



**Multi-dimensional Skilling, Inequality & Pandemic Index: Conceptualization,
and simulated scenarios for Africa**

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Paper prepared for the IARIW-TNBS Conference on “Measuring Income, Wealth and Well-being in Africa”, Arusha, Tanzania November 11-13, 2022

Poster Session

Time: Friday, November 11, 2022 [6:00 PM -7:00 PM]

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This is a very preliminary work-in-progress.

Abstract

In this paper, I try to understand the comprehensive performance of African nations on indicators of skills, business environment, pandemic governance, inequality, and human development. I construct a composite multidimensional SKIP (Skilling Inequality Pandemic Index) using the Alkire-Foster methodology. To my understanding, this is one of the first studies to understand advanced capability formation, inequality, and growth prospects beyond the conventional multidimensional indices of poverty, which focus on basic needs and capabilities. I collate data from different sources like the World Income Inequality Database (WIID), UNDP HDI values, Our World in Data, the University of Oxford, and the World Bank. Next, I compare the performance of nations on Gini and other ordinal inequality measures and the computed multidimensional SKIP index value. The overall multidimensional deprivation is 0.92 for all African countries combined. The deprivation cut-off is 40 percent for the nine indicators across four dimensions and nine indicators. Almost 54 percent of the nations experience simultaneous deprivation in indicators and overall multidimensional SKIP poverty as defined. The overall multidimensional SKIP deprivation stands at 0.52, countries that experience simultaneous deprivations in a higher fraction of dimensions have a higher intensity of poverty and are poorer than others having a lower intensity. Future work involves replicating the exercise with and without COVID-19 related variables—an estimation of the extent of deprivation induced by the pandemic. Also, estimate the multidimensional index over a more extended period depending on the data available from the World Income Inequality database.

Acknowledgement

The author would like to thank the National Council of Applied Economic Research and LEAD at KREA University for support in pursuing the work. Also, to Patrice Mirindi and Dr. Sylvanus Ikhide for detailed discussions. The author sincerely thanks the Oxford Poverty and Human Development Initiative for the required training. Prof. Wang Xiaolin, Dr. Suresh Babu, Dr. M.H. Suryanarayana, Sharon Buteau, Dr. Shashanka Bhide, and Dr. Kaushik Kumar Bhattacharjee for their support and encouragement.

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1. Conceptual framework

Has global growth been in tandem with lowering inequality and well-being? It is an age-old problem analyzed through different lenses. How has the pandemic altered the growth and inequality trajectories? (Kakwani et al. 2000; Ravallion 2001; Lakner et al. 2022). In this paper, I will provide an integrated empirical understanding using the UNU-WIDER World Income Inequality Database (WIID) database as to how the low-skilled, inequality, and catastrophic events have affected human development and capabilities, and subsequently inequality. The conceptual framework can be triangulated as follows. It is based on the popular sustainability framework of social, environmental, and economic factors (Figure 1) (Assembly, 2015). I propose this index as a possible understanding of the well-being of African nations ever since the onset of the pandemic.

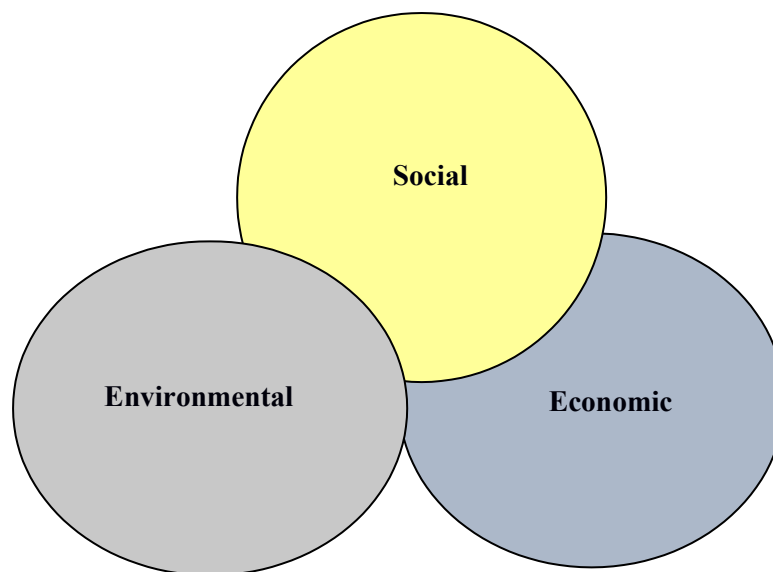
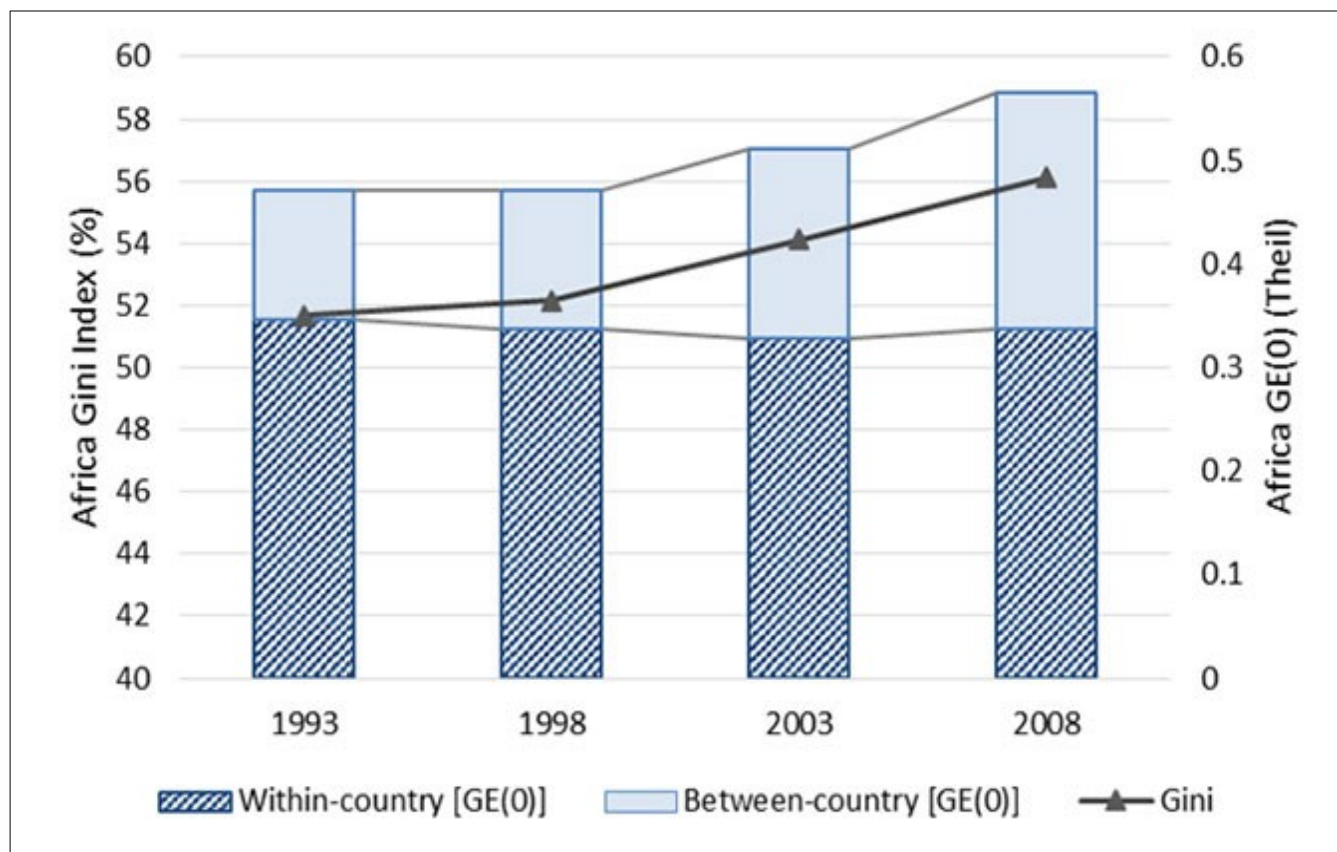


Figure 1: Triangulation of social, economic, and environmental factors

According to different estimates and Reports, income inequality in Africa has been rising since 2015. South Africa tops the global chart on income inequality. Ten other African countries are among the 19 most globally unequal countries. Countries like Cote d'Ivoire, Mauritius, and Rwanda have shown better performance on both economic and social indicators over the past decade. South and Central Africa

house the highest inequality nations that prosper in the oil and mining sectors and limited employment opportunities (UN 2018¹). The Gini index value for African countries rose from 52 to 56 percent from 1993 to 2008 (Figure 2). While relative gains are on rise the absolute disparities have widened. Of the 40 percent rise in total consumption expenditure between 1993 to 2008, 5 percent of those in the top of the distribution drew the benefits (Figure 2; World Bank, 2016²).

Figure 2: Increasing African inequality is driven by rising dispersion between countries



Source: Reproduced verbatim, World Bank, (2016)

With the onset of the pandemic, the country in Africa, South Africa with the highest level of inequality, faced a tripledemic – poor governance, corruption, and Covid-19, which led to a fall in public reserves (Mlambo and Masuku 2020). Van de Walle (2011) and Owoye and Bissessar (2013) restate that poor leadership and governance are prime reasons African countries lag.

¹ Source: [Combating Africa's inequalities | Africa Renewal \(un.org\)](#) (Accessed on Oct 18 2022)

² Source: [Is inequality in Africa rising? \(worldbank.org\)](#) (Accessed on Oct 18 2022)

2. Research objectives

My research objectives are as follows:

1. Map the WIID inequality measures, catastrophe, and education related indicators from the Our World In Data, University of Oxford database, UNDP Human Development Index, and the World Bank Ease of Doing Business Index for all African countries.
2. Perform a distributional analysis of the different chosen indicators.
3. Simulate the datasets and index values on different extreme events using Alkire et al. (2021) methodology.
4. Construct a multidimensional SKIP (Skilling Inequality Pandemic Index) using the Alkire-Foster methodology (Alkire & Foster, 2011), and rank countries.
5. Suggest suitable futuristic policy recommendations.

There is abundant literature on the importance of the different chosen indicators for measuring and reflecting economic growth and well-being (Hanushek & Woessmann, 2010; König & Winkler, 2020; Sarkodie & Owusu, 2020, among others).

3. Methodology

The Alkire-Foster (AF) methodology is used for constructing the multidimensional SKIP (Skilling Inequality Pandemic Index) (Alkire et al., 2015). Based on the Foster-Greer-Thorbecke measures, it involves counting the different types of deprivation that individuals simultaneously witness, such as poor quality of education, unemployment, poor health, and living standards. These deprivation profiles are analyzed to identify who is poor and then used to construct the multidimensional SKIP (Skilling Inequality Pandemic Index) similar to the construction of the popular Global Multidimensional Poverty Index or the country-specific Multidimensional Poverty Index (MPI). To identify the poor, the AF Method counts the overlapping or simultaneous deprivations that a person or household experiences in different indicators of deprivation or poverty, as is the common usage. The indicators may be equally weighted or take different weights. While explaining the methodology, we use the word poverty which in our context means deprivation on skilling or high inequality or bears a greater brunt of the pandemic. Other than the multidimensional poverty literature, the usage of the Alkire-Foster methodology is in the space of nutrition deprivation, health, unemployment, etc (Oldiges, 2017; Mirindi et al., 2021; Ntsalaze and Ikhide, 2018; Ikhide and Bhattacharjee, 2018).

People are identified as multidimensionally poor if the weighted sum of their deprivations is

greater than or equal to a poverty cut off – such as 20%, 30% or 50% of all deprivations. It is a flexible approach which can be tailored to a variety of situations by selecting different dimensions (e.g. education), indicators of poverty within each dimension (e.g. how many years of schooling a person has), and poverty cut offs (e.g. a person with fewer than five years of education is considered deprived). The most common way of measuring poverty is to calculate the percentage of the population who are poor, known as the headcount ratio (H). Having identified who is poor, the AF method generates a unique class of poverty measures ($M\alpha$) that goes beyond the simple headcount ratio. I compute the Adjusted headcount ratio (M_0), otherwise known as the MPI or the SKIP in our case: This measure reflects both the incidence of poverty (the percentage of the population who are poor) and the intensity of poverty (the percentage of deprivations suffered by each person or household on average). M_0 or SKIP is calculated by multiplying the incidence (H) by the intensity (A). M_0 or SKIP = $H \times A$.

Summarily, the MPI or SKIP construction process entails the following steps (Ikhide and Bhattacharjee, 2018):

- Choose the purpose of the measure and identify the institutional framework
- Choose a unit of analysis (individual, household or community)
- Choose dimensions (education, health, living standards etc.)
- Choose indicators for each dimension (e.g. years of schooling, Body Mass Index etc.)
- Set deprivation cut-offs for each indicator
- Sum the sum of weighted deprivations for each person or household depending on the unit of measurement
- Set and apply the poverty cut-off (i.e. the percentage of weighted indicators a person must be deprived in order to be considered poor)
- Calculate the percentage of people identified as poor (the headcount ratio H) i.e. divide the number of poor people by the total number of people
- Calculate the intensity of poverty A (i.e. add up all poor peoples' share of weighted deprivations and divide by the number of poor people)
- Calculate the adjusted headcount ratio (M_0 or the SKIP = $H \times A$)
- Calculate the consistent indices: censored headcount ratio for each indicator, percentage contribution of each indicator to overall poverty, standard errors etc.

The AF Method is unique in that by measuring intensity it can distinguish between, for example, a group of poor people who suffer two deprivations on average and a group of poor people who suffer five deprivations on average at the same time. While the AF Method provides a single headline measure of poverty, it can also be broken down and analyzed in

powerful ways to inform policy.

- **Decomposition by population group:** It can be broken down by geographic area, ethnicity, or other sub-groups of a population, to show the composition of poverty within and among these groups.
- **Breakdown by dimension or indicator:** It can be broken down to show which types of deprivation are contributing to poverty within groups.
- **Changes over time:** The AF Method can be used to monitor changes in poverty over time, using data collected at different periods. It reflects changes in dimensions and indicators of poverty directly and quickly, making it an effective monitoring tool.
- **Complements other metrics:** The AF Method can complement other measures, such as measures of income poverty.

4. Data

As a preliminary exercise to substantiate the concept of the proposed SKIP, I have prepared the following database focussing on African countries (Table 1). There is a plethora of documentation on the importance of technical skills, entrepreneurship, child health and well-being on inequality, and growth in the African region (OECD 2007; Adusei 2016; Allais 2012, among others).

The detailed explanation of the Table is as follows:

- i. Variables based on WIID database: The year variable pertains to the WIID inequality-related variables across countries for the latest year: Gini ratio, median income, the ratio of the income of top 20% to the bottom 20%, the proportion of the bottom 40%.
- ii. Variables based on UNDP database: Human Development Index (2017).
- iii. Variables based on Our World in Data, University of Oxford database: Covid cases (year 2020-21), Stringency Index (year 2020-21), Corruption Perception Index, Terrorism fatalities (in number) (2017), Child mortality (2019), Internally displaced persons, new displacement associated with disasters (2017), Women with no education (Barro-Lee: Percentage of female population age 15+ with no education) (latest year), and Tertiary education (in %) (2010, share of population older than 14 years that has completed tertiary education) (latest year).

The Stringency Index is a composite measure based on nine response indicators including

school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest). The Stringency Index, in a way, indicates good governance.

The non-governmental organization Transparency International (TI) estimates a ‘Corruption Perception Index’, which is arguably the most widely used indicator of corruption worldwide and shown in the map here.

The Corruption Perception Index scores countries on a scale of 0-100, where 0 means that a country is perceived as highly corrupt and 100 means that a country is perceived as very clean. The indicator is representative of expert opinion, as it is constructed by taking the averages of various standardized expert surveys, including those from the Bertelsmann Foundation, the World Economic Forum, the World Bank, and many others.

iv. Variables based on World Bank database, Ease of doing business index (latest year).

Economies are ranked on their ease of doing business, from 1–190. A high ease of doing business ranking means the regulatory environment is more conducive to the starting and operation of a local firm. The rankings are determined by sorting the aggregate scores on 10 topics, each consisting of several indicators, giving equal weight to each topic.

The indicators on inequality are all from the WIID database. The indicators on skilling and entrepreneurship are from the World Bank and the University of Oxford database. Catastrophic events are those of terrorism, COVID-19, corruption, and child mortality. A rank of one on the ease of doing business index implies that the country has the most business-friendly regulations in place. The COVID 19 cases reported are the highest country daily new confirmed COVID cases per million people till date. I report the range or the gap between the highest and the lowest values of the Stringency Index. Higher the range the poor the enforcement of COVID protocols in the country.

The Stringency Index is a composite measure based on nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest). If policies vary at the sub-national level, the index is shown as the response level of the strictest sub-region. The Corruption Perception Index scores countries on a scale of 0-100, where 0 means that a country is perceived as highly corrupt and 100 means that a country is perceived as very clean. The indicator is representative of expert opinion, as it is constructed by taking the averages of various standardized expert surveys, including those

from the Bertelsmann Foundation, the World Economic Forum, the World Bank, and many others. I rank countries by their performance on each indicator. Those approximately at the bottom 20% or the outliers of the distribution were color-coded (Table 1).

The preliminary disaggregated dimensional analysis substantiates our conceptual framework. Countries that perform poorly on all three dimensions are Benin, Sierra Leone, and Zambia. Namibia, the most unequal African nation performs poorly on education, corruption, and the Stringency Index. Figures 3 and 4 depict the Corruption Perception Index and inequality in African countries at high levels. The next step involves the construction of the multi-dimensional index, identification of the dimension, and the indicator that contributes a larger change in the ranking of the country on the overall measure of well-being. Simulated scenarios will help one anticipate how resilient the country is, track its progress on attaining the SDG 10 Goal and sub- goals and other related SDHs, and identify practical policy implications.

5. Preliminary findings

Application of the AF methodology for the construction of the Skilling, Inequality, and Pandemic Index (SKIP)

Table 2 describes the dimensions, corresponding indicators, and the weighting matrix. The major dimensions are those of skills & work, inequality, pandemic governance, and human development. Except for inequality, all three receive a weight of 1/6, and inequality receives a weight of 1/2. The indicators about the dimension of skill & work are women with no education, corruption perception index, and ease of doing business. Each indicator receives a weight of 1 /18. For inequality, we consider the ratio of the top 20 to the bottom 20 percent of the population and the proportion of the population that comprises the bottom 40 percent. Each indicator receives a weight of 1/4. The indicators on the dimension of the pandemic governance are the highest number of COVID-19 cases and the Stringency Index. Each receives a weight of 1/12. On the dimension of human development, each indicator receives a weight of 1/12.

Table 3 is on the deprivation matrix. The cut-off for classifying countries as deprived or not deprived is as follows. If more than 10 percent of the female population receives no education, the nation is deprived. If the value of the ease of doing business is more than 100, then the nation is deprived. If the ratio of the top 20 to the bottom 20 percent of the population is above 10 then the nation is deprived. The nation is deprived if the bottom 40 percent of the population is above 15. If the HDI value is less than 0.6, the nation is categorized as deprived.

If the highest number of Covid cases recorded per day is more than 500, the nation satisfies deprivation status. If the difference between the highest and the lowest value of the Stringency Index is more than 60, then the nation classifies deprivation status. A Corruption Perception Index value of more than 30 classifies as deprivation status for those countries where child mortality is more than 5,000.

Discussion

We estimate the different statistics like uncensored headcount ratio and censored headcount ratio and weigh the measures using country-level weights generated using the population statistics corresponding to the year to which the indicators data pertains. The WIID database do not provide any country weights. Almost 95 percent of the population is multidimensionally SKIP-poor. Around 54 percent of the population is deprived overall and across 40 percent of the weighted indicators. The SKIP value for all African countries combined is 0.52, which is on the higher side of overall deprivation (Table 4). The finding implies that African countries, on the one hand, are performing poorly in developing advanced capabilities and governance. Also, the pandemic has severely impacted multidimensional poverty in the region and will further hinder the acquisition of capabilities beyond basic and poor governance.

The censored head count ratio allows us to analyze the composition of multidimensional poverty as the proportion of people who are poor and deprived in each of the indicators. These censored headcount ratios differ from the raw headcount ratios (uncensored) in that they only consider the deprivations of those that are poor, ignoring the deprivations of the non-poor. Generally, raw headcount ratios may not indicate deprivation accurately due to poor data quality or incomplete indicators. People with multiple deprivations are more likely to be poor and are more likely to be poorer than those experiencing only a single deprivation. The focus is on the acutely poor. Censored head count ratios provide a more accurate idea of the magnitude of the deprivation in a specific indicator when associated with poverty. Finally, raw headcount ratios may include people that “choose” to be deprived in that indicator. The uncensored and censored headcounts are in Table 5. Except for the Stringency and Corruption Perception Index, the censored headcount ratio is lower than that of the uncensored headcount ratio. The censored headcount ratio is highest for women with no education or female illiteracy, HDI, Corruption Perception Index, and child mortality.

Table 6 lists the indicators and their corresponding contribution to SKIP poverty. The highest contribution are the by ratio of the top 20 to bottom 20 of the population, child mortality, and ease of doing business. Figure 5 shows the poor performance of African countries on the Ease of Doing Business Index and corroborates our findings. Child mortality numbers are still high in Africa, more for the southern than northern Africa. Despite the significant decreases, countries require sustained efforts.

6. Policy implications

More than the pandemic poor female education, corruption, child mortality, and inequality leads to greater deprivation. The pandemic's impact is not enormous compared to the factors mentioned above that have had detrimental effects for a longer duration on African economies. Evidence shows that the COVID-19 pandemic had a severe impact on the African economies - a fall in GDP and jobs, food insecurity, and overall poverty levels (Anyanwu & Salami, 2021). It is pretty dismal that corruption and poor governance fueled Africa's past low economic growth (Mlambo et al., 2019). Our analysis also finds that corruption is a critical factor driving multidimensional SKIP poverty to date, or, in short, the acquisition of basic and advanced capabilities, including gender inequality, for a better quality of life is in severe jeopardy. The 'AIDS of democracy' (Ronald Hope, 2000) as corruption is often referred to with poor governance are already a double-burden to the African countries. The onset of the COVID-19 pandemic was the addition to the distress people and public finance are facing, a tripledemic. The vicious role of child mortality and curtailing growth in Africa is much discussed and is also one of the highest contributors to SKIP poverty. The role of female education requires no additional motivation to improve well-being globally and more so in Africa (Browne & Barrett, 1991). Gender inequality has lowered the growth prospects of African countries for a long time (Blackden et al. 2007). Unfortunately, the indicator's poor performance before the pandemic makes the post-pandemic period look gloomy.

Alkire et al. (2021) find that the impact of the pandemic was so severe that it may take 89 percent of the global poor housed in 70 countries to recover from multidimensional poverty in the next 3.6 to 9.9 years. The analysis includes the Sub-Saharan African countries. One needs to estimate in such a case using both the SKIP and causal analysis of the impact of poor performing indicators for decades like child mortality, corruption, low female literacy, and poor human development on multidimensional poverty and growth post-pandemic period. Of course, a few years of post-pandemic data simulations on possible scenarios will be helpful.

Governments must allocate their budgets judiciously on a real-time basis to enhance basic and advanced capabilities. Better governance is needed to tackle the double burden of poverty due to poor performance on human development indicators both pre and post-pandemic.

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Table 1: Merged data on constructing the multi-dimensional Skilling Inequality Catastrophe Index (SICI), Region focus: Africa

Country	Code	Year	Women with no education	Tertiary education	Ease of doing business index	Gini	median	ratio_top20bottom20	bottom40	HDI	Covid cases (Highest)	Stringency Index (Highest - Lowest)	Corruption Perception Index	Terrorism fatalities	Child mortality	Internally displaced persons, new displacement associated with disasters	
Dimension			Skilling			Inequality				Catastrophic events							
1	Angola	AGO	2019	N/A	N/A	177	51.27	666	14.78	11.44	0.58	20	70	19	7	92690	11
2	Benin	BEN	2015	64.88%	2.01%	149	47.76	699	16.09	12.87	0.54	50	52	40	N/A	37100	0
3	Botswana	BWA	2016	10.16%	2.02%	87	53.33	1596	14.81	10.95	0.73	900	45	61	N/A	2320	0
4	Cape Verde	CPV	2015	N/A	N/A	137	42.38	2355	8.61	15.39	0.66	550	43	57	N/A	157	0
5	Cote d'Ivoire	CIV	2015	50.74%	2.13%	110	41.47	987	8.37	15.95	0.85	20	65	35	3	70330	15
6	Djibouti	DJI	2017	N/A	N/A	112	41.59	1403	8.81	15.82	0.51	190	63	31	N/A	1173	0
7	Egypt	EGY	2018	38.25%	6.65%	114	31.53	1485	4.57	21.8	0.7	50	64	35	877	52291	0
8	Eswatini	SWZ	2017	33.87%	1.64%	121	54.58	1097	16.28	10.48	0.6	620	65	38	N/A	1468	0
9	Ethiopia	ETH	2016	N/A	N/A	159	34.99	907	5.85	19.44	0.47	50	70	34	67	177849	115
10	Gabon	GAB	2017	13.96%	6.30%	169	38.02	2779	7.33	16.9	0.69	180	50	34	N/A	2807	0
11	Gambia, The	GMB	2016	67.90%	0.91%	155	35.92	1383	5.9	18.96	0.48	50	67	37	N/A	4504	0
12	Ghana	GHA	2017	37.07%	1.44%	118	43.52	1779	10.41	14.3	0.6	30	75	41	N/A	40168	19
13	Kenya	KEN	2016	18.96%	3.40%	56	40.78	874	7.73	16.4	0.6	50	70	27	126	63623	26
14	Lesotho	LSO	2018	5.89%	0.76%	122	44.88	1157	10.72	13.49	0.52	420	57	41	N/A	4831	0
15	Liberia	LBR	2016	58.27%	1.90%	175	35.27	754	5.94	18.81	0.48	30	55	32	N/A	13365	0
16	Malawi	MWI	2017	23.63%	0.15%	109	44.69	484	8.08	16.21	0.47	20	10	32	N/A	25712	0
17	Mauritius	MUS	2017	8.03%	1.88%	13	36.76	3833	6.18	18.81	0.8	300	80	51	N/A	206	0
18	Mozambique	MOZ	2015	77.58%	0.26%	138	51.1	63	12.53	12.78	0.45	50	58	23	22	81507	7
19	Namibia	NAM	2016	18.63%	0.76%	104	59.07	1962	23.09	8.58	0.64	700	70	53	N/A	2954	0
20	Nigeria	NGA	2019			131	35.13	825	5.96	18.7	0.53	20	70	27	N/A	857899	20
21	Rwanda	RWA	2017	47.53%	0.53%	38	43.71	622	8.44	15.83	0.54	100	50	56	2	13310	3
22	Sao Tome and Principe	STP	2017			170	56.32	902	15.52	11.58	0.62	180	N/A	46	N/A	198	0
23	Sierra Leone	SLE	2018	64.97%	1.22%	163	35.69	765	5.59	19.57	0.44	20	60	30	N/A	27580	250
24	Somalia	SOM	2016	N/A	N/A	190	36.31	3461	7.57	17.22	N/A	20	55	10	1,912	72126	0
25	South Africa	ZAF	2017	6.68%	0.32%	84	61.64	5057	24.14	8.14	0.71	350	75	43	21	40631	14
26	Tanzania	TZA	2018	23.35%	0.36%	141	40.49	702	7	17.33	0.52	30	35	36	8	103222	7
27	Togo	TGO	2015	52.54%	1.51%	97	43.06	684	9.64	14.58	0.51	50	50	30	N/A	17331	0
28	Tunisia	TUN	2016	28.91%	7.38%	78	32.82	3367	5.24	20.14	0.73	650	67	43	5	3398	0
29	Uganda	UGA	2017	17.36%	1.23%	116	42.75	805	8.1	15.98	0.53	50	47	26	7	74053	17
30	Zambia	ZMB	2015	18.95%	0.49%	85	57.14	546	21.27	8.88	0.58	180	52	35	N/A	38460	0
31	Zimbabwe	ZWE	2017	6.92%	0.38%	140	44.34	932	8.58	15.08	0.56	180	55	22	N/A	24166	0

Table 2: Weighting matrix

Dimension	Indicator	Dimension weight	Dimension sub-weight
Skills & Work	Women with no education	1/6	1/18
	Corruption Perception Index		1/18
	Ease of doing business		1/18
Inequality	ratio_top20bottom20	1/2	1/4
	bottom40		1/4
Pandemic	Covid cases	1/6	1/12
	Stringency Index		1/12
Human Development	HDI	1/6	1/12
	Child mortality		1/12

Table 3: Deprivation matrix

Country	Women with no education	Ease of doing business	Economic Inequality		HDI	Covid cases	Stringency Index	Corruption Perception Index	Child mortality
			ratio_top20bottom20	bottom40					
Angola	.	1	1	0	0	0	1	0	1
Benin	1	1	1	0	0	0	0	1	1
Botswana	1	0	1	0	1	1	0	1	0
Cape Verde	.	1	0	1	1	1	0	1	0
Cote d'Ivoire	1	1	0	1	1	0	1	1	1
Djibouti	.	1	0	1	0	0	1	1	0
Egypt	1	1	0	1	1	0	1	1	1
Eswatini	1	1	1	0	0	1	1	1	0
Ethiopia	.	1	0	1	0	0	1	1	1
Gabon	1	1	0	1	1	0	0	1	0
Gambia, The	1	1	0	1	0	0	1	1	0
Ghana	1	1	1	0	0	0	1	1	1
Kenya	1	0	0	1	0	0	1	0	1
Lesotho	0	1	1	0	0	0	0	1	0
Liberia	1	1	0	1	0	0	0	1	1
Malawi	1	1	0	1	0	0	0	1	1
Mauritius	0	0	0	1	1	0	1	1	0
Mozambique	1	1	1	0	0	0	0	0	1
Namibia	1	1	1	0	1	1	1	1	0
Nigeria	.	1	0	1	0	0	1	0	1
Rwanda	1	0	0	1	0	0	0	1	1
Sao Tome and Principe	.	1	1	0	1	0	1	1	0
Sierra Leone	1	1	0	1	0	0	0	0	1
Somalia	.	1	0	1	1	0	0	0	1
South Africa	0	0	1	0	1	0	1	1	1
Tanzania	1	1	0	1	0	0	0	1	1
Togo	1	0	0	0	0	0	0	0	1
Tunisia	1	0	0	1	1	1	1	1	0
Uganda	1	1	0	1	0	0	0	0	1
Zambia	1	0	1	0	0	0	0	1	1
Zimbabwe	0	1	0	1	0	0	0	0	1

Table 4: H, A, and SKIP values

Headcount Ratio (H): % Population in multidimensional poverty

Variable	Obs	Weight	Mean
		398.54570	
SKIP, 40%	24	6	0.953

Intensity of deprivation among the poor (A): Average % of weighted deprivations

Variable	Obs	Weight	Mean
		379.68554	
Censored, 40%	21	6	0.542

Adjusted Headcount Ratio (SKIP = H*A): Range 0 to 1

Variable	Obs	Weight	Mean
		398.54570	
SKIP, 40%	24	6	0.516

Table 5: Uncensored and censored headcount ratios

Variable	Obs	Mean
Uncensored		
Women with no education	24	83.33
Corruption Perception Index	24	66.67
Ease of doing business	24	37.50
ratio_top20bottom20	24	58.33
bottom40	24	33.33
Covid cases	24	16.67
Stringency Index	24	41.67
HDI	24	75.00
Child mortality	24	66.67
Censored		
Women with no education	24	79.17
Corruption Perception Index	24	58.33
Ease of doing business	24	33.33
ratio_top20bottom20	24	54.17
bottom40	24	33.33
Covid cases	24	16.67
Stringency Index	24	41.67
HDI	24	70.83
Child mortality	24	58.33

Table 6: Percentage contribution of dimensions to SKIP poverty

Variable	Obs	Mean
Women with no education	24	8.52
Corruption Perception Index	24	6.28
Ease of doing business	24	16.15
ratio_top20bottom20	24	26.24
bottom40	24	5.38
Covid cases	24	2.69
Stringency Index	24	6.73
HDI	24	7.62
Child mortality	24	9.42

##Given that we use country-level weights for computation of H, A, and SKIP, separately calculated the actual contribution of dimensions do not add up to 100.

Figure 3: Global and African countries performance on the Corruption Perception Index

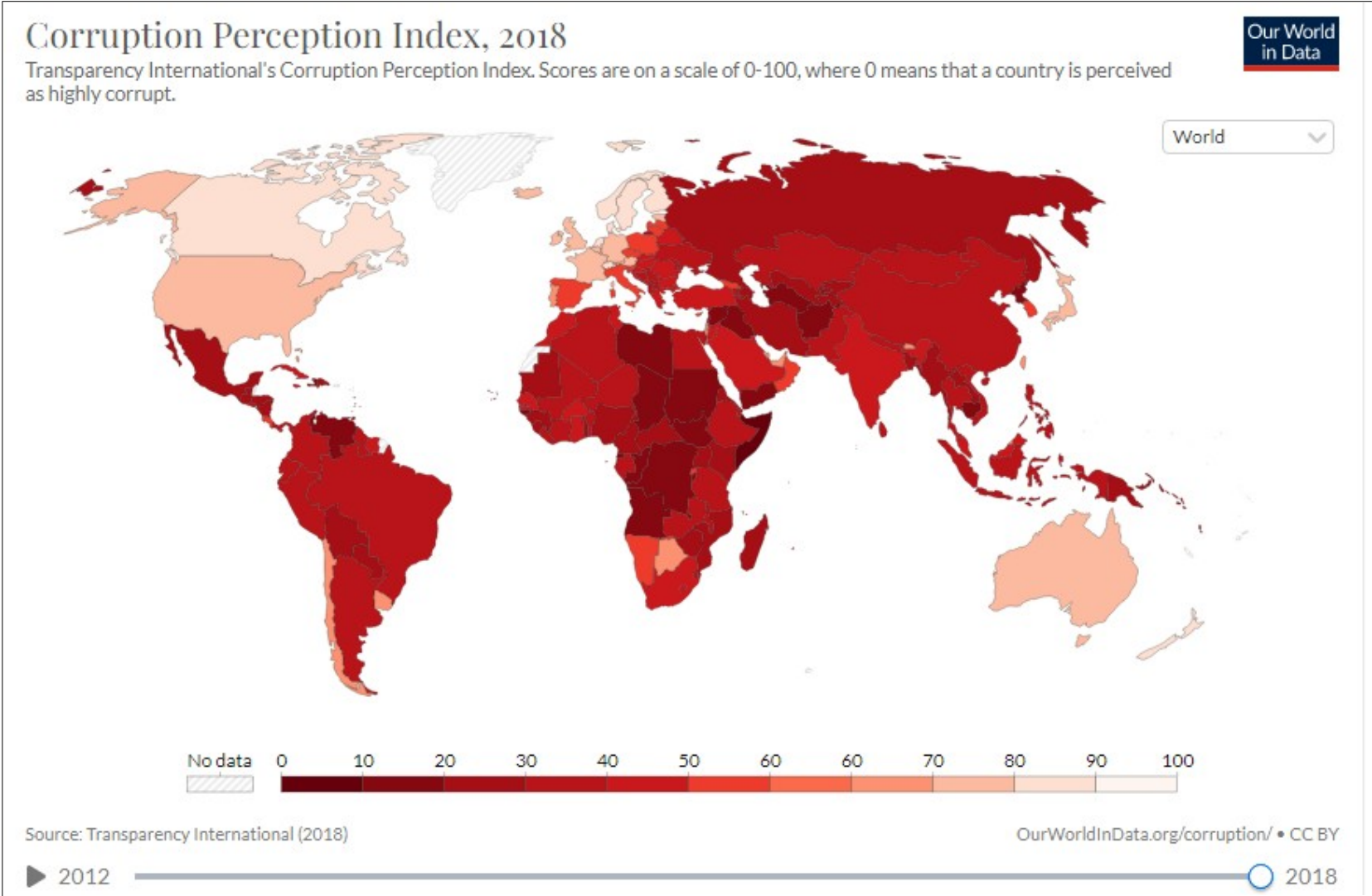


Figure 4: Gini coefficient, World and Africa

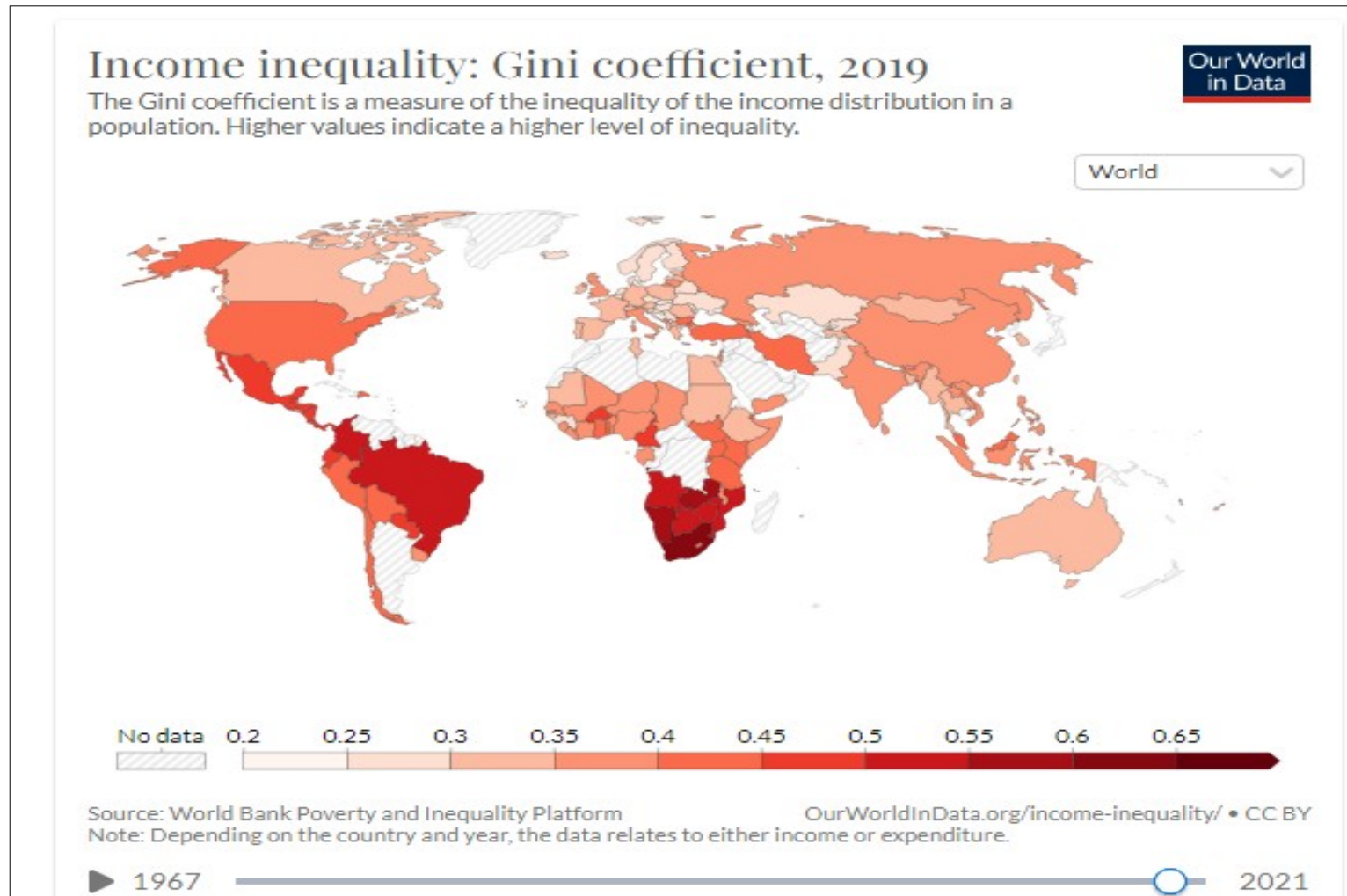
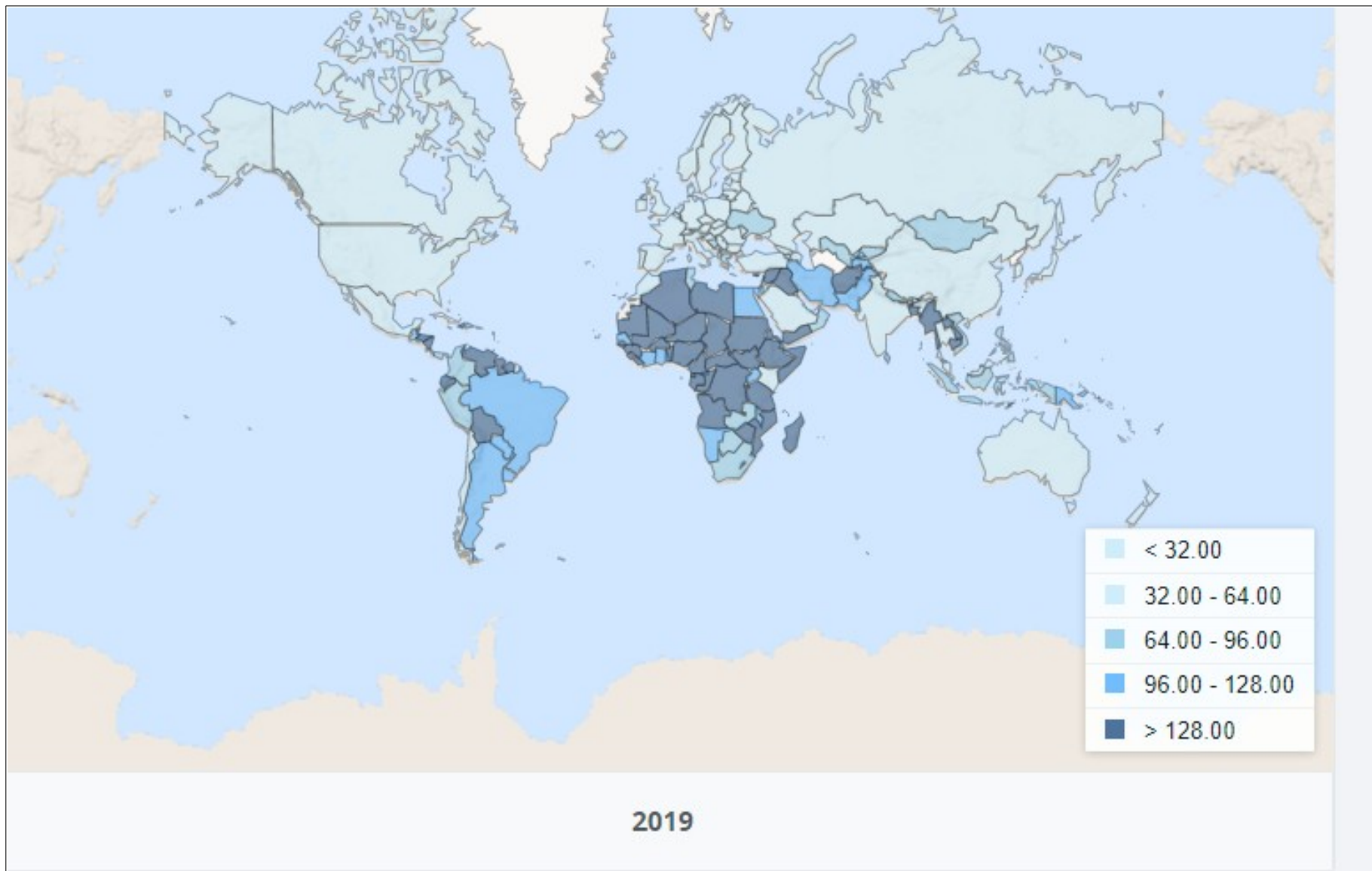
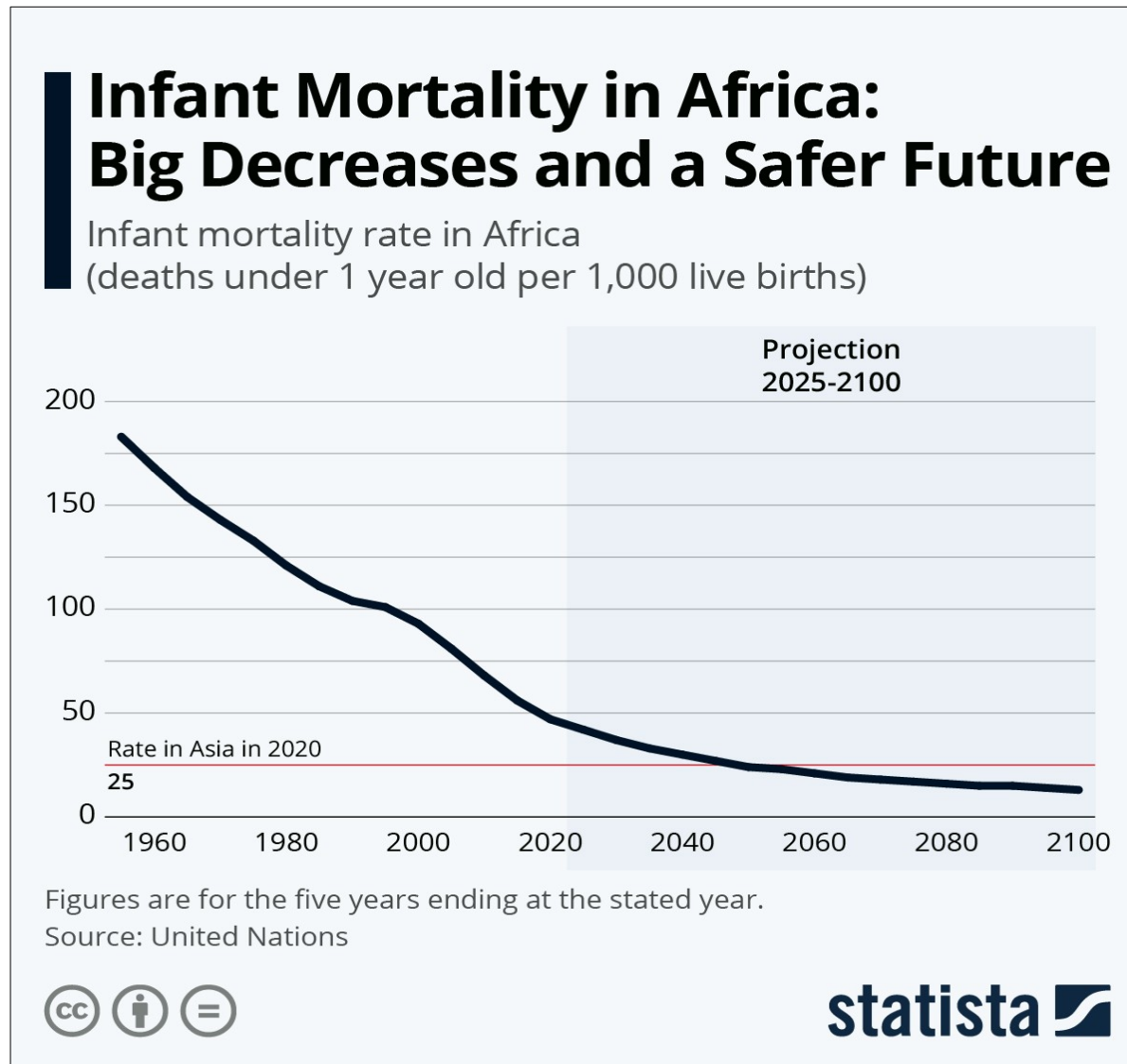


Figure 5: Ease of doing business rank (1=most business-friendly regulations)



Source: [Ease of doing business rank \(1=most business-friendly regulations\) | Data \(worldbank.org\).](#)

Figure 6: Child mortality, Africa



Source: [Africa's infant mortality rate is falling, but is still high | World Economic Forum \(weforum.org\)](https://www.weforum.org)