0.86	0.76	56	60	-4
Honduras	66.8	0.80	0.82	0.54	57	80	-23
Hungary	66.8	0.80	0.86	0.86	58	55	3
Sri Lanka	66.8	0.80	0.85	0.72	59	66	-7
United Arab Emirates	66.7	0.80	0.88	0.67	60	41	19
Malaysia	66.6	0.79	0.85	0.68	61	67	-6
Romania	66.6	0.79	0.85	0.82	62	64	-2
Bulgaria	66.4	0.79	0.84	0.86	63	70	-7
Jordan	66.4	0.79	0.84	0.68	64	78	-14
Saint Lucia	66.4	0.79	0.85	0.69	65	62	3
Armenia	66.3	0.79	0.84	0.80	66	74	-8
Kuwait	66.3	0.79	0.84	0.73	67	72	-5
Tunisia	66.3	0.79	0.86	0.69	68	61	7
Latvia	66.2	0.79	0.84	0.84	69	75	-6
Lebanon	66.1	0.79	0.92	0.76	70	30	40
Lithuania	66.1	0.79	0.84	0.88	71	73	-2
Brazil	66	0.78	0.85	0.72	72	63	9
Turkey	66	0.78	0.86	0.73	73	58	15
Mauritius	65.8	0.78	0.84	0.77	74	71	3
Saudi Arabia	65.7	0.78	0.84	0.73	75	76	-1
Seychelles	65.7	0.78	0.82	0.77	76	81	-5
Oman	65.6	0.78	0.88	0.70	77	45	32

Country (134 countries)	HLE (Years)	HLEI	LEI	HSCI	HLEI rank	LEI rank	HLEI-LEI rank
Algeria	65.5	0.78	0.86	0.70	78	53	25
Belarus	65.5	0.78	0.81	0.93	79	85	-6
El Salvador	65.5	0.78	0.82	0.64	80	82	-2
Iran (Islamic Republic of).	65.4	0.78	0.86	0.64	81	56	25
Morocco	65.3	0.77	0.86	0.59	82	57	25
Paraguay	65.3	0.77	0.82	0.65	83	84	-1
Dominican Republic	65.2	0.77	0.83	0.68	84	79	5
Azerbaijan	64.9	0.77	0.80	0.82	85	87	-2
Georgia	64.9	0.77	0.82	0.81	86	83	3
Democratic People's Republic of Korea	64.6	0.76	0.80	0.92	87	90	-3
Uzbekistan	64.5	0.76	0.79	0.79	88	93	-5
Ukraine	64	0.75	0.80	0.88	89	88	1
Moldova	63.6	0.75	0.79	0.83	90	91	-1
Kyrgyzstan	63.5	0.75	0.78	0.80	91	96	-5
Russian Federation	63.5	0.75	0.79	0.89	92	94	-2
Tajikistan	63.5	0.75	0.79	0.80	93	95	-2
Kazakhstan	63.4	0.74	0.77	0.87	94	104	-10
Bangladesh	63.3	0.74	0.81	0.53	95	86	9
Trinidad and Tobago	63.3	0.74	0.78	0.75	96	97	-1
Bolivia	63	0.74	0.76	0.64	97	108	-11
Belize	62.5	0.73	0.78	0.60	98	99	-1
Libya	62.3	0.73	0.80	0.77	99	89	10
Mongolia	61.9	0.72	0.76	0.85	100	106	-6
Solomon Islands	61.9	0.72	0.78	0.53	101	98	3

Country (134 countries)	HLE (Years)	HLEI	LEI	HSCI	HLEI rank	LEI rank	HLEI-LEI rank
Indonesia	61.7	0.72	0.76	0.53	102	107	-5
Turkmenistan	61.4	0.71	0.74	0.84	103	111	-8
Fiji	61.3	0.71	0.77	0.67	104	101	3
Nepal	61.3	0.71	0.77	0.46	105	102	3
Egypt	61.1	0.71	0.79	0.57	106	92	14
Cambodia	60.8	0.70	0.75	0.49	107	109	-2
Bhutan	60.7	0.70	0.77	0.60	108	103	5
Sao Tome and Principe	60.7	0.70	0.72	0.63	109	113	-4
India	59.3	0.68	0.75	0.56	110	110	0
Iraq	59	0.68	0.77	0.62	111	105	6
Myanmar	58.4	0.67	0.72	0.57	112	114	-2
Lao People's Democratic Republic	57.9	0.66	0.72	0.58	113	112	1
Kiribati	57.8	0.66	0.71	0.54	114	116	-2
Pakistan	57.7	0.66	0.72	0.56	115	115	0
Ethiopia	57.5	0.65	0.70	0.52	116	117	-1
Eritrea	57.4	0.65	0.69	0.40	117	118	-1
Djibouti	56.6	0.64	0.65	0.54	118	125	-7
Ghana	56.4	0.64	0.66	0.47	119	124	-5
Malawi	56.2	0.63	0.67	0.37	120	123	-3
Syrian Arab Republic	55.8	0.63	0.77	0.66	121	100	21
Sudan	55.7	0.63	0.68	0.51	122	120	2
Haiti	55.3	0.62	0.67	0.44	123	122	1
Yemen	55.1	0.62	0.69	0.53	124	119	5
Gambia	54.4	0.61	0.63	0.47	125	126	-1
Zimbabwe	54.4	0.61	0.63	0.55	126	127	-1
Togo	53.9	0.60	0.62	0.30	127	128	-1
Afghanistan	53	0.58	0.67	0.46	128	121	7

Country (134 countries)	HLE (Years)	HLEI	LEI	HSCI	HLEI rank	LEI rank	HLEI-LEI rank
Burundi	52.6	0.58	0.58	0.45	129	132	-3
Niger	52.5	0.58	0.62	0.30	130	129	1
Guinea	52.2	0.57	0.62	0.34	131	130	1
Mozambique	52.2	0.57	0.59	0.39	132	131	1
Somalia	50	0.54	0.56	0.36	133	133	0
Central African Republic	44.9	0.46	0.50	0.44	134	134	0

Source: Authors' calculations on the basis of WHO and World Bank data.

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