# Fordham's Pope Francis Global Poverty Index


FORDHAM | IPED

Graduate Program in International Political Economy and Development

Fordham University

2022

*"To enable these real men and women to escape from extreme poverty, we must allow them to be dignified agents of their own destiny.*

*At the same time, government leaders must do everything possible to ensure that all can have the minimum spiritual and material means needed to live in dignity.*

*In practical terms, this absolute minimum has three names: lodging, labor, and land; and one spiritual name: spiritual freedom, which includes religious freedom, the right to education and other civil rights."*

*-- Pope Francis in his Address to the United Nations on September 25, 2015*

Photo Credit: UN Photo / Cia Pak


## About the Logo:

The logo illustrates the seven primary elements that are considered in the Fordham Francis Index. The four elements on the left side represent the Material Well-being components: Water, Food, Housing, and Employment. The remaining three on the right side comprise the Spiritual Freedom components: Education, Gender Equity, and Religious Freedom. Logo design by Armand Aquino, IPED 2017.

# ACKNOWLEDGEMENTS

The Fordham Francis Index would not exist without the invitation of the U.S. branch of the Vatican Foundation *Centesimus Annus Pro Pontifice*. The Foundation's request for us to present our ideas at their 2016 international conference on "Pope Francis' Call for Escaping Poverty" is what led to the creation of this index. We also want to thank His Eminence Cardinal Pietro Parolin, Vatican Secretary of State, for his kind words of support in 2019, as well as His Excellency Archbishop Bernardito Auza, formerly the Permanent Observer of the Holy See to the UN, for his unfailing availability. Special thanks are due to Mr. Joseph Cornelius Donnelly of *Caritas Internationalis* for his support in promoting the report at the United Nations Headquarters in New York. We are indebted to many of our readers who have provided us with suggestions over the last seven years on ways to improve the index. We are grateful to Fr. Elias D. Mallon, SA, PhD of the Catholic Near East Welfare Association (CNEWA) for his comments on religious freedom; Mr. Timothy Herrmann, formerly of the Holy See Mission to the U.N. for his comments on the global migration crisis; Dr. Christian Oldiges, formerly of Oxford University's Poverty and Human Development Institute for his helpful comments on measuring adequate housing as well as on the value of multi-dimensional poverty indicators in general; Mr. Tom Slaymaker of UNICEF/WHO's Joint Programme on Water Supply and Sanitation for his comments on measuring basic access to water; Ms. Bea Lumanas of UNICEF for her insights on education in emergency situations; Dr. Andrew Simmons of Fordham University for his insights on global food security; Dr. Robert Brent of Fordham University for various insights on aggregation; and Dr. Hrishikesh Vinod of Fordham University for comments on measuring correlations. We also want to thank participants at the 2022 Conference on Integral Ecology at the Gregorian University in Rome, and the 2022 Conference on Catholic Social Teaching at the Catholic University of America for stimulating discussions. We wish to acknowledge the many responses we have received from the Archdioceses of Manila, New York and Newark; the Diocese of Bridgeport; the Eparchy of St. Maron of Brooklyn; as well as the many Papal Nuncios from around the world including Australia, Austria, Belgium, Canada, Czech Republic, Ghana, Ireland, Italy, Japan, Kenya, the Netherlands, New Zealand, Philippines, Portugal, UN Headquarters in New York, Spain, the United Kingdom, and the United States. And finally we want to thank Fordham University's Graduate Program in International Political Economy and Development (IPED) for their official sponsorship and the Cassamarca Foundation for their financial support. All remaining errors and omissions are solely the responsibility of the authors.


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**Fordham University**
Graduate Program in International Political Economy and Development

# FORDHAM'S POPE FRANCIS GLOBAL POVERTY INDEX

ABSTRACT: The Fordham Francis Index (FFI) is a multidimensional measure of international poverty inspired by Pope Francis' address to the United Nations General Assembly in 2015. Pope Francis identified four basic human needs—water, food, housing, and employment—as essential for a minimal level of material well-being. Francis also identified religious freedom, education, and other civil rights such as gender equity, as basic human needs essential for a minimal level of spiritual freedom. The FFI identifies appropriate measures for each of Pope Francis' seven basic human needs and then aggregates them into a material well-being index, a spiritual freedom index, and an overall Fordham Francis Index (FFI). The FFI's indicators are closely related to many of the UN's Sustainable Development Goals (SDG's). To date, we have documented a strong relationship between the FFI indicators and reduced poverty, better nutrition, improved health, and better sanitation. The FFI is innovative in two ways. First, it is pro-poor. When compared to other measures of poverty, it has a stronger emphasis on basic human needs and favors outcomes that benefit the marginalized. Second, it is pro-freedom. Besides including indicators of material well-being, it also includes indicators of spiritual freedom. These spiritual freedom indicators, such as education and the civil rights of religious freedom and gender equity, may play an important role in empowering the poor to be champions of their own destinies.

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# FOREWORD

We invite you to explore the 2022 edition of *Fordham's Pope Francis Global Poverty Index (FFI)*. In response to Pope Francis' address to the UN General Assembly in 2015, students at Fordham University's Graduate Program in International Political Economy and Development (Fordham IPED) have devised a unique and innovative measure of integral human development that focuses not only on material poverty but also on spiritual poverty. Each year our research teams document the extreme poverty that hundreds of millions of our sisters and brothers suffer from around the world. In contrast to other measures of economic growth and human development, the Fordham Francis Index (FFI) is more pro-poor with its emphasis on basic human needs and more pro-freedom with its emphasis on civil liberties.

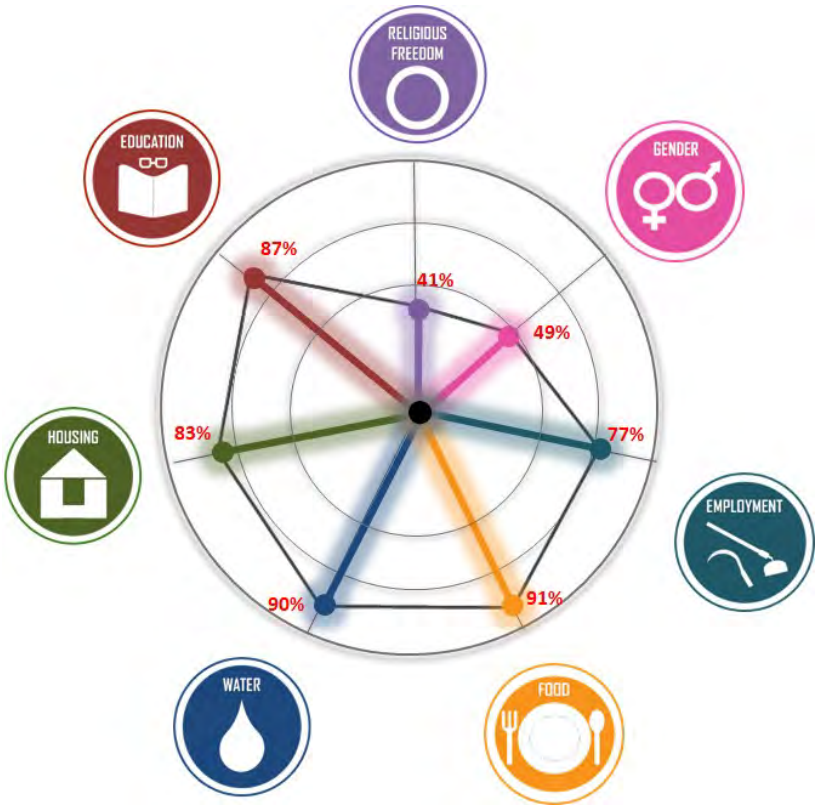
For a brief overview of our results, a quick look at the **Fordham Francis Global Poverty Scorecard** on page 5 should suffice. For a more detailed explanation about the Fordham Francis Index (FFI), you may wish to explore Parts I, II, and III of this report.

**Part I — Pope Francis' Primary Indicators —** describes in more detail the seven primary indicators of global poverty used by the Fordham Francis Index (FFI). Each statistic we use to measure lack of access to water, food, housing, employment, education, gender equity, and religious freedom are defined and justified. For each measure, recent trends are graphed, the global geographical distribution of human needs is mapped, and the ten countries suffering the most deprivation are listed.

**Part II — UN Sustainable Development Goals —** explores the statistical relationships between Pope Francis' seven primary indicators of basic human needs and various targets of the UN Sustainable Development Goals (SDGs). There appears to be significant alignment between many of Pope Francis' Primary Indicators and the UN's SDGs. However, the UN Sustainable Development Goals (SDGs) may not be as focused on the most pressing needs of the world's marginalized. And the UN's SDGs do not appear to focus as much on the importance of civil liberties. There is also some evidence indicating a trade off between poverty reduction and the use of green energy.

**Part III — Fordham Francis Index —** aggregates the data from the seven primary indicators into a Material Welfare Index (MWI), a Spiritual Freedom Index (SFI) and an overall composite, the Fordham Francis Index (FFI). We rank individual countries on the basis of the Fordham Francis Index. And from among developing counties with complete data we identify the top ten countries. In addition to ranking individual countries we also compare the Fordham Francis Index (FFI) with the United Nations Development Programme's Human Development Index (HDI) and a measure of Per Capita Income. We are able to demonstrate that the Fordham Francis Index (FFI) is a more pro-poor index with its emphasis on the basic material human needs of the

**Fordham Francis Index & Integral Human Development**
**Measuring Global Access to both Material and Spiritual Basic Human Needs**




*Star Chart: Each ray represents a critical human need. The length of each ray represents the percentage of the relevant global population that has access to that basic human need.*

most marginalized and that it is a more pro-freedom index with its incorporation of civil liberties into its measure of spiritual freedom. Hence, we are able to argue that Fordham's Pope Francis Global Poverty Index is a more integral measurement of human development.

We welcome and invite your comments and critiques. At your convenience, please contact us through email at *iped@fordham.edu*.

Sincerely,

**Professor Henry Schwalbenberg**

Editor, Fordham Francis Index (FFI)
Director, Graduate Program in International Political Economy and Development, Fordham University, Bronx, New York 10458, USA.

# Fordham Francis Global Poverty Scorecard

For the year 2022, the **Fordham Francis Global Poverty Score is 26.2**.

Over the past seven years that we have tracked the Fordham Francis Global Poverty Score, this year's poverty score is the highest. This high global poverty score is due primarily to increasing government restrictions on religious freedom as well as increasing discrimination against women. Our data does not yet fully reflect the effects of the COVID Pandemic on global poverty.

The Global Poverty Score is simply the global average of the relevant world populations that lack access to seven basic human needs fundamental to human dignity as identified by Pope Francis in his 2015 address to the United Nations General Assembly. Pope Francis' Seven Primary Indicators include four indicators of material welfare and three indicators of spiritual freedom. Of the four material welfare indicators two deal with basic physiological needs such as **water** and **food** and two deal with basic social needs such as **housing** and **employment**. The three indicators of spiritual freedom are **education**, **gender equity**, and **religious freedom**.

Based on the most recently available data in early 2022 we learned that:

**Water**

10.1% of the world's population lack access to water in 2020, leaving roughly 787 million people without basic access to an improved drinking water source such as a well with a collection time not exceeding 30 minutes.

**Food**

9.2% of the world's population were unable to obtain their minimal nutritional needs in 2019, leaving about

| FORDHAM FRANCIS GLOBAL POVERTY SCORECARD (2022) | |
|---|---|
| **MATERIAL WELFARE** | |
| **Basic Physiological Needs** | |
| Water | 10.1% |
| Food | 9.2% |
| **Basic Social Needs** | |
| Housing | 17.2% |
| Employment | 23.2% |
| **SPIRITUAL FREEDOM** | |
| Education | 13.3% |
| Gender | 51.2% |
| Religious Freedom | 58.9% |
| **OVERALL GLOBAL POVERTY SCORE** | **26.2%** |

710 million people who were undernourished.

**Housing**

17.2% of the world's population lived in substandard housing in 2020, leaving approximation 1.3 billion people living in housing where roofs, walls, or floors were either lacking or made from substandard materials such as cardboard, dung or earth.

**Employment**

23.2% of the world's labor force lacked adequately remunerated employment in 2021, leaving approximately 804 million workers without work or employed at a wage below the poverty wage of $3.20 per day.

**Education**

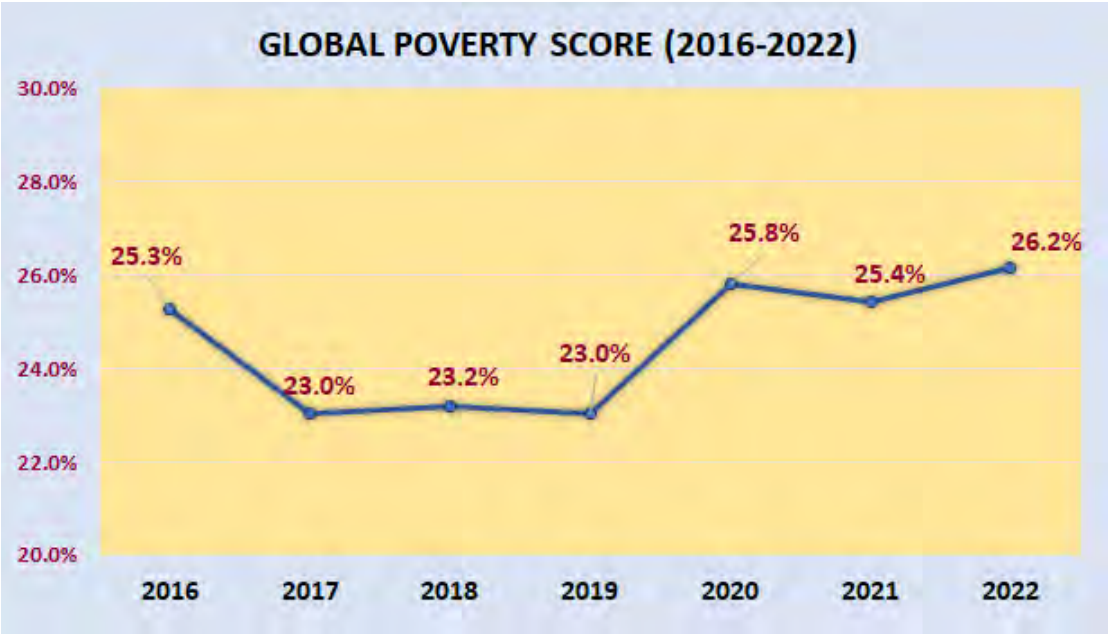
13.3% of the world's adult population were illiterate in 2020, leaving close to 776 million adults who cannot read, write, or comprehend a simple statement about their daily life.

**Gender Equity**

51.2% of women and girls in the world lived in societies that severely discriminate against them in 2021, leaving roughly 2 billion women and girls living in counties where their health and survival are threatened.

**Religious Freedom**

58.9% of the world's population lived in countries where religious freedom is severely restricted in 2019, leaving close to 4.5 billion people living in societies that face severe government restrictions such as banning particular faiths, prohibiting conversion, or giving preferential treatment to one or more religious groups.



# Part I
# Pope Francis' Primary Indicators

Pope Francis identified seven basic human needs that are essential for a minimal level of both material well-being and spiritual freedom. Francis sees **water**, **food**, **housing**, and **employment** as essential for material well-being. He also sees **education**, **religious freedom**, and other civil rights, such as **gender equity,** as essential for spiritual freedom.

The researchers at Fordham carefully evaluated various statistics that could be appropriate measures for each of these seven basic human needs. Our selection criteria followed a robust yet straightforward approach. First, we wanted a statistic that best captured Pope Francis' views of each of these seven basic human needs. In particular, we chose statistics that measure the welfare of the most marginalized people. Next we needed the data to be easily accessible so that our results could be reproduced anywhere in the world. An important concern was geographical coverage and obtaining as many observations as possible. Finally, we were concerned about the consistency, reliability, and credibility of the data and sought to use data collected and distributed by respected international organizations, such as the United Nations and the World Bank.

In the following sections, we provide a more detailed definition, identification, and justification for each of our seven chosen measures. For each statistical measure of a primary indicator, we graph its global trend, map the most recently available data to better visualize geographical disparities around the world, and identify the ten countries who most lacked that particular basic human need.

# Material Well-being Indicators

*In this section we will review each of Pope Francis' indicators of material well-being: water, food, housing, and employment respectively. Water and food are representative of basic human physiological needs, while housing and employment are representative of basic human social needs.*

*We will describe the choice of statistics we used to measure each indicator, describe recent global trends, and identify those areas of the world most lacking these basic material needs*

# WATER

"Water is a gift from God and a common heritage whose universal destination must be ensured for each generation."

*- Cardinal Parolin, World Water Forum 2022*

We estimate that in 2020 roughly 787 million people, or 10.1% of the world's population, lack basic access to drinking water. Graph 1 shows a reduction in the number of people who lack basic access to drinking water compared to previous years.

Pope Francis includes access to drinking water as a basic human need because it is fundamental to sustaining human life. He argues that it is not enough for the marginalized to have access to any type of water. The water should be clean and accessible enough to be obtained when needed, and without undue burden.

We chose *the percentage of a nation's population with basic access to drinking water services from an improved drinking water source* as the best statistic to measure Pope Francis' understanding of the fundamental human need for clean water. This statistic measures a population's access to drinking water from improved sources with collection time not exceeding 30 minutes for a roundtrip including queuing. Improved drinking water sources are those that have the potential to deliver safe water by the nature of their design and construction and include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater and packaged or delivered water. The latest data available from the WHO/UNICEF Joint Monitoring Programme (JMP) water and sanitation database was from 2020. For 2020, data was available for 210 countries.

### *Global Trend*

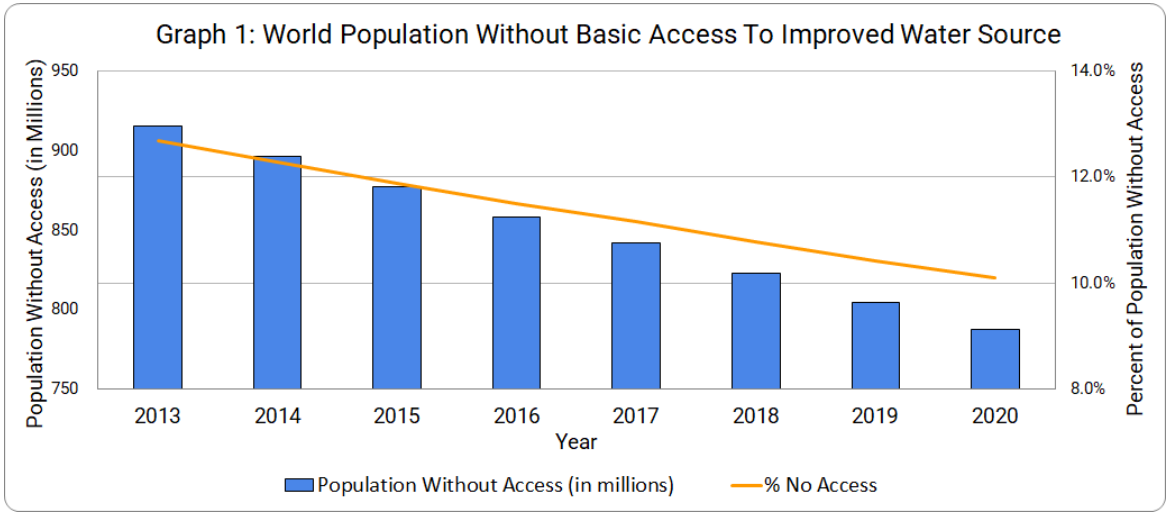
Graph 1 shows the number and percentage of the world population without access to an improved water source. This number has been on a general steady decline since 2013.


### *International Distribution of Needs*

Table 1 lists the ten countries whose populations have the least basic access to drinking water. The country with the least access to improved water

**Table 1: Top ten most deprived nations with respect to access to an improved drinking water source**

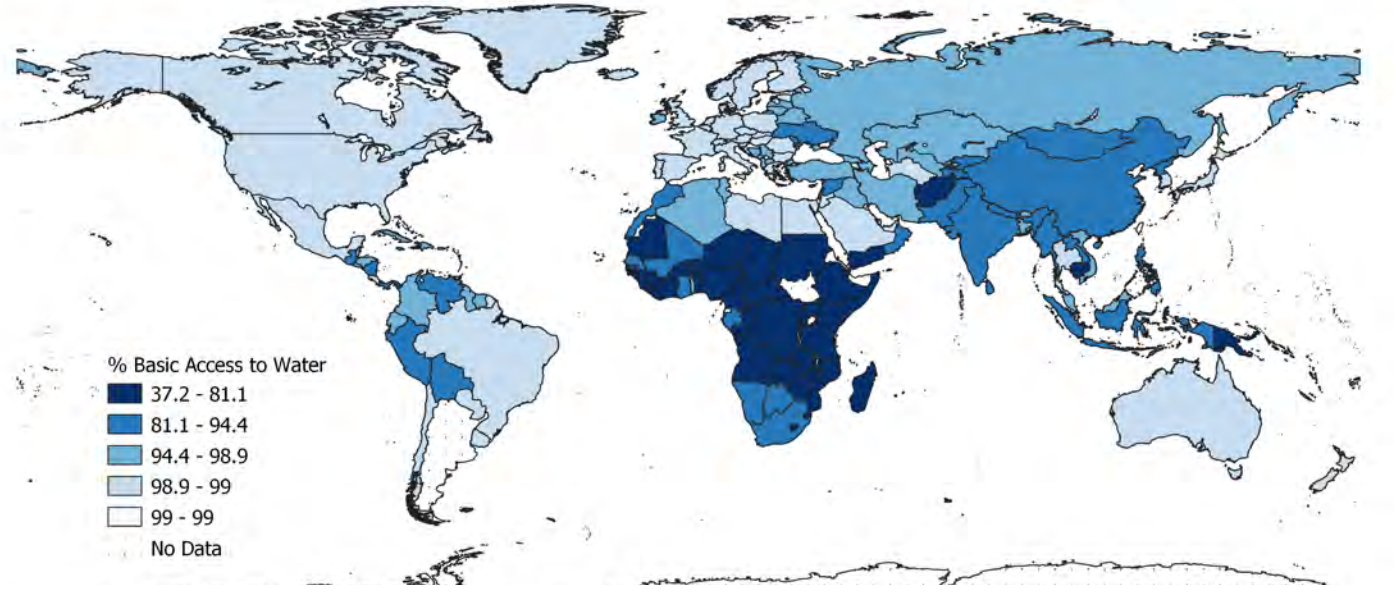
| Rank | Country | % No access (2020) | Population affected (in millions) |
|---|---|---|---|
| 1 | Central African Republic | 62.8 | 3.0 |
| 2 | South Sudan | 59.0 | 6.6 |
| 3 | Papua New Guinea | 54.7 | 4.9 |
| 4 | Democratic Republic of the | 54.0 | 48.4 |
| 5 | Chad | 53.8 | 8.8 |
| 6 | Niger | 53.1 | 12.9 |
| 7 | Burkina Faso | 52.8 | 11.0 |
| 8 | Ethiopia | 50.4 | 57.9 |
| 9 | Madagascar | 46.6 | 12.9 |
| 10 | Uganda | 44.1 | 20.2 |
| | **WORLD** | **10.1** | 787.2 |




sources is the Central African Republic. As the table shows, nine of the ten countries most deprived of access to drinking water are in Africa, while the third most deprived country—Papua New Guinea— is in Oceania.

The map in Figure 1 shows the percentage of each country's population with basic access to drinking water from an improved source, with darker colors indicating increased levels of deprivation. The map shows that water deprivation is heavily concentrated in Sub-Saharan Africa with sporadic deprivation in the Middle East and Asia.

**Figure 1: Map of the percentage of the population lacking basic access to drinking water (2020).**



# FOOD

*"The fight against hunger demands we overcome the cold logic of the market… and strengthen the logic of solidarity"*

*- Pope Francis, World Food Day 2021*


We estimate that in 2019 about 710 million people, or 9.2% of the world's population, are undernourished. In 2019 we see a rise in both the number and the percentage of people suffering from undernourishment.

Pope Francis' selection of access to adequate food as another primary indicator is based on the belief that every individual has a right to life. In 2013, he called the inexplicable presence of hunger and food insecurity endured by nearly one billion people "a global scandal". Thus we need to choose a measure that explicitly captures the number of individuals regularly experiencing food insecurity.

We chose the *prevalence of undernourishment* as the best statistic to measure access to food. It captures food insecurity across an entire population by placing emphasis on individual energy requirements, as opposed to average food intake. The prevalence of undernourishment is defined as the percentage of a population who are continuously unable to consume enough food to meet dietary energy requirements. The data for prevalence of undernourishment is obtained from the UN Food and Agriculture Organization (FAO). The FAO reports the data as three-year moving averages, with the latest data coming from 2019. For 2019, data was available for 162 countries.

### *Global Trend*

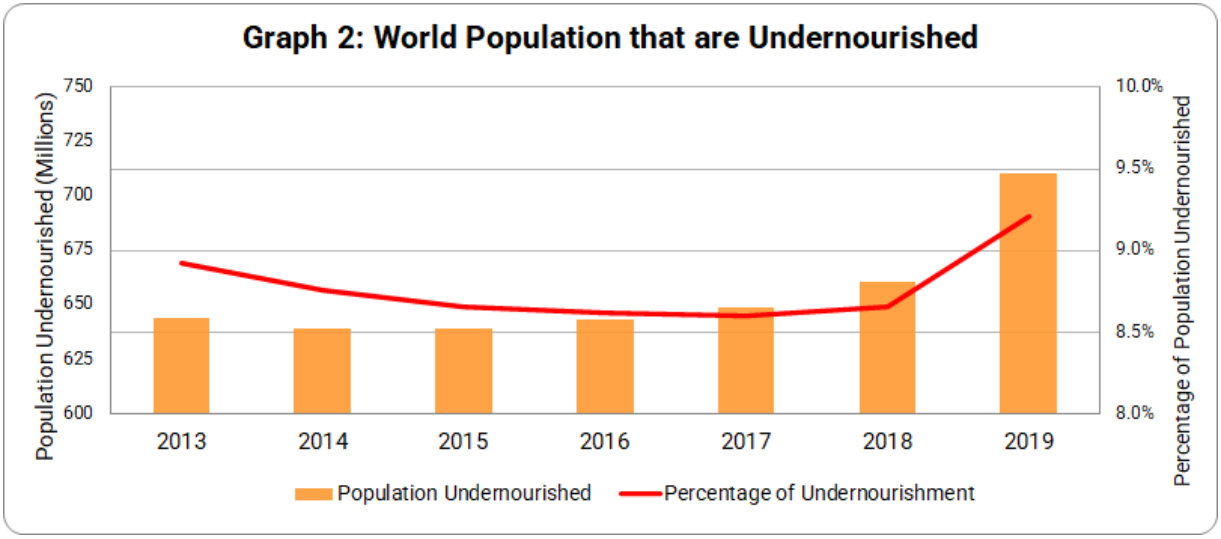
Graph 2 shows the number and percentage of the world population that are undernourished over a six year period. Data show that over the last four years, there has been an increasing number of people who are undernourished.

### *International Distribution of Need*

Table 2 lists the ten countries whose populations have the highest prevalence of undernourishment.

**Table 2: Top ten most deprived nations with respect to adequate nourishment**

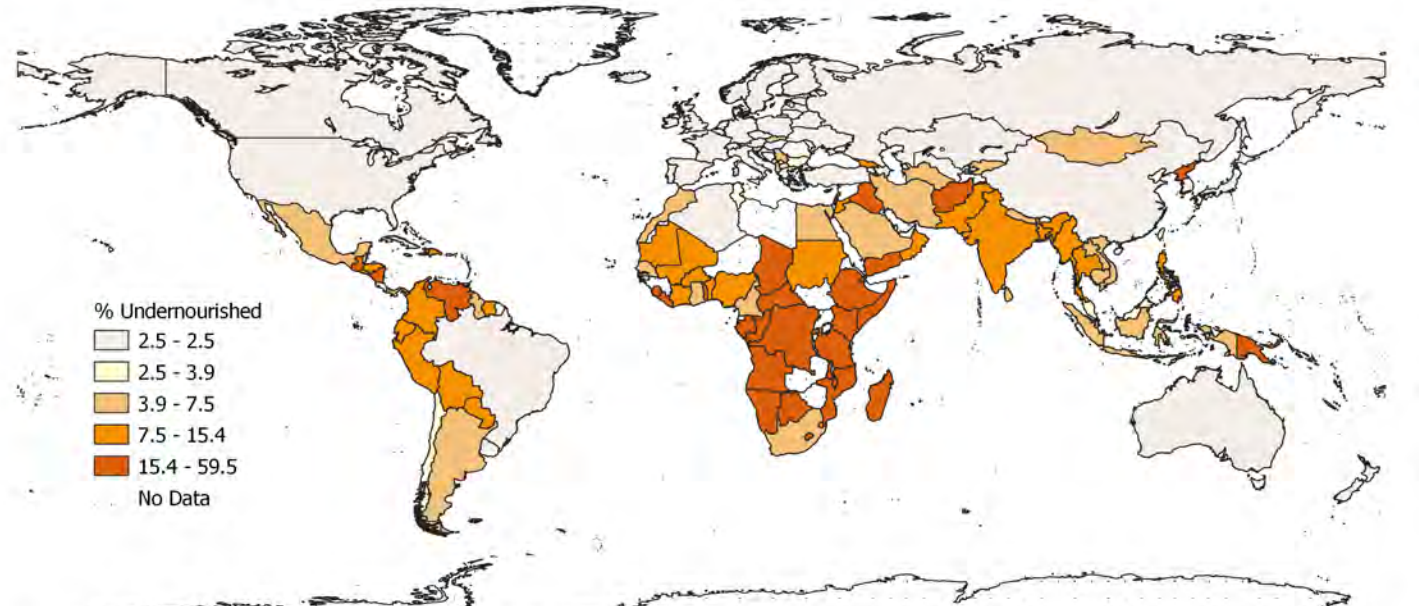
| Rank | Country | % Without Adequate Nourishment (2019) | Population (in millions) |
|---|---|---|---|
| 1 | Somalia | 59.5 | 9.2 |
| 2 | Central African Republic | 48.2 | 2.3 |
| 3 | Haiti | 46.8 | 5.3 |
| 4 | Yemen, Rep. | 45.4 | 13.2 |
| 5 | Madagascar | 43.2 | 11.7 |
| 6 | Korea, Dem. People's Rep. | 42.4 | 10.9 |
| 7 | Democratic Republic of the | 41.7 | 36.2 |
| 8 | Liberia | 38.9 | 1.9 |
| 9 | Congo, Rep. | 37.7 | 2.0 |
| 10 | Iraq | 36.5 | 14.7 |
| | **World** | **9.2** | **710.2** |




The country with the least access to adequate nourishment is Somalia. As the table shows, six of the ten countries most deprived of nourishment are in Africa.

The map in Figure 2 shows the prevalence of undernourishment, with the darker colors of the map indicating increased levels of deprivation. The map shows that the prevalence of undernourishment is concentrated in Sub-Saharan Africa, Asia and parts of Latin America.

**Figure 2: Map of the percentage of the population without adequate access to food (2019)**



# HOUSING

"...no justification whatsoever, for lack of housing."

*- Pope Francis, Meeting with the Homeless (2015)*

We estimate that in 2020 over 1.3 billion people, or 17.2% of the world's population, live in sub-standard housing. The measure of adequate housing was redefined in 2016. Since 2016, there has been a slight improvement in the percentage of households with adequate housing.

Pope Francis includes housing as one of his four primary indicators of material well-being. People require adequate physical space in order to create safe, secure, and nurturing homes for their families. Adequate housing with secure tenure can also provide households with regular access to basic sewage, safe drinking water, garbage collection, and electricity.

We chose *poor or deprived in housing* as the best measure for the housing indicator. It provides the percentage of households that have inadequate housing materials in any of the three components: floor, roof, or walls.

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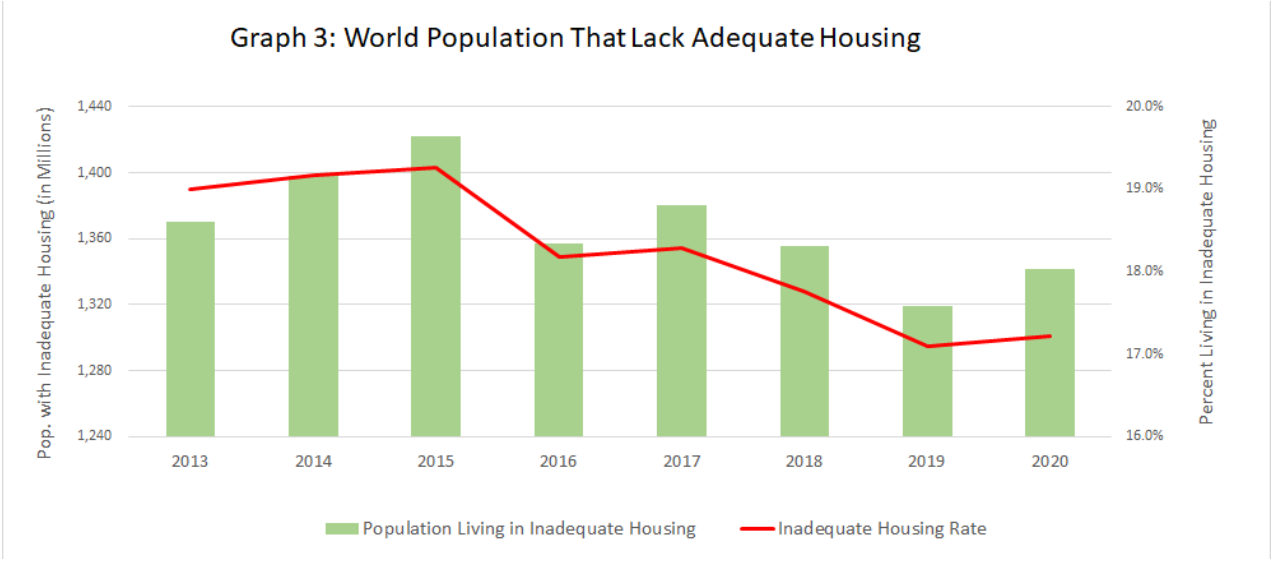
Housing is considered deprived if the floor is made of natural materials, or if dwelling has no roof or walls, or if either the roof or walls are constructed using natural or rudimentary materials such as cane, mud, grass, thatch, bamboo, plastics, plywood, cardboard, etc. The data for inadequate housing is obtained from the Global Multidimensional Index Report produced by the Oxford Poverty & Human Development Initiative (OPHI) in partnership with UNDP's Human Development Report Office. Their database was started in 2010 and contains data ranging back to 2000. Data used for each country is the most recent available. In 2020, the OPHI database contains data for 126 countries.

### *Global Trend*

Graph 3 compares the number and percentage of the world population who live in inadequate housing structures for 2013-2020. In the last year, both the number and percentage of the population without adequate housing increased.

**Table 3: Top ten most deprived nations with respect to adequate housing**

| Rank | Country | % Inadequate Housing (2020) | Population (In millions) |
|---|---|---|---|
| 1 | South Sudan | 90.8 | 10.2 |
| 2 | Niger | 88.9 | 21.5 |
| 3 | Chad | 80.4 | 13.2 |
| 4 | Central African Republic | 75.5 | 3.6 |
| 5 | Burkina Faso | 71.7 | 15.0 |
| 6 | Somalia | 71.0 | 11.3 |
| 7 | Burundi | 70.6 | 8.4 |
| 8 | Mozambique | 69.5 | 21.7 |
| 9 | Ethiopia | 67.5 | 77.6 |
| 10 | Guinea-Bissau | 63.5 | 1.2 |
| | **World** | **17.2** | **1,342** |

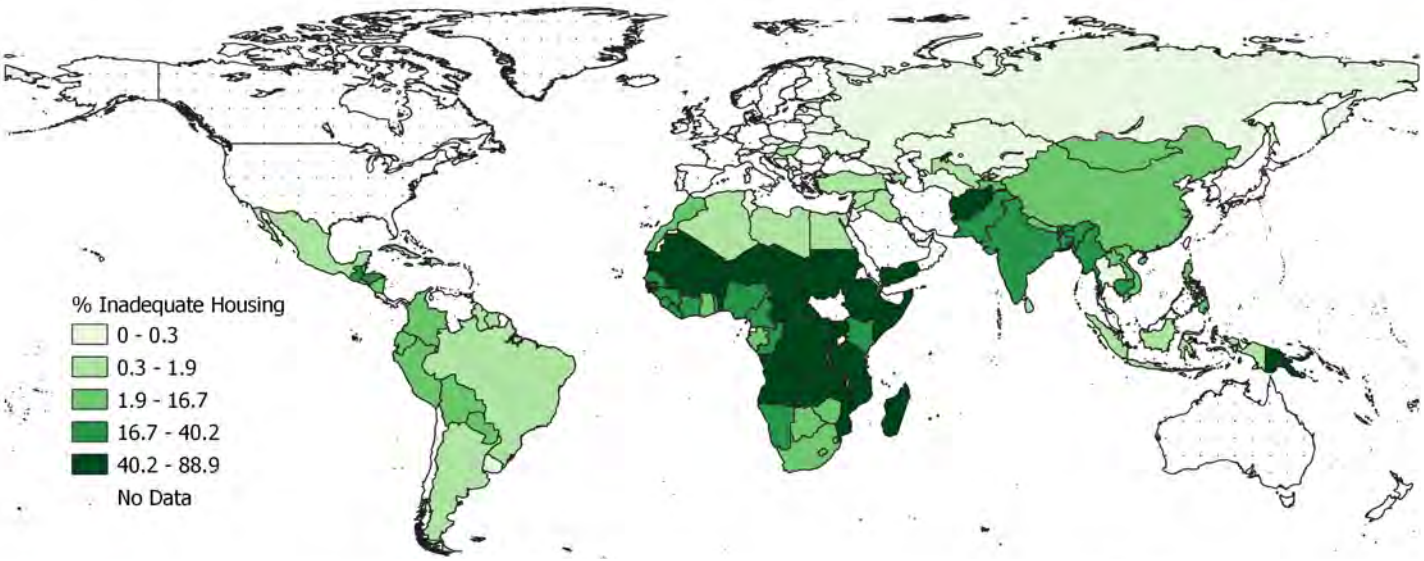



### *International Distribution of Need*

Table 3 is a list of the top ten most deprived nations with respect to access to adequate housing. The country with the least adequate housing is South Sudan. All ten countries are located in Sub-Saharan Africa.

Figure 3 maps the percentage of a population without access to adequate housing. It can be seen that housing deprivation is highly concentrated in Sub-Saharan Africa.

**Figure 3: Map of the percentage of individuals with inadequate housing (2020)**



# EMPLOYMENT

*"...work [has] goodness within itself and creates the harmony of things..."*

*- Pope Francis, Feast of St. Joseph the Worker 2020*

We estimate that in 2021, close to 804 million adults, or about 23.2% of the world's labor force lack paid employment above subsistence level wages. The global employment situation had been improving up until the COVID year of 2020. In 2021, there was only a partial recovery in employment.

The last material indicator selected by Pope Francis is employment. During his address to the UN in 2015, Pope Francis lists "dignified and properly remunerated employment" as one of the indicators representing "essential material and spiritual goods." Employment with adequate compensation is required "to enable these real men and women to escape from extreme poverty [and become] dignified agents of their own destiny. "

We chose the *Distressed Labor Rate* as the best statistic to measure Pope Francis' understanding of the basic human need for dignified employment. The *Distressed Labor Rate* takes the total number of unemployed plus the total number of employed earning less than $3.20 per day, and divides that sum by the total number in the labor force. The labor force includes the employed and the unemployed still looking for work. Following the practice of the International Labour Organization (ILO), we use a salary of $3.20 per day to define the threshold for poverty wages. The ILO considers that a minimum salary of $3.20 per day will allow an individual's continued existence without assistance. Without assistance from community members, NGOs, or governments, the lives of individuals earning less than $3.20 per day may be at risk. The minimum salary of $3.20 per day is based on Purchasing Power Parity (PPP), and takes into account the consumption and price differences among countries.

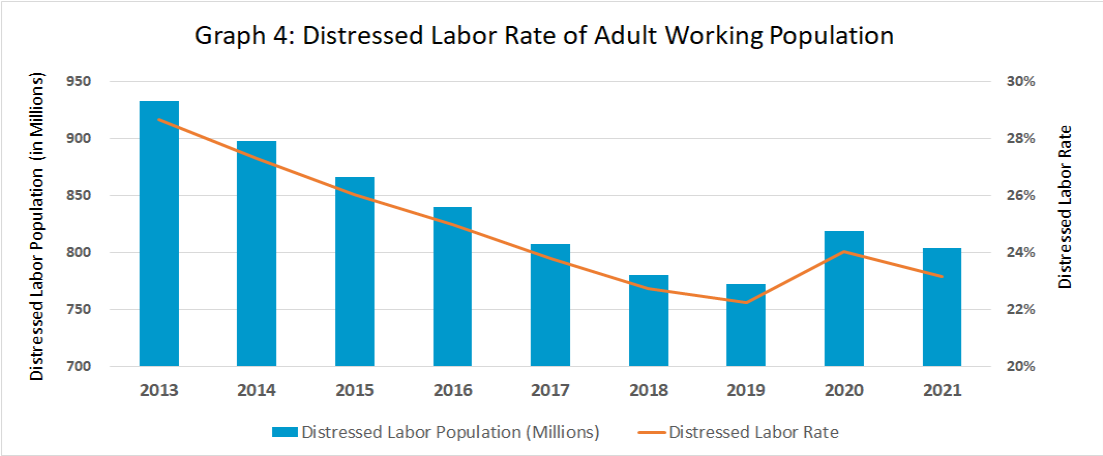

The data needed to construct the *Distressed Labor Rate* is available from the ILO. The latest data available is for 2021 and covers 117 countries.

### *Global Trend*

Graph 4 shows a downward trend in both the *Distressed Labor Rate* as well as in the world's

**Table 4 : Top Ten most deprived nations with respect to adequately remunerated employment.**

| Rank | Country | Distressed Labor Rate (2021) | Total Distressed Labor (in millions) |
|---|---|---|---|
| 1 | Burundi | 93.7 | 4.9 |
| 2 | Madagascar | 90.8 | 13.1 |
| 3 | Malawi | 88.3 | 7.5 |
| 4 | Congo, Democratic | 87.0 | 28.4 |
| 5 | Congo | 84.3 | 1.9 |
| 6 | Central African | 82.9 | 1.7 |
| 7 | Guinea-Bissau | 82.0 | 0.7 |
| 8 | Mozambique | 81.1 | 11.5 |
| 9 | Yemen | 79.9 | 5.5 |
| 10 | Liberia | 79.4 | 1.8 |
| | **World** | **23.2** | **803.7** |



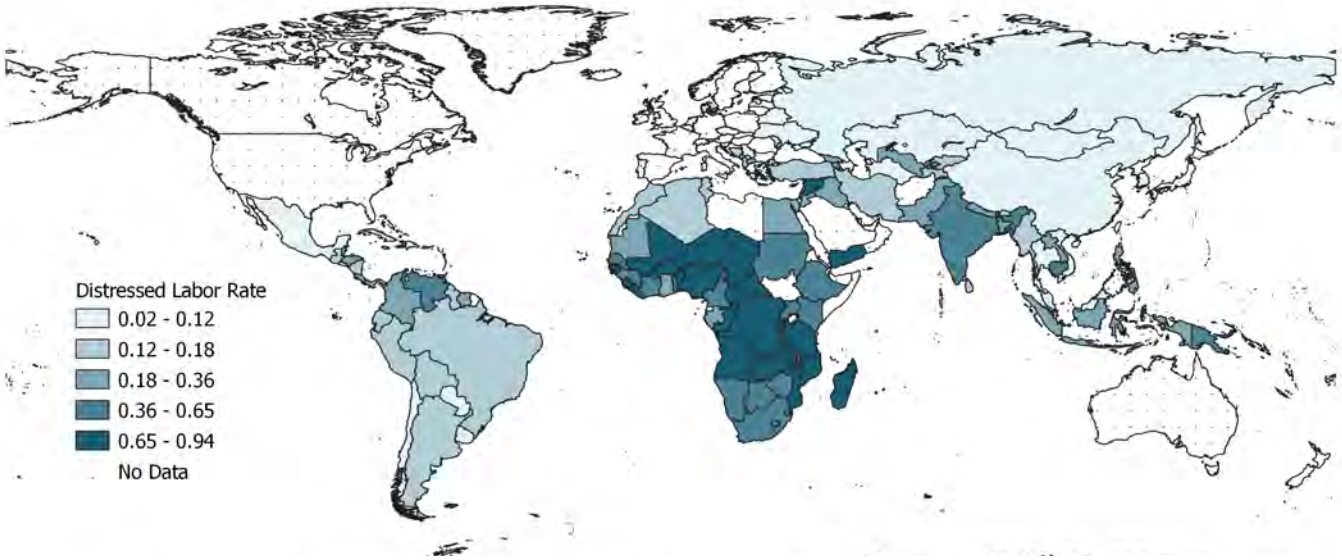

population that lacks access to adequately remunerated employment from 2013 to 2019. However, we see observe a spike in 2020, most likely brought about by the Covid-19 pandemic. The data shows a partial recovery in 2021.

### *International Distribution of Needs*

Table 4 lists the ten countries in the world with the highest *Distressed Labor Rates*. The country with the highest distressed labor rate is Burundi. Nine of the worst performing countries are located in Sub-Saharan Africa.

Figure 4 maps the lack of access to adequately remunerated employment. The map shows that higher distressed labor rates are concentrated in Sub-Saharan Africa.

**Figure 4: Map of Lack of Access to Adequately Remunerated Employment (2021)**



# Spiritual Freedom Indicators

*In this section, we will review each of Pope Francis' indicators of spiritual freedom: education, religious freedom, and other civil rights such as gender equity, respectively. Spiritual freedoms are non-tangible goods and rights that, along with a minimum level of material well-being, can empower marginalized peoples to become "dignified agents of their own destiny."*

*We will describe the choice of statistics we used to measure each indicator, map its recent global trend, and then identify those areas of the world most lacking these basic spiritual freedoms.*

# EDUCATION

"...teaching and education are the foundations of a cohesive civil society capable of generating hope, prosperity and progress."

*- Pope Francis, World Day of Peace 2022*

We estimate that close to 776 million adults, or roughly 13.3 percent of the world's adult population, were illiterate in 2020. The percentage of adult population who are illiterate has continued to decline.

Education is one of the key primary indicators chosen by Pope Francis to measure spiritual freedom. According to Pope Francis, human dignity and development cannot be imposed. Rather, "they must be built up and allowed to unfold for each individual, for every family, in communion with others, and in a right relationship with all those areas in which human social life develops." Education, similar to our other indicators of spiritual freedom, is a critical element that enables the poor to be "dignified agents of their own destiny."

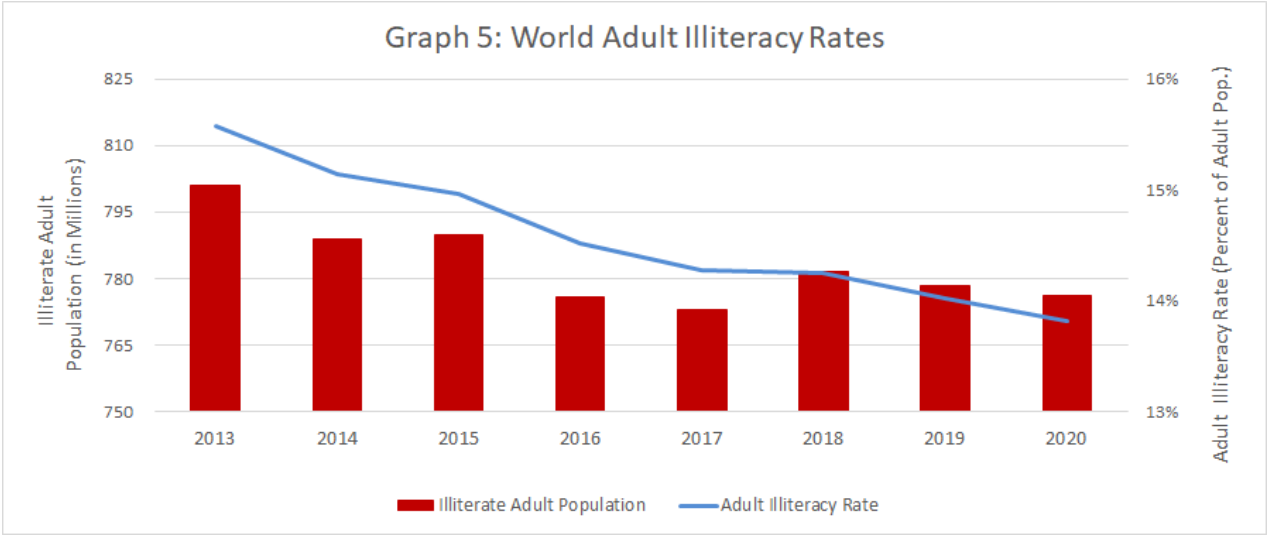
We chose the *adult literacy rate* as our statistic to measure a basic minimum level of education that should be available to all. The Adult Literacy Rate is defined as the percentage of the population age 15 and above who can read, write, and comprehend a simple statement about their everyday life. It measures the actual impact of the education provided, and captures how many individuals received a basic education that can enable them to participate in the formal economy. The UN Educational, Scientific, and Cultural Organization (UNESCO) and the World Bank collect and monitor the reliability and accuracy of this measure. Data used for each country is the most recent available between 2010-2020. A total of 152 countries had data for this time period from UNESCO's database.


**Table 5: Top ten most deprived nations with respect to education**

| Rank | Country | Illiteracy Rate (2020) | Affected Adults (in millions) |
|---|---|---|---|
| 1 | Chad | 77.7 | 6.7 |
| 2 | Mali | 68.0 | 7.7 |
| 3 | Afghanistan | 65.5 | 15.0 |
| 4 | South Sudan | 65.0 | 3.8 |
| 5 | Niger | 64.5 | 8.1 |
| 6 | Central African Republic | 62.6 | 1.7 |
| 7 | Burkina Faso | 58.8 | 7.3 |
| 8 | Guinea | 57.6 | 4.6 |
| 9 | Benin | 57.0 | 4.2 |
| 10 | Sierra Leone | 56.8 | 2.8 |
| | **WORLD** | **13.3** | **776** |

### *Global Trend*

Graph 5 show the global trend in literacy rates from 2013 to 2020. The illiteracy rate as well as the absolute number of illiterate adults have decreased in 2020 compared to the last two years.

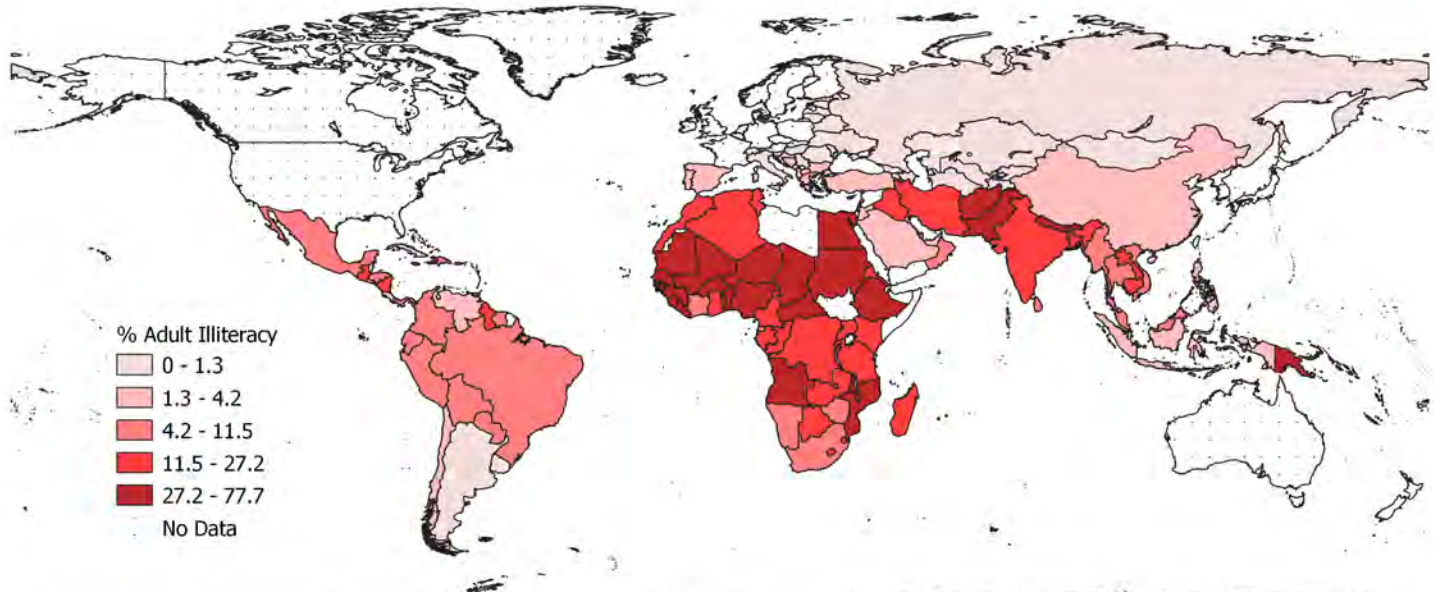



***International Distribution of Needs***

Table 5 lists the ten countries with the lowest rates of adult literacy. The country with the lowest literacy rate is Chad. Nine out of the ten countries with the lowest rates of adult literacy are in Africa. Afghanistan is the only country on this list located in Asia.

Figure 5 shows a map of adult literacy rates around the world in 2020. Countries with the lowest literacy rates appear to be concentrated in Africa, and in Central and South Asia.

**Figure 5: Map of adult illiteracy rates (2020)**



# GENDER

*"The violence suffered by every woman and every girl is an open wound on the body of Christ, on the body of all humanity."*

*- Pope Francis, Intl Day Against Human Trafficking 2022*

For the year 2021, we estimate that 51.2% of women in the world or 2.0 billion women live in countries with severe discrimination against women. There appears to have been a rise in gender discrimination against women since 2014.

In promoting civil rights to life, dignity, and development, Pope Francis emphasized that access to these rights must be inclusive. In his 2015 address to the UN, Pope Francis specifically stressed that girls should not be excluded from education. It is through exclusion and marginalization that many women continue to suffer in poverty today.

We chose the *Health and Survival Index (HSI)* to measure gender discrimination against women. It is presented in *The Global Gender Gap Report* produced by the World Economic Forum. This Index aggregates two components: sex ratio at birth, and the gender gap in healthy life expectancy. Sex ratio at birth captures the phenomenon of "missing women" prevalent in many countries with a strong preference for male children. The healthy life expectancy estimates the gap in the number of years that women and men can expect to live in good health, taking into account the years lost to violence, disease, malnutrition and other relevant factors. An index value of 0.98 indicates that a country has closed the gender gap. The latest data available for the Health and Survival Index was from 2021. For 2021, data was available for 156 countries.

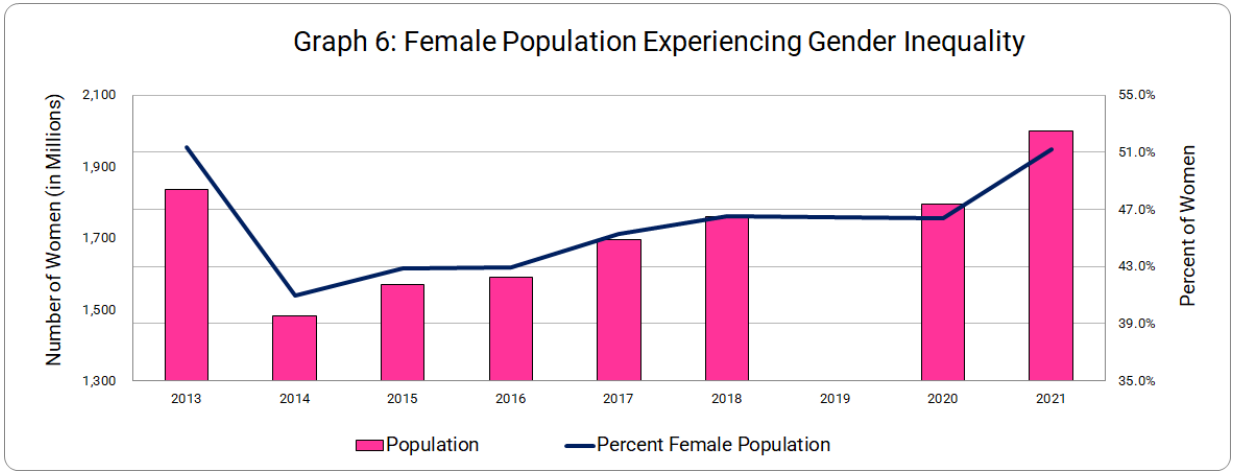

### *Global Trend*

In 2013, 80% of all countries had a score greater than 0.9658 for the Health and Survivor Index. We use this score as a benchmark. Women living in countries with scores at or below 0.9658 faced severe gender inequality by our definition.

Graph 6 plots the trend in global gender inequity from 2013 to 2021 (no 2019 data available). There appears to be some improvement in 2014. However, it has been followed by rising percentage and number of women who live in countries that have a significant lag in health and survival rates compared to men.

**Table 6: Top ten most deprived nations with respect to gender equality (2021)**

| Rank | Country | Health and Survival Index |
|---|---|---|
| 1 | China | 0.935 |
| 2 | India | 0.937 |
| 3 | Azerbaijan | 0.939 |
| 4 | Pakistan | 0.944 |
| 5 | Vietnam | 0.945 |
| 6 | Qatar | 0.948 |
| 7 | Armenia | 0.950 |
| 8 | Afghanistan | 0.952 |
| 9 | Maldives | 0.955 |
| 10 | Albania | 0.956 |
| | **Women Experiencing Gender Gap** | **2.0 Billion women** |

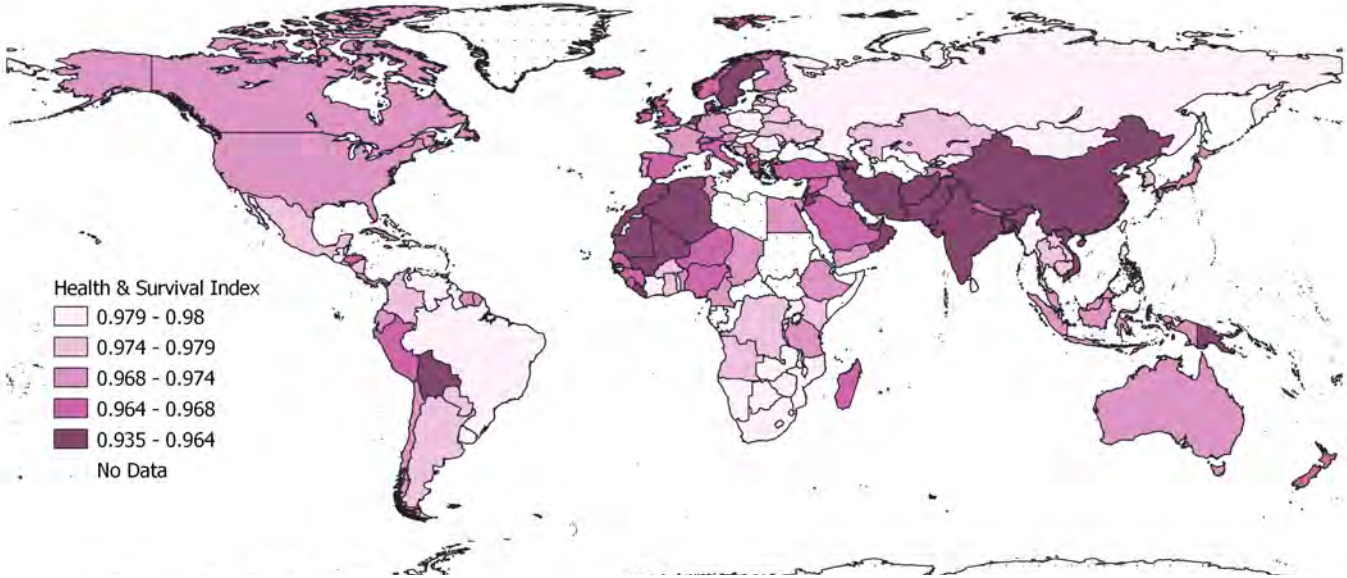



### *International Distribution of Needs*

Table 6 lists the ten countries that experienced the widest gender equity gaps. The country with the biggest gap is China. As the table shows, most of the countries with the largest gender gaps are in Asia and the Middle East.

The map in Figure 6 shows the health and survival gap between women and men, with darker colors indicating stronger preference for male children and/or greater survival of male children relative to female children. The map shows that deprivation in gender equity is concentrated in Asia, the Middle East and North Africa.

**Figure 6: Map of health and survival gap between women and men (2021).**



# RELIGIOUS FREEDOM

*"...there are people who are persecuted simply because they publicly profess their faith… Not only is it unacceptable; it's inhuman, it's insane."*

*- Pope Francis, Monthly Prayer Intention (January 2022)*

We estimate that in 2019 close to 4.5 billion people lived in countries where religious freedom is severely restricted. Roughly 58.9% of the world's population live in countries that severely restrict religious freedom.

Pope Francis specifies that religious freedom is also among the absolute minimum requirements needed to live in dignity. Governments must protect the religious freedom of their citizens. Creating an environment suitable for religious freedom means ensuring each person, consistent with the common good, has the opportunity to act in accordance with his or her conscience. Religious freedom, similar to education and other civil rights such as gender equity, may be an important component in empowering the marginalized "to be dignified agents of their own destiny."


We chose the *Government Restrictions Index (GRI)* from the Pew Research Center as our metric to measure religious freedom. We found this measure to be most suitable because it also accounts for the role of government institutions in promoting or deterring religious freedom. The Pew Research Center compiles 20 measures of restrictions, including efforts by government to ban particular faiths, prohibit conversion, limit preaching, or give preferential treatment to one or more religious groups. The latest data available for the GRI from the Pew Research Center was from 2019. For 2019, data was available for 198 countries.

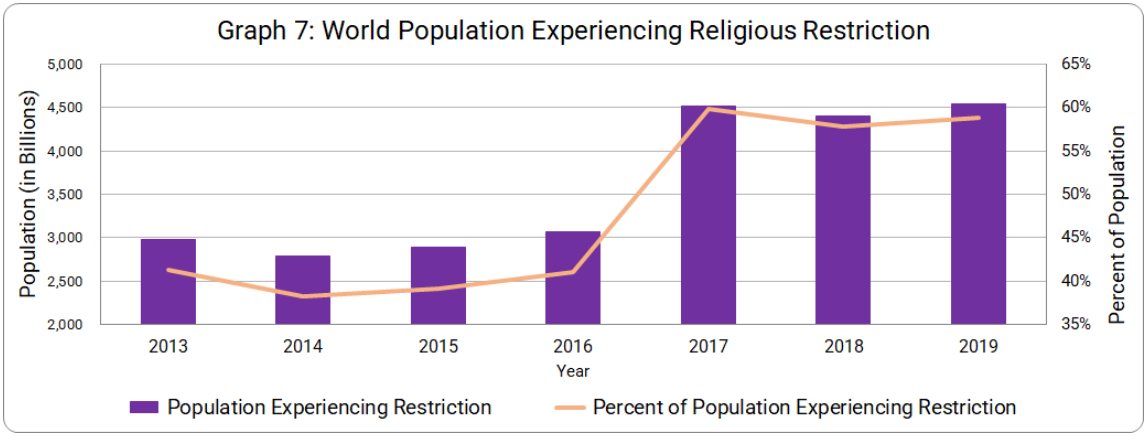
### *Global Trend*

In 2013, 80% of all countries had a score less than 5.2 on the government restriction index. We use this score as a benchmark. People in countries with scores at or above 5.2 face severe government restrictions on their religious freedom by our definition.

Graph 7 plots the trend in the world population experiencing severe restrictions in religious freedom

**Table 7: Top ten most deprived nations with respect to religious freedom**

| Rank | Country | Government Restrictions Index (2019) |
|---|---|---|
| 1 | China | 9.3 |
| 4 | Malaysia | 8.5 |
| 3 | Egypt | 8.4 |
| 4 | Syria | 8.3 |
| 5 | Russia | 8.2 |
| 6 | Iran | 8.1 |
| 7 | Algeria | 8.0 |
| 8 | Indonesia | 7.9 |
| 9 | Maldives | 7.7 |
| 10 | Burma (Myanmar) | 7.6 |
| 11 | Turkmenistan | 7.6 |
| | **Affected World Population** | **4.5 Billion people** |



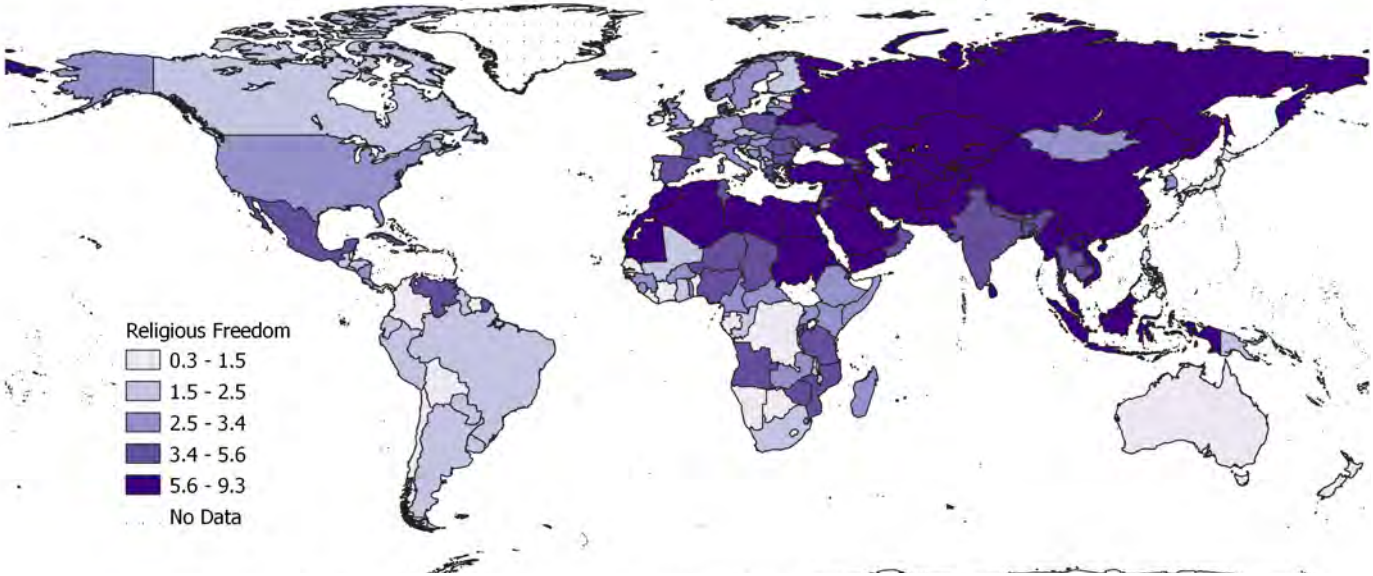

from 2013 to 2019. The number and the percentage of people affected by religious restrictions rose significantly in 2017 to over half of the world's population, and has remained at that high level.

### *International Distribution of Needs*

Table 7 lists the 11 countries with the lowest levels of religious freedom. The country with the most severe level of government restriction on religious freedom is China. As the table shows, most restricted countries are in Asia, Middle East and North Africa.

The map in Figure 7 shows an international mapping of religious freedom, with darker colors indicating increasing absence of religious freedom. The map shows that deprivation in religious freedom is concentrated in North Africa, the Middle East and in large parts of Asia.

**Figure 7: Map of Religious Freedom (2019)**



# Correlation Matrix

An important consideration in the use of indicators in the construction of a multidimensional poverty index is how strongly the various indicators are correlated with each other. We calculated the correlation coefficients for each pair of primary indicators in the Fordham Francis Index (FFI). The results are presented in the correlation matrix given in Table 8. Correlation coefficients can range from a –1 to a +1 with +1 meaning 100% positive correlation, -1 meaning 100% negative correlation, and 0 meaning zero percent or no correlation between the two statistical measures. As a rule of thumb, a correlation coefficient with an absolute value of 60% (0.60) or more means that the two indicators are correlated, either positively or negatively.

We calculated the correlation coefficients for each pair of primary indicators. The results are presented in the correlation matrix given in Table 8. Boxes highlighted in yellow contain correlation coefficients that exceed the absolute value of 60% (0.60).

We have four correlations at 80% or above. These high correlations at 80% or above show that housing, water, employment and education strongly go together. Achieving success in one measure is significantly correlated with achieving success in the other two measures. For example, inadequate housing is strongly correlated to lack of access to water, lower adult literacy rates, and higher distressed labor rates. In addition access to water is also strongly correlated to lower distressed labor rates. High correlations also mean that we could simplify the composite Fordham Francis Index (FFI) by dropping one or two of these indicators from the compositive index. The index would still track the same general level of extreme poverty with only a minimal loss of information in the range of 11 to 19%.

On the other hand, Gender Equity and Religious Freedom are not correlated with each other or with any of the other primary indicators. These two indicators therefore represent two entirely different perspectives on development and the measurement of global poverty. This result is important because one of the characteristics that makes the FFI unique is its inclusion and emphasis on civil rights, such as religious freedom and gender equity, as a means of measuring development. Other development indexes, such as economic income or the UN Human Development Index (HDI), exclude religious freedom and other political dimensions that are included in the FFI. By including religious freedom and other civil rights such as gender equity as important indicators of integral human development, Pope Francis is urging us to study an under-explored area of analysis into the drivers of poverty and underdevelopment.

**Table 8: Correlation Matrix – Correlation Coefficients of the Seven Primary Indicators in the FFI (2022)**

| | Water *Access to Water* | Food *Under-nourishment* | Housing *Inadequate Housing* | Employment *Distressed Labor Rate* | Education *Literacy Rate* | Gender *Health & Survival Index* | Religious Freedom *Govt Restrictions Index* |
|---|---|---|---|---|---|---|---|
| Water *Access to Water* | 1 | | | | | | |
| Food *Undernourishment* | -0.72 | 1 | | | | | |
| Housing *Inadequate Housing* | -0.89 | 0.70 | 1 | | | | |
| Employment *Distressed Labor Rate* | -0.81 | 0.75 | 0.81 | 1 | | | |
| Education *Literacy Rate* | 0.75 | -0.57 | -0.84 | -0.70 | 1 | | |
| Gender *Health and Survival Index* | -0.13 | 0.04 | -0.04 | 0.08 | 0.13 | 1 | |
| Religious Freedom *Govt Restrictions Index* | 0.11 | -0.11 | -0.13 | -0.25 | 0.09 | -0.37 | 1 |

# PART II
# UN Sustainable Development Goals

We demonstrate the importance of the Fordham Francis Index (FFI) to the global discussion on development by empirically testing the relationship between the FFI's seven primary indicators with the UN Sustainable Development Goals (SDGs). The coefficients of correlation between each of our FFI indicators measure and with various UN sustainable development targets are given in Table 9. To date we


have been able to examine 20 development targets associated with the following 12 SDG's: No Poverty, Good Health, Quality Education, Gender Equality, Sanitation, Energy, Growth, Reduced Inequalities, Climate Action, Life on Land, Strong Institutions, and Partnerships.

### WATER

For the FFI's **water** indicator, we found significant statistical relationships between basic access to water and lower **poverty rates**, reduced **infant** and **maternal mortality rates**, increased access to **sanitation**, more **electrification**, a lower consumption share of **renewable energy** sources, increased access to **financial institutions**, more access to the **internet**, and less **domestic violence.**

### FOOD

For the FFI's **food** indicator, we found significant statistical relationships between undernourishment and higher **poverty rates**, increased **infant** and **maternal mortality rates**, less **electrification,** less access to the **internet**, and more **domestic violence**.

### HOUSING

For the FFI's **housing** indicator, we found significant statistical relationships between inadequate housing and higher **poverty rates**, increased **infant** and **maternal mortality rates**, less **electrification,** higher consumption share of **renewable energy** sources, less access to the **internet**, and more **domestic violence**.

### EMPLOYMENT

For the FFI's **employment** indicator, we found significant statistical relationships between distressed labor rate and higher **poverty rates**, increased **infant** and **maternal mortality rates**, reduced access to **sanitation**, less **electrification**, a higher consumption


share of **renewable energy** sources, less access to the **internet**, and more **domestic violence**.

## EDUCATION

For the FFI's **education** indicator, we found significant statistical relationships between adult literacy rates and lower **poverty rates**, reduced **infant** and **maternal mortality rates**, increased access to **sanitation**, more **electrification**, increased access to the **internet**, and a lower consumption share of **renewable energy** sources.

## GENDER

For the FFI's **gender** indicator, we have not found any significant correlations between the female to male health and survival index and the various SDG targets we have investigated so far.

## RELIGIOUS FREEDOM

For the FFI's **religious freedom** indicator, we have not found any significant statistical relationships between the Government Restrictions Index and the various SDG targets we have investigated so far.

## SUMMARY

As shown above we have been able to document that the FFI's seven primary indicators are indeed correlated with many of targets of the UN's Sustainable Development Goals.

Our material wellbeing indicators — water, food, housing, and employment — as well as one spiritual freedom indicator —- education — are correlated with many of the UN Sustainable Development Goals. Secondly, there also appears to be a trade off between achieving various goals related to poverty reduction while trying to increase reliance on renewable energy sources. And finally, it appears that the UN Sustainable Development Goals may neglect the importance of civil freedoms such as gender equity and religious freedom.

In future reports we hope to eventually document the correlations between all seven of our primary indicators with all the targets within the UN Sustainable Development Goals (SDGs) framework.

Table 9: Correlation Coefficients between the seven indicators of the FFI and several targets of the UN Sustainable Development Goals (based on most recent available data in 2022)
** Strong correlations above 60% are highlighted in yellow.*

| SDG Targets (or Suggested Targets) | Primary Indicators | | | | | | |
|---|---|---|---|---|---|---|---|
| | Water<br>*Access to Water* | Food<br>*Undernourishment* | Housing<br>*Inadequate Housing* | Employment<br>*Distressed Labor Rate* | Education<br>*Literacy Rate* | Gender<br>*Health & Survival Index* | Religious Freedom<br>*Govt Restrictions Index* |
| ***SDG 1: No Poverty*** | | | | | | | |
| 1.1.1 Percent of Population below the Poverty Line | -0.84 | 0.78 | 0.78 | 0.88 | -0.63 | 0.17 | -0.11 |
| ***SDG 3: Good Health & Well-Being*** | | | | | | | |
| 3.1.1 Maternal Mortality | -0.79 | 0.64 | 0.77 | 0.70 | -0.81 | 0.02 | -0.11 |
| 3.2.1 Infant Mortality | -0.82 | 0.69 | 0.79 | 0.76 | -0.80 | 0.03 | -0.08 |
| 3.3.2 Incidence of TB | -0.52 | 0.53 | 0.40 | 0.44 | -0.35 | 0.13 | -0.15 |
| ***SDG 4: Quality Education*** | | | | | | | |
| 4.3.1 Gender Parity in Education | 0.46 | -0.46 | -0.34 | -0.26 | 0.39 | -0.24 | -0.15 |
| ***SDG 5: Gender Equality*** | | | | | | | |
| 5.2.1 Proportion of Partnered Women Subject to Violence | -0.72 | 0.69 | 0.70 | 0.73 | -0.57 | 0.00 | -0.08 |
| 5.5.1 Proportion of Women in Parliament | 0.09 | -0.17 | -0.05 | -0.07 | 0.08 | 0.05 | -0.03 |
| ***SDG 6: Clean Water and Sanitation*** | | | | | | | |
| 6.2.1 Access to Sanitation | 0.62 | -0.57 | -0.56 | -0.62 | 0.55 | -0.05 | 0.10 |
| ***SDG 7: Affordable and Clean Energy*** | | | | | | | |
| 7.1.1 Electricity (% of population) | 0.91 | -0.74 | -0.88 | -0.88 | 0.78 | -0.14 | 0.13 |

*(Table 9 continued)*

| SDG Targets (or Suggested Targets) | Primary Indicators | | | | | | |
|---|---|---|---|---|---|---|---|
| | Water<br>*Access to Water* | Food<br>*Undernourishment* | Housing<br>*Inadequate Housing* | Employment<br>*Distressed Labor Rate* | Education<br>*Literacy Rate* | Gender<br>*Health & Survival Index* | Religious Freedom<br>*Govt Restrictions Index* |
| 7.2.1 Renewable Energy Share | -0.73 | 0.54 | 0.70 | 0.69 | -0.61 | 0.18 | -0.19 |
| ***SDG 8: Decent work and Economic Growth*** | | | | | | | |
| 8.1.1 GDP per capita Growth Rate | 0.09 | -0.36 | -0.14 | -0.22 | 0.04 | -0.01 | 0.05 |
| 8.6.1 Proportion of youth not in education, employment or training | -0.28 | 0.35 | 0.13 | 0.10 | -0.38 | -0.00 | 0.00 |
| 8.10.2 Percentage of population with an account at a financial institution | 0.61 | -0.56 | -0.54 | -0.50 | 0.61 | 0.03 | -0.15 |
| ***SDG 10: Reduced Inequalities*** | | | | | | | |
| 10.4.1 Labor Share of GDP (Income Inequality) | 0.34 | -0.33 | -0.24 | -0.19 | 0.20 | 0.07 | -0.25 |
| ***SDG 13: Climate Action*** | | | | | | | |
| 13.1.1 Number of People Affected by Disaster | -0.00 | 0.05 | 0.03 | 0.03 | -0.06 | -0.31 | 0.11 |
| ***SDG 15: Life On Land*** | | | | | | | |
| 15.5.1 Red List Index of Threatened Species | -0.09 | -0.03 | 0.08 | 0.18 | -0.16 | -0.01 | 0.09 |

*(Table 9 continued)*

| SDG Targets | Primary Indicators | | | | | | |
|---|---|---|---|---|---|---|---|
| | Water<br>*Access to Water* | Food<br>*Undernourishment* | Housing<br>*Inadequate Housing* | Employment<br>*Distressed Labor Rate* | Education<br>*Literacy Rate* | Gender<br>*Health & Survival Index* | Religious Freedom<br>*Govt Restrictions Index* |
| ***SDG 16: Peace, Justice, and Strong Institutions*** | | | | | | | |
| Corruption Index (0-100, 100 very clean) | **0.50** | **-0.52** | **-0.43** | **-0.38** | **0.40** | **-0.08** | **-0.24** |
| Press Freedom (0-100, 100 less free) | **0.04** | **0.02** | **0.05** | **0.05** | **-0.01** | **-0.09** | **-0.02** |
| 16.3.2 Unsentenced detainees as a proportion of overall prison | **-0.26** | **0.35** | **0.24** | **0.30** | **-0.33** | **-0.12** | **-0.15** |
| ***SDG 17: Sustainable development through global partnerships*** | | | | | | | |
| 17.8.1 Percentage of population using the internet | **0.75** | **-0.70** | **-0.77** | **-0.79** | **0.71** | **-0.10** | **0.01** |

# PART III
# FORDHAM FRANCIS INDEX

In Part III we will explain how we aggregate our seven primary indicators to form Fordham's Pope Francis Global Poverty Index (Fordham Francis Index, FFI), and its two subcomponents the Material Well-Being Index and the Spiritual Freedom Index. We then examine how the Fordham Francis Index (FFI) compares to other commonly used measures of global poverty such as *Per Capita Income* and the *Human Development Index (HDI)*. Finally, we calculate the Fordham Francis Index (FFI) for individual countries and produce a country ranking.

Our approach to computing the Fordham Francis Index (FFI) is identical to the methodology employed by the United Nations Development Program in their calculation of the Human Development Index (HDI). Using the same approach assures that different implications between the indices are due to substantial differences in their components, such as our focus on basic needs both material and spiritual, and not simply due to technical differences in how we aggregated the various components.

Initially, we inverted our measures of food (from percent undernourished to percent nourished), housing (from % deprived to % living in good housing conditions), employment (from distressed labor rate to adequately remunerated employment rate), and religious freedom (from a score that indicates the degree of government restrictions to a score that indicates the degree of freedom from government restrictions on religious practices). These are done so that a higher number for all seven of our measures would represent a better outcome.

Then we standardized our seven primary statistical indicators of water, food, housing, employment,

**Table 10: Maximum and Minimum Historical Values of Each Indicator**

| | Water | Food* | Housing* | Employment* | Education | Gender | Religion* |
|---|---|---|---|---|---|---|---|
| | At least Basic Access (%) | Nourished (%) | Adequate Housing (%) | Adequately Remunerated Employment (%) | Literacy Rate (%) | Health & Survival Index | Inverse of Govt Restrictions Index |
| Maximum | Multiple Countries<br>Multiple Years<br>99.0 | Multiple Countries,<br>Multiple Years<br>97.5 | Multiple Countries<br>Multiple Years<br>100 | Thailand<br>2015<br>99.2 | Uzbekistan<br>2019<br>100 | Multiple Countries<br>Multiple Years<br>0.980 | Multiple Countries<br>Multiple Years<br>10 |
| Minimum | Ethiopia<br>2018<br>18.1 | Somalia<br>2011<br>18.3 | South Sudan<br>2018<br>9.2 | Congo, Democratic<br>2000<br>0.16 | Chad<br>1993<br>10.9 | China<br>2018<br>0.915 | China<br>2018, 2019<br>0.7 |

**Indicators whose values were flipped so that higher numbers would indicate a better outcome*

education, gender, and religious freedom so that they each yielded indices with values between 0 and 1 according to the following formula:

***Primary Indicator Score =***

$$\frac{\textit{(Actual Value – Min Historical Value)}}{\textit{(Max Historical Value — Min Historical Value )}}$$

In line with best practice, the maximum values were set to the historical maximum observed within each dataset of the respective indicator. Meanwhile, the minimum values were set to the lowest observed value for each indicator within the existing dataset from 1990. (See Table 10 for countries, years, and values.)

Next, we created a Material Well-being Index (MWI) by computing the geometric mean of the four normalized indices of water, food, housing, and employment according to the following formula:

***Material Well-being Index =***

$$\textit{Water}^{1/4} * \textit{Food}^{1/4} * \textit{Housing}^{1/4} * \textit{Employment}^{1/4}$$

It is important to note that equal weight was given to all four components when computing the Material Well-being Index (MWI).

Similarly, we created a Spiritual Freedom Index (SFI) by computing the geometric mean of the three normalized indices of education, gender equity, and religious freedom according to the following formula:

***Spiritual Freedom Index =***

$$\textit{Education}^{1/3} * \textit{Gender}^{1/3} * \textit{Religious Freedom}^{1/3}$$

As was the case with the Material Well-being Index, we gave equal weight to all three components when computing the Spiritual Freedom Index.

Finally, we computed Fordham's Pope Francis Global Poverty Index by calculating the geometric mean of the Material Well-being Index and the Spiritual Freedom Index according to the following formula:

***Fordham Francis Index =***

$$\textit{Material Well-being Index}^{1/2} * \textit{Spiritual Freedom Index}^{1/2}$$

Again, we gave equal weight to both the Material Well -being Index and the Spiritual Freedom Index.

Data collected for each indicator were the latest available data for each indicator. The Employment variable was the most limiting variable with only 117 observations which subsequently limits the dataset for our Material Well-being Index and consequently the Fordham Francis Index.

# Material Well-being Index

Our results indicate a strong statistical relationship between our Material Well-being Index (MWI) and two conventional measures of economic development: *Per Capita Gross Domestic Product (Per Capita GDP)* and the *Human Development Index (HDI)* (Table 11). The Human Development Index (HDI) expands our measurement of human welfare by including an indicator of health (measured by life expectancy) and an indicator of knowledge (measured by the mean of actual and expected years of schooling) in addition to an indicator of economic well-being (measured by Per Capita Gross Domestic Product). To demonstrate these relationships, we regress the Material Well-being Index (MWI) separately on the logarithm of Per Capita GDP, and on the Human Development Index (HDI).

**Table 11: Ordinary least squares regression results of the MWI and two commonly used poverty measures**

| Variables | Material Well-being | | Economic Interpretation |
|---|---|---|---|
| | Regression Coefficient (t-stat) | $R^2$ | |
| **Economic Well-being (GDP per Capita in log form)** | 0.44 (14.4) | 0.70 | A 1% increase in per capita income is associated with a 0.44% increase in the MWI |
| **Human Development Index** | 1.60 (19.9) | 0.82 | An increase in the HDI by .01 is associated to an increase of 0.0160 in the MWI |

### Per Capita GDP

There is a strong positive relationship between our Material Well-being Index (MWI) and the log of Per Capita Gross Domestic Product (Per Capita GDP). An interpretation of the $R^2$ found in Table 11, indicates that the log of Per Capita GDP explains 70% of the changes in the Material Well-being Index. Other factors, such as public policy, can explain the remaining 30%.

In Figure 8, we have plotted the relationship between the Material Well-Being Index and the log of Per Capita GDP. Transforming the data of the Per Capita GDP into a logarithmic scale allows us to run a linear

**Table 12: Ten Lowest Ranking Countries: Material Well Being Index (MWI) 2022**

| Rank | Country | MWI | Water | Food | Housing | Employment |
|---|---|---|---|---|---|---|
| 1 | Central African Republic | 0.23 | 0.24 | 0.42 | 0.17 | 0.17 |
| 2 | Madagascar | 0.28 | 0.44 | 0.49 | 0.32 | 0.09 |
| 3 | Chad | 0.29 | 0.35 | 0.63 | 0.11 | 0.29 |
| 4 | Democratic Republic of the Congo | 0.30 | 0.34 | 0.51 | 0.35 | 0.13 |
| 5 | Mozambique | 0.35 | 0.56 | 0.64 | 0.23 | 0.19 |
| 6 | Burkina Faso | 0.38 | 0.36 | 0.85 | 0.21 | 0.31 |
| 7 | Yemen | 0.39 | 0.53 | 0.46 | 0.50 | 0.20 |
| 8 | Malawi | 0.41 | 0.64 | 0.81 | 0.45 | 0.12 |
| 9 | Rwanda | 0.43 | 0.52 | 0.59 | 0.43 | 0.26 |
| 10 | Ethiopia | 0.45 | 0.39 | 0.83 | 0.26 | 0.49 |

regression analysis. Interestingly, there are countries with low Per Capita GDP that have a high Material Well Being Index score. For example, Gambia and the Central African Republic have similar levels of income, yet there is a large difference in their Material Well-being Index (MWI) scores (0.77 and 0.23, respectively). The Central African Republic has significantly lower scores in food, water, housing and employment compared to Gambia, even though both have similar levels of income. The Fordham Francis

**Figure 8: Regression results of the Material Well-being Index (MWI) and the log of GDP per capita**

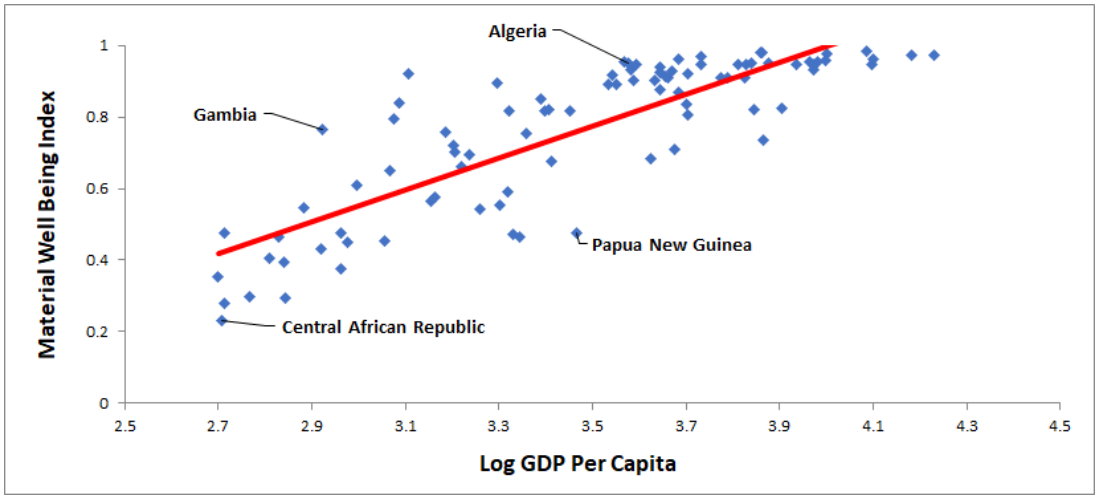
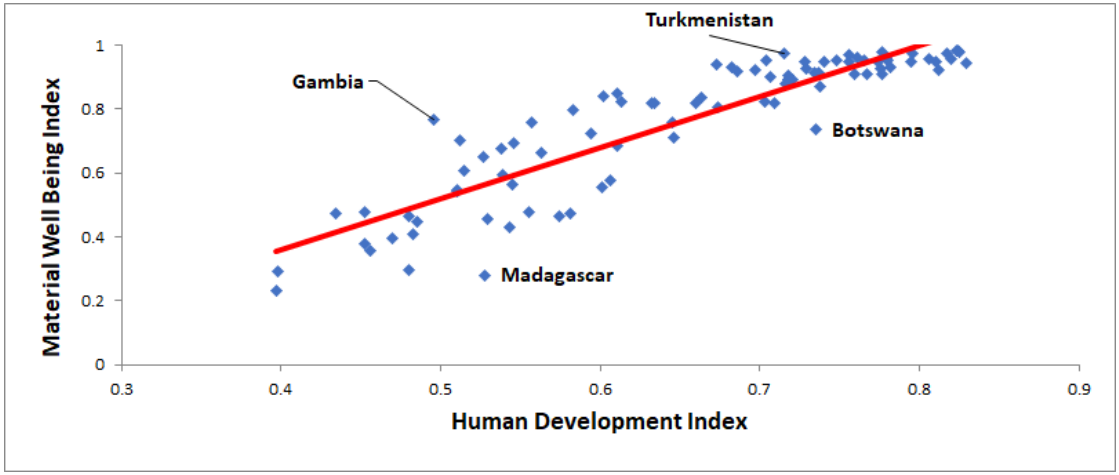



**Figure 9: Regression results of the Material Well-being Index (MWI) and the Human Development Index (HDI)**



Index ranks countries who use their economic resources to meet basic material needs higher than countries who may have the same level of resources but decide not to focus on the basic human needs of water, food, housing, and employment.

### Human Development Index

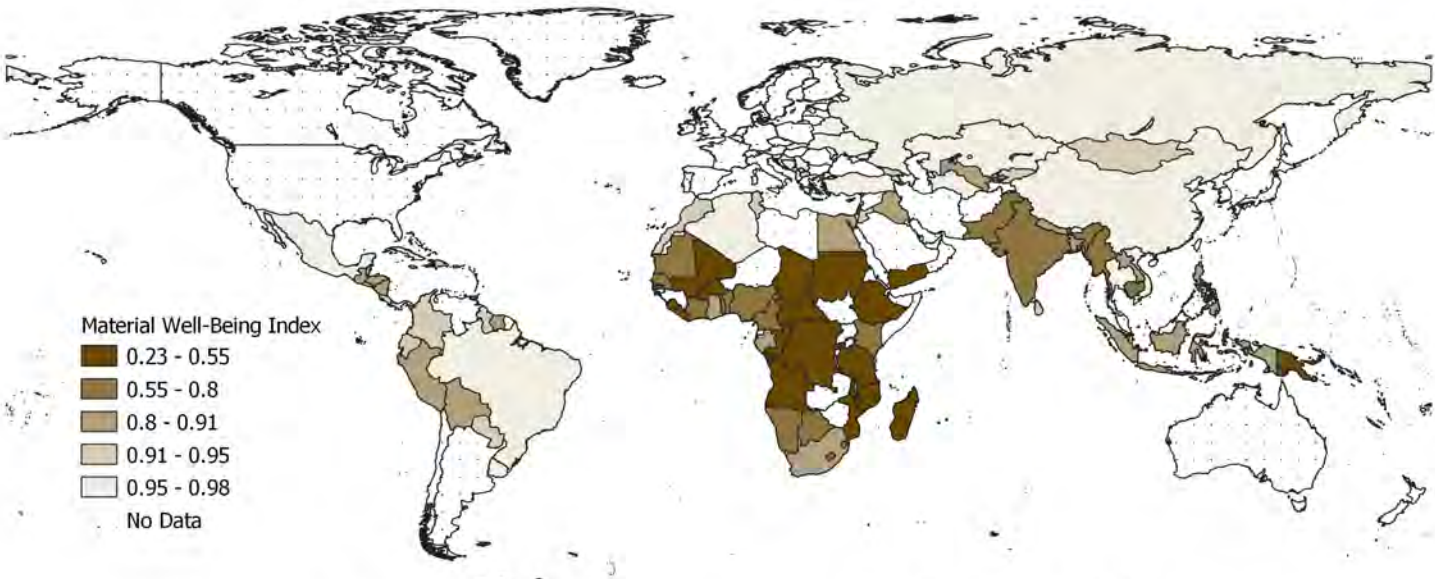
Similar to economic well-being, there is an even stronger positive relationship between our Material Well-being Index (MWI) and the UN Human Development Index (HDI), as implied by the $R^2$ of 82% (Table 11).

Interestingly, as plotted in Figure 9, there are countries which are categorized in the Human Development Index (HDI) as low but may have high Material Well-being Index scores because of the higher priority they place on providing clean water, adequate food, basic housing, and employment. Take for example Gambia which has a low Human Development Index (HDI) score of 0.50 but a Material Well-being Index of 0.77. Compare this to Madagascar which has similar levels of HDI (0.53) but has a low Material Well-being Index (MWI) score of 0.28. Madagascar's low level of Material Well-being Index (MWI) score is primarily due to its low levels of housing, food, water and employment.

### Geographical Distribution

The map in Figure 10 highlights the geographical distribution of the Material Well-being Index scores across the sample of 91 countries. The lowest scores are largely distributed across Sub-Saharan Africa.

**Figure 10: Material Well-being Index (2022)**



# Spiritual Freedom Index

While our results indicate a statistically significant positive relationship between our Spiritual Freedom Index (SFI) and the two conventional measures of economic development, they also show that these measures play only a minor role in explaining any variation in the Spiritual Freedom Index. To demonstrate these relationships, we regress the Spiritual Freedom Index (SFI) separately on the logarithm of Per Capita GDP, and on the Human Development Index (HDI).

**Table 13: Ordinary least squares regression results of the SFI and two commonly used poverty measures**

| Variables | Spiritual Freedom | | Economic Interpretation |
|---|---|---|---|
| | Regression Coefficient (t-stat) | $R^2$ | |
| Economic Well-being (GDP per Capita in log form) | 0.07 (2.43) | 0.05 | A 1% increase in Per Capita GDP is associated with a .07% increase in the SFI |
| Human Development Index | 0.29 (2.81) | 0.06 | A .01 increase in HDI is associated with a 0.0029 |

## Per Capita GDP

There is a statistically significant positive relationship between our Spiritual Freedom Index (SFI) and the log of Per Capita Gross Domestic Product (Per Capita GDP). An interpretation of the $R^2$ found in Table 13, indicates that the log of Per Capita GDP explains only 5% of the changes in the Spiritual Freedom Index. Other social, cultural and political factors may explain the remaining 95%.

In Figure 11, we have plotted the relationship between the Spiritual Freedom Index and the log of Per Capita GDP. Transforming the data of the Per Capita GDP into a logarithmic scale allows us to run a linear regression analysis. Interestingly, there are countries with low Per Capita GDP that have high Spiritual Freedom Index scores. For example, the Philippines and Egypt have similar levels of per capita GDP, but have very different scores on our Spiritual Freedom Index (SFI) (0.93 and 0.38 respectively). The Philippines is an example of a country that does much better than countries with the same level of income, while Egypt's overall score is pulled down primarily by its low score on the education, gender and religious freedom indicators. The results imply that high income does not

**Table 14: Ten Lowest Ranking Countries: Spiritual Freedom Index (SFI)**

| Rank | Country | Spiritual Index | Education | Gender | Religious Freedom |
|---|---|---|---|---|---|
| 1 | China | 0.14 | 0.96 | 0.31 | 0.01 |
| 2 | Afghanistan | 0.35 | 0.23 | 0.57 | 0.32 |
| 3 | Egypt | 0.38 | 0.68 | 0.82 | 0.10 |
| 4 | Chad | 0.40 | 0.13 | 0.85 | 0.60 |
| 5 | Malaysia | 0.41 | 0.94 | 0.88 | 0.09 |
| 6 | Algeria | 0.42 | 0.79 | 0.66 | 0.14 |
| 7 | Pakistan | 0.42 | 0.53 | 0.45 | 0.32 |
| 8 | Iran | 0.43 | 0.84 | 0.74 | 0.13 |
| 9 | Azerbaijan | 0.45 | 1.00 | 0.37 | 0.25 |
| 10 | India | 0.46 | 0.71 | 0.34 | 0.40 |

**Figure 11: Regression results of Spiritual Freedom Index (SFI) and the log of GDP per capita**

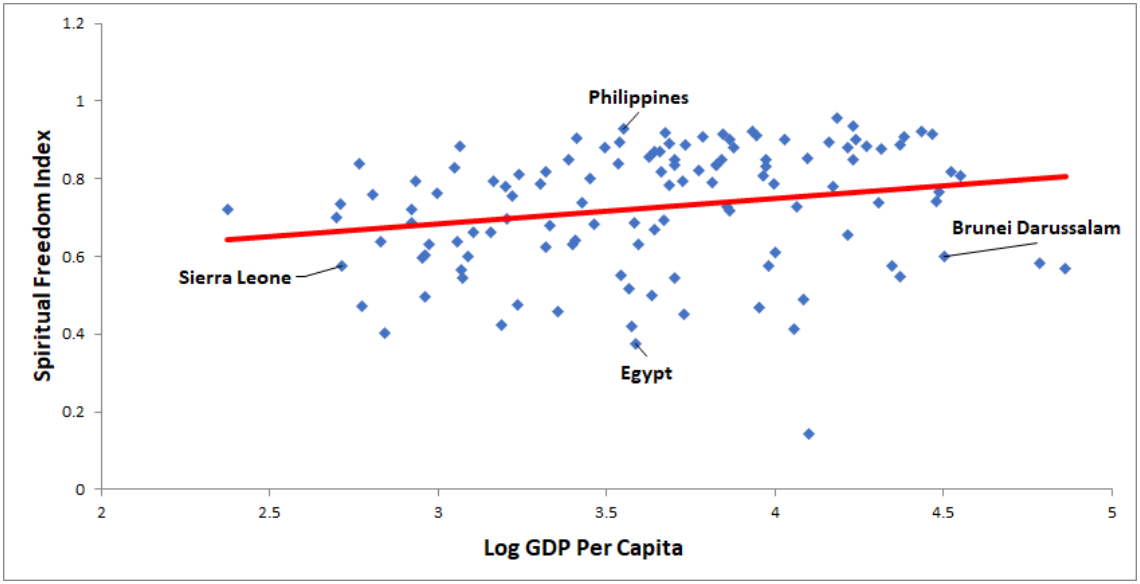



**Figure 12: Regression results of Freedom Index (SFI) and the Human Development Index**

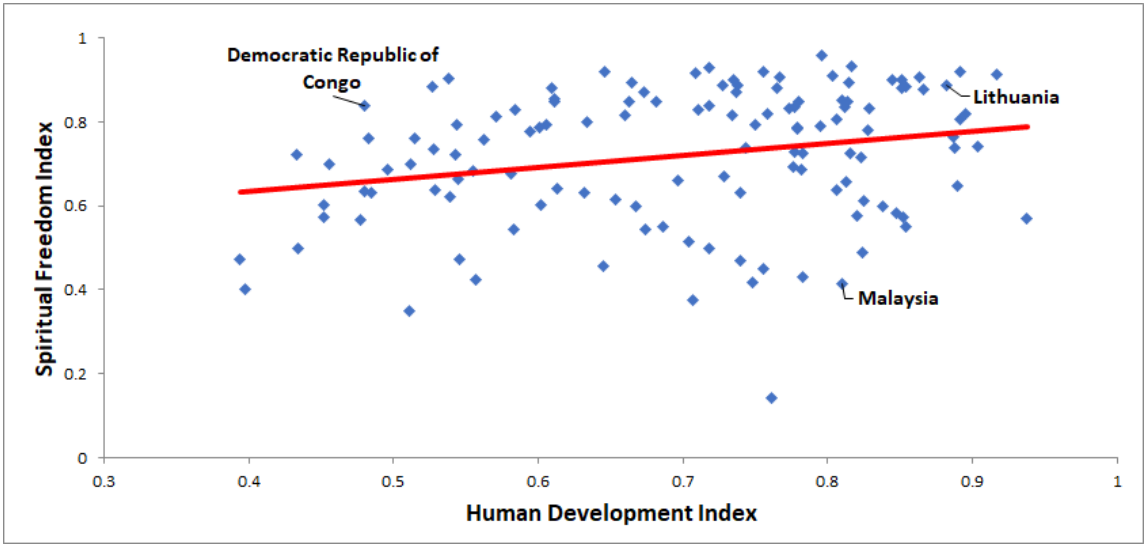
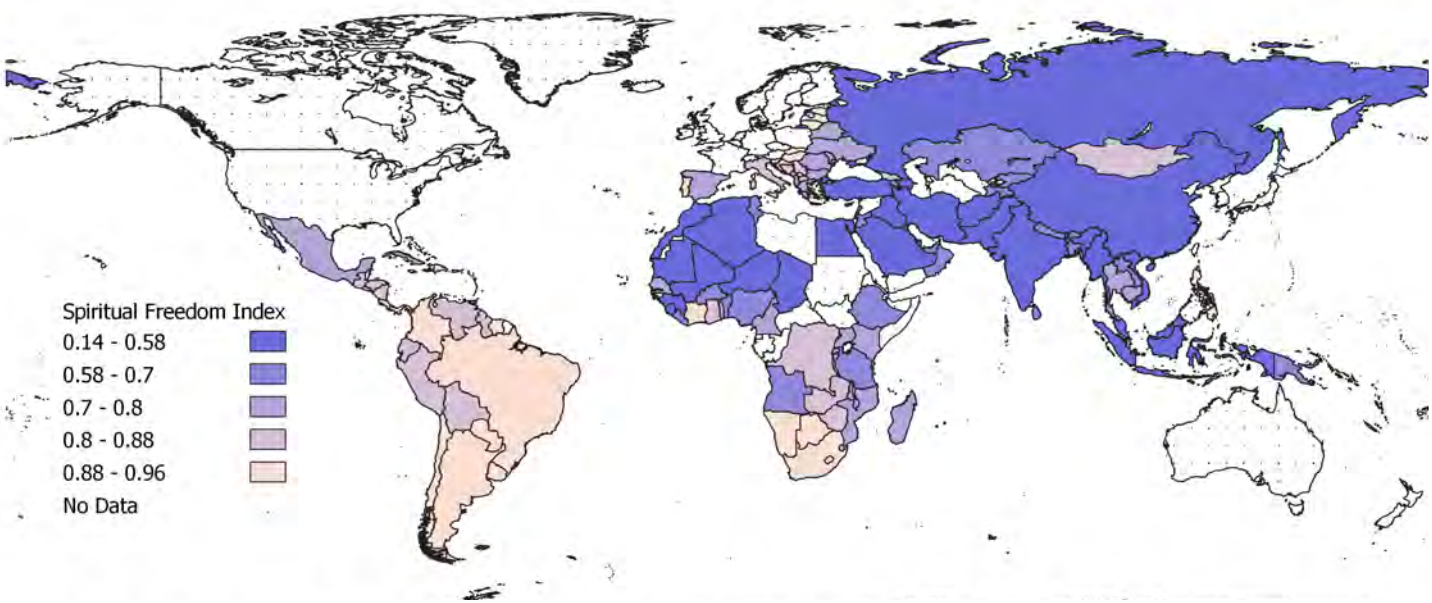


**Figure 13: Map of Spiritual Freedom Index (2022)**




necessarily translate into high spiritual freedom.

### Human Development Index

Similar to economic well-being, there is a statistically significant positive relationship between our Spiritual Freedom Index (SFI) and the UN Human Development Index (HDI). The $R^2$ (Table 13) indicates that 6% of the variation in in the Spiritual Freedom Index can be explained by changes in the Human Development Index. The large unexplained variations in our Spiritual Freedom Index (SFI) can be attributed to the additional dimensions of gender and religious freedom not considered by the Human Development Index.

Interestingly, as plotted in Figure 12, there are countries which are ranked low by the Human Development Index (HDI) that exhibit a high measure of spiritual freedom, while many countries ranked high or very high by the HDI exhibit a low measure of spiritual freedom. The Democratic Republic of the Congo for instance, has a low HDI score, mainly because of its low per capita income and education indicators, but has a high Spiritual Freedom Index (SFI) score because of its high scores in gender and religious freedom. Conversely, Malaysia has a high HDI score, but is doing poorly in terms of its Spiritual Freedom Index (SFI) score. While Malaysia is performing well in terms of per capita income and education, they are among the top countries with limited religious freedom.

### Geographical Distribution

The map in Figure 13 highlights the geographical distribution of Spiritual Freedom Index scores across our sample of 127 countries. Our mapping shows that low SFI scores are largely concentrated around Asia, North and West Africa and the Middle East.

# Fordham's Pope Francis Global Poverty Index

The Fordham Francis Index (FFI) represents an equally weighted aggregation of the Material Well-being Index (MWI) and the Spiritual Freedom Index (SFI). Our results indicate a strong statistical relationship of the Fordham Francis Index (FFI) with the two conventional measures of economic development: *Per Capita Gross Domestic Product (Per Capita GDP)* and the *Human Development Index (HDI)* (Table 15). To demonstrate these relationships, we regress the Fordham Francis Index (FFI) separately on the logarithm of Per Capita GDP, and on the Human Development Index (HDI).

**Table 15: Regression results of the FFI and two commonly used poverty measures**

| Variables | Fordham Francis Index | | Economic Interpretation |
|---|---|---|---|
| | Coefficient (t-stat) | $R^2$ | |
| Economic Well-being | 0.27 (8.89) | 0.50 | A 1% increase in the log GDP per capita is associated with a 0.27% increase in Fordham Francis Index |
| HDI | 0.92 (9.54) | 0.53 | A .01 increase in HDI is associated with a 0.0092 increase in Fordham |

## Per Capita GDP

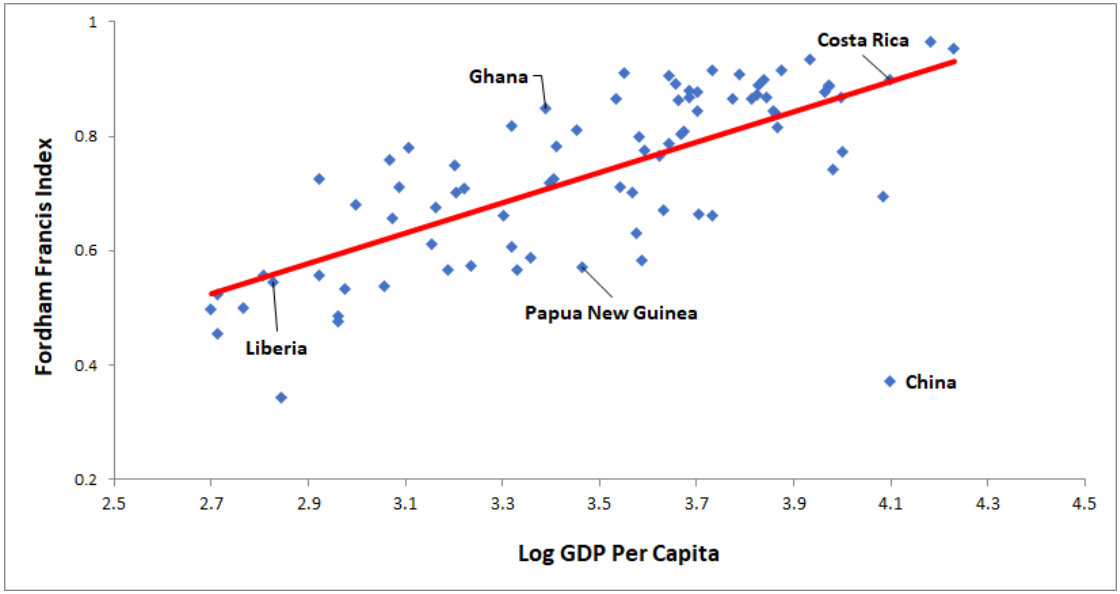
There is a strong statistical relationship between the Fordham Francis Index (FFI) and the log of Per Capita GDP. An interpretation of the $R^2$ found in Table 15, indicates that the log of Per Capita GDP explains 50% of the changes in the Fordham Francis Index. Social, cultural and political factors may explain the remaining 50%.

In Figure 14, we have plotted the positive relationship between the Fordham Francis Index and the log of Per Capita GDP. Transforming the data of the Per Capita GDP into a logarithmic scale allows us to run a linear regression analysis. One can notice countries

**Table 16: Ten Lowest Ranking Countries: Fordham Freedom Index (FFI)**

| Country | FFI | MWI | SWI | Water | Food | Housing | Employment | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|
| Chad | 0.34 | 0.29 | 0.40 | 0.35 | 0.63 | 0.11 | 0.29 | 0.13 | 0.85 | 0.60 |
| China | 0.37 | 0.96 | 0.14 | 0.94 | 1.00 | 0.96 | 0.94 | 0.96 | 0.31 | 0.01 |
| Madagascar | 0.45 | 0.28 | 0.73 | 0.44 | 0.49 | 0.32 | 0.09 | 0.74 | 0.77 | 0.70 |
| Burkina Faso | 0.48 | 0.38 | 0.60 | 0.36 | 0.85 | 0.21 | 0.31 | 0.32 | 0.97 | 0.71 |
| Mali | 0.49 | 0.47 | 0.50 | 0.80 | 0.90 | 0.33 | 0.21 | 0.22 | 0.68 | 0.82 |
| Mozambique | 0.50 | 0.35 | 0.70 | 0.56 | 0.64 | 0.23 | 0.19 | 0.56 | 1.00 | 0.61 |
| Democratic Republic of the Congo | 0.50 | 0.30 | 0.84 | 0.34 | 0.51 | 0.35 | 0.13 | 0.74 | 0.94 | 0.85 |
| Sierra Leone | 0.52 | 0.48 | 0.57 | 0.56 | 0.70 | 0.56 | 0.23 | 0.36 | 0.78 | 0.67 |
| Ethiopia | 0.53 | 0.45 | 0.63 | 0.39 | 0.83 | 0.26 | 0.49 | 0.46 | 0.86 | 0.63 |
| Tanzania | 0.54 | 0.45 | 0.64 | 0.53 | 0.71 | 0.48 | 0.24 | 0.75 | 0.85 | 0.41 |

**Figure 14: Regression results of the Fordham Francis Index and the log of real GDP per capita**



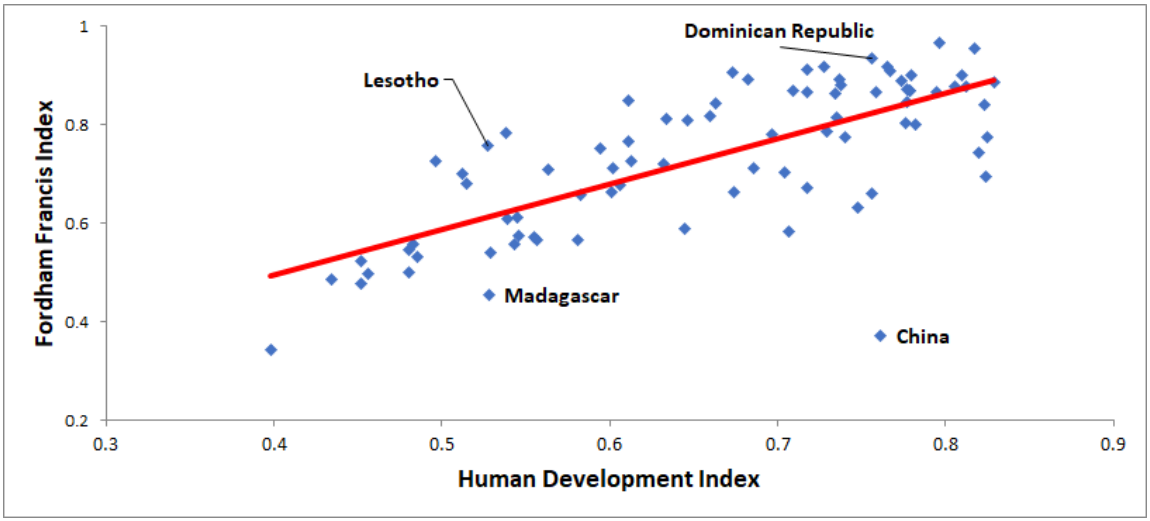

with almost equal levels of economic well-being, that, nonetheless, have very different scores on the Fordham Francis Index (FFI). Looking closely at some of these pairs, we see that the variation between scores measured by the Fordham Francis Index (FFI) and Per Capita GDP primarily stem from the divergence in the spiritual freedom indicators. For example, Costa Rica and China have similar high levels of income, but have different scores on our Fordham Francis Index (FFI) (0.90 and 0.37 respectively). Costa Rica is an example of a country that does much better on the FFI than other countries with the same level of income. China's rank is pulled down primarily by its low scores on gender and religious freedom indicators.

Additionally, for countries at lower levels of economic well-being, there is also a divergence caused by differences in the material primary indicators of basic access to drinking water, adequate nutrition, adequate housing, and access to adequately remunerative employment. Some countries with the same level of economic resources focus more of their limited resources on providing basic needs such as clean water and adequate housing to the poorer groups in their society and therefore score significantly higher on the Fordham Francis Index (FFI). For example, Ghana and Papua New Guinea have similar levels of per capita GDP, but have very different scores on our Fordham Francis Index (FFI) (0.85 and 0.57 respectively). Papua New Guinea's overall score is pulled down primarily by its low scores on water, food, housing, employment, education and gender. The results imply that income levels do not necessarily translate into similar Fordham Francis Index scores.

## Human Development Index

Similar to economic well-being, there is a strong positive relationship between our Fordham Francis Index (FFI) and the UN Human Development Index

**Figure 15: Regression results of the Fordham Francis Index and Human Development Index**



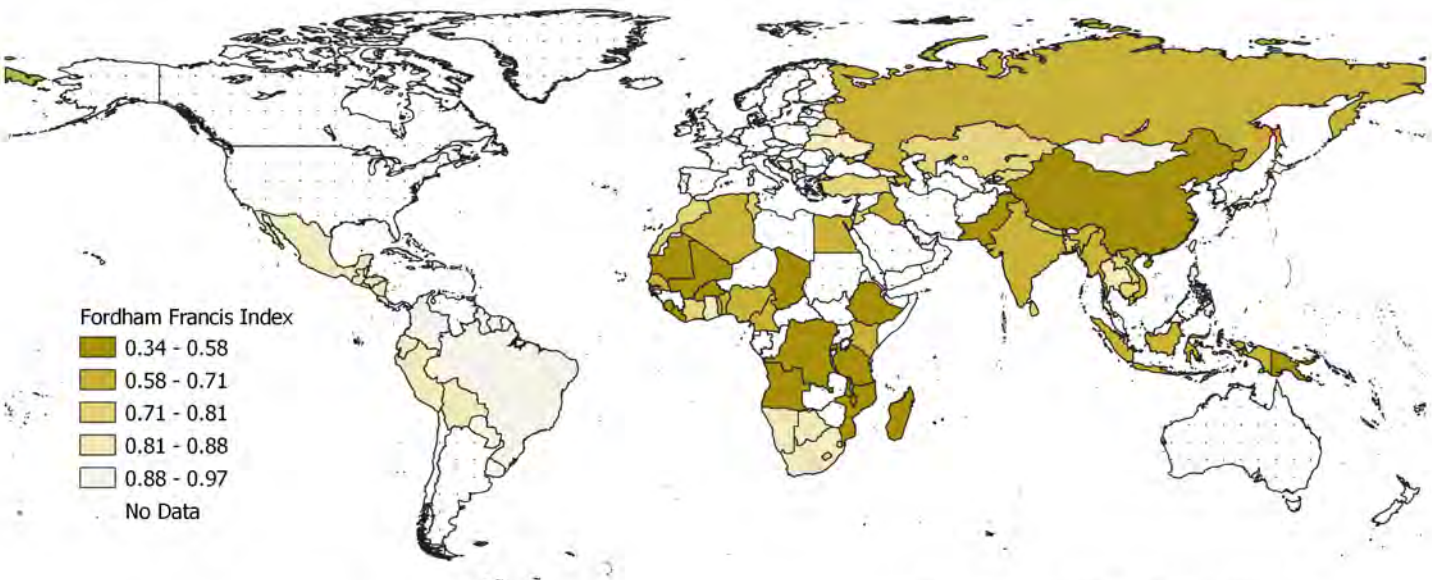

(HDI). As implied by the $R^2$ of 53% (Table 15), the HDI explains roughly half of the variations in the FFI. The remaining half is due to the additional dimensions captured in the Fordham Francis Index (FFI). These additional dimensions represent its value added and are what makes this new index innovative, namely its focus on basic human needs as well as its inclusion of basic spiritual needs.

The graph in Figure 15 represents the relationship between the Fordham Francis Index (FFI) and the Human Development Index (HDI). There are countries with almost equal scores on the Human Development Index (HDI) that have significantly different scores on the Fordham Francis Index (FFI). Looking closely at some of these pairs, we see that much of the difference between the Fordham Francis Index (FFI) and the Human Development Index (HDI) is due to the inclusion of the spiritual freedom indicators of gender and religious freedom, as well as the inclusion of material well-being indicators that have a strong pro-poor bias.

For example, the Dominican Republic and China have similar high levels of HDI, but have very different scores on our Fordham Francis Index (FFI) (0.93 and 0.37 respectively). China's rank is pulled down primarily by it's low scores on gender and religious freedom indicators.

But there are some countries at the lower levels of human development index where the variation in FFI scores is driven not primarily by differences in religious freedom, but by differences in the provision of basic goods needed by the poor such as clean water, adequate nourishment, adequate housing, and adequately remunerative employment. For example, Lesotho and Madagascar have similar HDI scores but very different FFI scores of 0.76 and 0.45 respectively. Madagascar's low FFI score is primarily

**Figure 16: Map of the Fordham Francis Index (2022)**




due to its low levels of water, food, housing, employment and gender.

### Geographical Distribution

The map in Figure 16 highlights the geographical distribution of the Fordham Francis Index scores across the sample of 82 countries. The lowest scores are largely concentrated in Africa and Asia.

# 2022 Fordham Francis Index Country Rankings

### FFI as Pro-Poor and Pro-Freedom

Unlike previous measures of human well-being, such as per capita GDP or the Human Development Index (HDI), the Fordham Francis Index (FFI) places a much larger emphasis on satisfying the basic material needs of the poor, as well as a stronger value on political freedoms and in particular religious freedom and gender equity. The calculations of the Fordham Francis Index (FFI) for individual countries and their ranking are given in Table 17.

As shown in Table 17, of the top 10 developing countries, eight are from the Caribbean and Latin America, one is from Asia, and one is from Eastern Europe. All these countries consistently scored well in providing basic human needs and protecting civil liberties.

**Table 17: 2022 Fordham Francis Index Country Rankings**

| Rank | Country | FFI | Material Index | Water | Food | Housing | Employment | Spiritual Index | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Trinidad and Tobago | 0.97 | 0.97 | 1.00 | 0.95 | 1.00 | 0.95 | 0.96 | 0.99 | 1.00 | 0.89 |
| 2 | Uruguay | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.90 | 0.93 | 0.99 | 1.00 | 0.83 |
| 3 | Dominican Republic | 0.93 | 0.95 | 0.97 | 0.93 | 0.98 | 0.92 | 0.92 | 0.93 | 1.00 | 0.84 |
| 4 | Paraguay | 0.92 | 0.95 | 1.00 | 0.92 | 0.96 | 0.92 | 0.89 | 0.94 | 0.91 | 0.82 |
| 5 | Brazil | 0.92 | 0.95 | 1.00 | 1.00 | 0.99 | 0.83 | 0.88 | 0.92 | 1.00 | 0.74 |
| 6 | Philippines | 0.91 | 0.89 | 0.94 | 0.91 | 0.95 | 0.78 | 0.93 | 0.96 | 0.98 | 0.85 |
| 7 | Colombia | 0.91 | 0.91 | 0.98 | 0.92 | 0.96 | 0.80 | 0.91 | 0.95 | 0.92 | 0.85 |
| 8 | El Salvador | 0.90 | 0.94 | 0.99 | 0.92 | 0.93 | 0.92 | 0.87 | 0.88 | 1.00 | 0.75 |
| 9 | Bosnia and Herzegovina | 0.90 | 0.95 | 0.96 | 1.00 | 1.00 | 0.85 | 0.85 | 0.97 | 0.91 | 0.70 |
| 10 | Costa Rica | 0.90 | 0.95 | 1.00 | 0.99 | 1.00 | 0.82 | 0.85 | 0.98 | 0.89 | 0.71 |
| 11 | Mongolia | 0.89 | 0.91 | 0.83 | 0.98 | 0.93 | 0.92 | 0.87 | 0.99 | 1.00 | 0.67 |
| 12 | Guyana | 0.89 | 0.93 | 0.96 | 0.97 | 0.98 | 0.83 | 0.85 | 0.84 | 1.00 | 0.73 |
| 13 | North Macedonia | 0.89 | 0.95 | 0.98 | 1.00 | 1.00 | 0.82 | 0.83 | 0.98 | 0.85 | 0.70 |
| 14 | Montenegro | 0.89 | 0.95 | 1.00 | 1.00 | 1.00 | 0.80 | 0.83 | 0.99 | 0.85 | 0.69 |
| 15 | Suriname | 0.88 | 0.87 | 0.99 | 0.92 | 0.99 | 0.64 | 0.89 | 0.94 | 0.83 | 0.90 |
| 16 | Serbia | 0.88 | 0.95 | 0.95 | 0.98 | 1.00 | 0.89 | 0.81 | 0.99 | 0.83 | 0.63 |
| 17 | Georgia | 0.88 | 0.92 | 0.98 | 0.92 | 1.00 | 0.80 | 0.83 | 1.00 | 0.95 | 0.61 |
| 18 | Peru | 0.87 | 0.91 | 0.93 | 0.92 | 0.92 | 0.87 | 0.84 | 0.94 | 0.75 | 0.83 |
| 19 | Mexico | 0.87 | 0.96 | 1.00 | 0.94 | 0.98 | 0.91 | 0.79 | 0.95 | 0.92 | 0.56 |

**Table 17** ***(Continued)***

| Rank | Country | FFI | Material Index | Water | Food | Housing | Employment | Spiritual Index | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | Ukraine | 0.87 | 0.96 | 0.94 | 1.00 | 1.00 | 0.92 | 0.78 | 1.00 | 0.97 | 0.49 |
| 21 | South Africa | 0.87 | 0.82 | 0.94 | 0.95 | 0.95 | 0.53 | 0.92 | 0.94 | 0.98 | 0.83 |
| 22 | Albania | 0.87 | 0.95 | 0.95 | 0.98 | 1.00 | 0.87 | 0.79 | 0.98 | 0.63 | 0.80 |
| 23 | Bolivia | 0.87 | 0.89 | 0.93 | 0.87 | 0.92 | 0.85 | 0.84 | 0.92 | 0.72 | 0.89 |
| 24 | Ecuador | 0.86 | 0.91 | 0.96 | 0.88 | 0.97 | 0.84 | 0.82 | 0.93 | 0.82 | 0.73 |
| 25 | Jamaica | 0.86 | 0.91 | 0.90 | 0.93 | 0.97 | 0.85 | 0.82 | 0.87 | 0.82 | 0.77 |
| 26 | Ghana | 0.85 | 0.85 | 0.84 | 0.95 | 0.85 | 0.77 | 0.85 | 0.76 | 0.97 | 0.83 |
| 27 | Thailand | 0.84 | 0.98 | 1.00 | 0.93 | 1.00 | 0.99 | 0.73 | 0.93 | 0.97 | 0.43 |
| 28 | Guatemala | 0.84 | 0.84 | 0.94 | 0.82 | 0.75 | 0.85 | 0.85 | 0.78 | 0.98 | 0.80 |
| 29 | Belarus | 0.84 | 0.98 | 0.97 | 1.00 | 1.00 | 0.96 | 0.72 | 1.00 | 0.95 | 0.39 |
| 30 | Nicaragua | 0.82 | 0.82 | 0.79 | 0.79 | 0.85 | 0.85 | 0.82 | 0.80 | 0.97 | 0.70 |
| 31 | Botswana | 0.81 | 0.74 | 0.92 | 0.66 | 0.90 | 0.54 | 0.90 | 0.85 | 1.00 | 0.86 |
| 32 | Honduras | 0.81 | 0.82 | 0.96 | 0.86 | 0.80 | 0.68 | 0.80 | 0.87 | 0.75 | 0.78 |
| 33 | Namibia | 0.81 | 0.71 | 0.82 | 0.78 | 0.65 | 0.61 | 0.92 | 0.90 | 1.00 | 0.86 |
| 34 | Armenia | 0.80 | 0.93 | 1.00 | 0.99 | 1.00 | 0.75 | 0.69 | 1.00 | 0.54 | 0.62 |
| 35 | Sri Lanka | 0.80 | 0.93 | 0.92 | 0.95 | 0.98 | 0.88 | 0.69 | 0.91 | 1.00 | 0.35 |
| 36 | Jordan | 0.79 | 0.92 | 1.00 | 0.91 | 1.00 | 0.80 | 0.67 | 0.98 | 0.65 | 0.47 |
| 37 | Côte d'Ivoire | 0.78 | 0.68 | 0.65 | 0.84 | 0.73 | 0.52 | 0.91 | 0.89 | 0.98 | 0.85 |
| 38 | Kyrgyzstan | 0.78 | 0.92 | 0.91 | 0.94 | 1.00 | 0.84 | 0.66 | 1.00 | 1.00 | 0.29 |
| 39 | Tunisia | 0.77 | 0.95 | 0.98 | 0.99 | 1.00 | 0.83 | 0.63 | 0.76 | 0.83 | 0.40 |
| 40 | Kazakhstan | 0.77 | 0.98 | 0.96 | 1.00 | 1.00 | 0.96 | 0.61 | 1.00 | 0.92 | 0.25 |
| 41 | Eswatini | 0.77 | 0.69 | 0.65 | 0.89 | 0.90 | 0.42 | 0.86 | 0.87 | 1.00 | 0.72 |
| 42 | Lesotho | 0.76 | 0.65 | 0.67 | 0.73 | 0.82 | 0.44 | 0.88 | 0.74 | 1.00 | 0.94 |
| 43 | Cambodia | 0.75 | 0.72 | 0.66 | 0.95 | 0.76 | 0.57 | 0.78 | 0.78 | 0.97 | 0.62 |
| 44 | Turkey | 0.74 | 0.96 | 0.98 | 1.00 | 0.98 | 0.87 | 0.58 | 0.96 | 0.80 | 0.25 |
| 45 | Laos | 0.73 | 0.82 | 0.83 | 0.96 | 0.87 | 0.66 | 0.64 | 0.83 | 0.92 | 0.34 |
| 46 | Gambia | 0.72 | 0.77 | 0.78 | 0.86 | 0.82 | 0.63 | 0.69 | 0.45 | 0.82 | 0.88 |
| 47 | Bangladesh | 0.72 | 0.82 | 0.98 | 0.91 | 0.74 | 0.68 | 0.63 | 0.72 | 0.72 | 0.48 |
| 48 | Morocco | 0.71 | 0.92 | 0.89 | 0.98 | 0.96 | 0.85 | 0.55 | 0.71 | 0.71 | 0.33 |
| 49 | Nepal | 0.71 | 0.84 | 0.89 | 0.97 | 0.82 | 0.70 | 0.60 | 0.64 | 0.77 | 0.44 |
| 50 | Cameroon | 0.71 | 0.66 | 0.59 | 0.96 | 0.59 | 0.57 | 0.76 | 0.74 | 0.89 | 0.66 |
| 51 | Viet Nam | 0.70 | 0.95 | 0.97 | 0.95 | 0.97 | 0.93 | 0.52 | 0.95 | 0.46 | 0.31 |
| 52 | Senegal | 0.70 | 0.70 | 0.83 | 0.94 | 0.75 | 0.42 | 0.70 | 0.46 | 0.80 | 0.92 |

**Table 17** ***(Continued)***

| Rank | Country | FFI | Material Index | Water | Food | Housing | Employment | Spiritual Index | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 53 | Russia | 0.69 | 0.98 | 0.98 | 1.00 | 1.00 | 0.96 | 0.49 | 1.00 | 1.00 | 0.12 |
| 54 | Togo | 0.68 | 0.61 | 0.62 | 0.77 | 0.73 | 0.39 | 0.76 | 0.62 | 0.98 | 0.72 |
| 55 | Timor-Leste | 0.68 | 0.58 | 0.83 | 0.75 | 0.54 | 0.33 | 0.79 | 0.64 | 0.88 | 0.89 |
| 56 | Indonesia | 0.67 | 0.90 | 0.92 | 0.95 | 0.99 | 0.78 | 0.50 | 0.96 | 0.86 | 0.15 |
| 57 | Iraq | 0.66 | 0.81 | 0.99 | 0.56 | 0.99 | 0.78 | 0.54 | 0.84 | 0.82 | 0.24 |
| 58 | Kenya | 0.66 | 0.56 | 0.54 | 0.72 | 0.59 | 0.42 | 0.79 | 0.79 | 0.92 | 0.67 |
| 59 | Azerbaijan | 0.66 | 0.97 | 0.96 | 1.00 | 0.98 | 0.94 | 0.45 | 1.00 | 0.37 | 0.25 |
| 60 | Myanmar | 0.66 | 0.80 | 0.81 | 0.94 | 0.61 | 0.86 | 0.54 | 0.88 | 1.00 | 0.18 |
| 61 | Algeria | 0.63 | 0.95 | 0.94 | 1.00 | 1.00 | 0.87 | 0.42 | 0.79 | 0.66 | 0.14 |
| 62 | Benin | 0.61 | 0.56 | 0.58 | 0.94 | 0.53 | 0.35 | 0.66 | 0.35 | 0.89 | 0.92 |
| 63 | Nigeria | 0.61 | 0.59 | 0.74 | 0.85 | 0.64 | 0.31 | 0.62 | 0.57 | 0.80 | 0.53 |
| 64 | India | 0.59 | 0.76 | 0.89 | 0.84 | 0.74 | 0.59 | 0.46 | 0.71 | 0.34 | 0.40 |
| 65 | Egypt | 0.58 | 0.90 | 1.00 | 0.96 | 0.99 | 0.69 | 0.38 | 0.68 | 0.82 | 0.10 |
| 66 | Mauritania | 0.57 | 0.69 | 0.66 | 0.92 | 0.52 | 0.73 | 0.47 | 0.48 | 0.65 | 0.34 |
| 67 | Papua New | 0.57 | 0.48 | 0.34 | 0.72 | 0.42 | 0.51 | 0.68 | 0.57 | 0.68 | 0.83 |
| 68 | Pakistan | 0.57 | 0.76 | 0.89 | 0.87 | 0.66 | 0.64 | 0.42 | 0.53 | 0.45 | 0.32 |
| 69 | Angola | 0.57 | 0.47 | 0.48 | 0.81 | 0.51 | 0.25 | 0.68 | 0.62 | 0.94 | 0.54 |
| 70 | Rwanda | 0.56 | 0.43 | 0.52 | 0.59 | 0.43 | 0.26 | 0.72 | 0.70 | 0.91 | 0.59 |
| 71 | Malawi | 0.56 | 0.41 | 0.64 | 0.81 | 0.45 | 0.12 | 0.76 | 0.58 | 1.00 | 0.76 |
| 72 | Liberia | 0.54 | 0.47 | 0.71 | 0.54 | 0.60 | 0.21 | 0.64 | 0.42 | 0.72 | 0.85 |
| 73 | Tanzania | 0.54 | 0.45 | 0.53 | 0.71 | 0.48 | 0.24 | 0.64 | 0.75 | 0.85 | 0.41 |
| 74 | Ethiopia | 0.53 | 0.45 | 0.39 | 0.83 | 0.26 | 0.49 | 0.63 | 0.46 | 0.86 | 0.63 |
| 75 | Sierra Leone | 0.52 | 0.48 | 0.56 | 0.70 | 0.56 | 0.23 | 0.57 | 0.36 | 0.78 | 0.67 |
| 76 | Democratic Republic of | 0.50 | 0.30 | 0.34 | 0.51 | 0.35 | 0.13 | 0.84 | 0.74 | 0.94 | 0.85 |
| 77 | Mozambique | 0.50 | 0.35 | 0.56 | 0.64 | 0.23 | 0.19 | 0.70 | 0.56 | 1.00 | 0.61 |
| 78 | Mali | 0.49 | 0.47 | 0.80 | 0.90 | 0.33 | 0.21 | 0.50 | 0.22 | 0.68 | 0.82 |
| 79 | Burkina Faso | 0.48 | 0.38 | 0.36 | 0.85 | 0.21 | 0.31 | 0.60 | 0.32 | 0.97 | 0.71 |
| 80 | Madagascar | 0.45 | 0.28 | 0.44 | 0.49 | 0.32 | 0.09 | 0.73 | 0.74 | 0.77 | 0.70 |
| 81 | China | 0.37 | 0.96 | 0.94 | 1.00 | 0.96 | 0.94 | 0.14 | 0.96 | 0.31 | 0.01 |
| 82 | Chad | 0.34 | 0.29 | 0.35 | 0.63 | 0.11 | 0.29 | 0.40 | 0.13 | 0.85 | 0.60 |

# APPENDICES

# Appendix A: 2022 Fordham Francis Index - Alphabetical Listing of All Countries with Complete or Partial Data

| Country | FFI Rank | FFI | MWI | Water | Food | Housing | Employment | SWI | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Afghanistan | | - | - | 0.70 | 0.71 | 0.40 | | 0.35 | 0.23 | 0.57 | 0.32 |
| Albania | 22 | 0.87 | 0.95 | 0.95 | 0.98 | 1.00 | 0.87 | 0.79 | 0.98 | 0.63 | 0.80 |
| Algeria | 61 | 0.63 | 0.95 | 0.94 | 1.00 | 1.00 | 0.87 | 0.42 | 0.79 | 0.66 | 0.14 |
| American Samoa | | - | - | 1.00 | | | | - | | | |
| Andorra | | - | - | 1.00 | | | | - | | | 0.74 |
| Angola | 69 | 0.57 | 0.47 | 0.48 | 0.81 | 0.51 | 0.25 | 0.68 | 0.62 | 0.94 | 0.54 |
| Anguilla | | - | - | | | | | - | | | |
| Antigua and Barbuda | | - | - | | | | | - | 0.99 | | 0.91 |
| Argentina | | - | - | | 0.98 | 0.98 | 0.88 | 0.90 | 0.99 | 0.95 | 0.77 |
| Armenia | 34 | 0.80 | 0.93 | 1.00 | 0.99 | 1.00 | 0.75 | 0.69 | 1.00 | 0.54 | 0.62 |
| Aruba | | - | - | | | | | - | 0.98 | | |
| Australia | | - | - | 1.00 | 1.00 | | | - | | 0.82 | 0.88 |
| Austria | | - | - | 1.00 | 1.00 | | | - | | 0.85 | 0.53 |
| Azerbaijan | 59 | 0.66 | 0.97 | 0.96 | 1.00 | 0.98 | 0.94 | 0.45 | 1.00 | 0.37 | 0.25 |
| Bahamas | | - | - | | | | | - | | 1.00 | 0.63 |
| Bahrain | | - | - | 1.00 | | | | 0.57 | 0.90 | 0.68 | 0.31 |
| Bangladesh | 47 | 0.72 | 0.82 | 0.98 | 0.91 | 0.74 | 0.68 | 0.63 | 0.72 | 0.72 | 0.48 |
| Barbados | | - | - | 0.99 | 0.98 | 1.00 | | 0.85 | 1.00 | 0.82 | 0.75 |
| Belarus | 29 | 0.84 | 0.98 | 0.97 | 1.00 | 1.00 | 0.96 | 0.72 | 1.00 | 0.95 | 0.39 |
| Belgium | | - | - | 1.00 | 1.00 | | | - | | 0.82 | 0.58 |
| Belize | | - | 0.88 | 0.99 | 0.96 | 0.97 | 0.64 | - | | 1.00 | 0.88 |
| Benin | 62 | 0.61 | 0.56 | 0.58 | 0.94 | 0.53 | 0.35 | 0.66 | 0.35 | 0.89 | 0.92 |
| Bermuda | | - | - | 1.00 | | | | - | | | |
| Bhutan | | - | - | 0.98 | | 0.66 | 0.88 | 0.62 | 0.62 | 0.74 | 0.51 |
| Bolivia (Plurinational State of) | 23 | 0.87 | 0.89 | 0.93 | 0.87 | 0.92 | 0.85 | 0.84 | 0.92 | 0.72 | 0.89 |
| Bonaire, Sint Eustatius and Saba | | - | - | | | | | - | | | |
| Bosnia and Herzegovina | 9 | 0.90 | 0.95 | 0.96 | 1.00 | 1.00 | 0.85 | 0.85 | 0.97 | 0.91 | 0.70 |
| Botswana | 31 | 0.81 | 0.74 | 0.92 | 0.66 | 0.90 | 0.54 | 0.90 | 0.85 | 1.00 | 0.86 |
| Brazil | 5 | 0.92 | 0.95 | 1.00 | 1.00 | 0.99 | 0.83 | 0.88 | 0.92 | 1.00 | 0.74 |
| British Virgin Islands | | - | - | 1.00 | | | | - | | | |
| Brunei Darussalam | | - | - | 1.00 | 1.00 | | | 0.60 | 0.97 | 0.77 | 0.29 |
| Bulgaria | | - | - | 1.00 | 0.99 | | | 0.73 | 0.98 | 0.98 | 0.40 |
| Burkina Faso | 79 | 0.48 | 0.38 | 0.36 | 0.85 | 0.21 | 0.31 | 0.60 | 0.32 | 0.97 | 0.71 |
| Burundi | | - | - | 0.55 | | 0.22 | 0.06 | 0.72 | 0.65 | 0.98 | 0.59 |
| Cabo Verde | | - | - | 0.87 | 0.84 | | 0.78 | 0.89 | 0.85 | 1.00 | 0.84 |
| Cambodia | 43 | 0.75 | 0.72 | 0.66 | 0.95 | 0.76 | 0.57 | 0.78 | 0.78 | 0.97 | 0.62 |
| Cameroon | 50 | 0.71 | 0.66 | 0.59 | 0.96 | 0.59 | 0.57 | 0.76 | 0.74 | 0.89 | 0.66 |
| Canada | | - | - | 1.00 | 1.00 | | | - | | 0.82 | 0.78 |

| Country | FFI Rank | FFI | MWI | Water | Food | Housing | Employment | SWI | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Central African Republic | | - | 0.23 | 0.24 | 0.42 | 0.17 | 0.17 | - | 0.30 | | 0.69 |
| Chad | 82 | 0.34 | 0.29 | 0.35 | 0.63 | 0.11 | 0.29 | 0.40 | 0.13 | 0.85 | 0.60 |
| Chile | | - | - | 1.00 | 0.99 | | 0.91 | 0.88 | 0.96 | 0.85 | 0.84 |
| China | 81 | 0.37 | 0.96 | 0.94 | 1.00 | 0.96 | 0.94 | 0.14 | 0.96 | 0.31 | 0.01 |
| China, Hong Kong SAR | | - | - | 1.00 | 1.00 | | | - | | | 0.81 |
| China, Macao SAR | | - | - | 1.00 | 0.98 | | | - | 0.96 | | 0.88 |
| China, Taiwan Province of China | | - | - | | 0.99 | | | - | | | 0.82 |
| Colombia | 7 | 0.91 | 0.91 | 0.98 | 0.92 | 0.96 | 0.80 | 0.91 | 0.95 | 0.92 | 0.85 |
| Comoros | | - | - | | | 0.74 | 0.61 | - | 0.54 | | 0.42 |
| Congo | | - | 0.47 | 0.69 | 0.56 | 0.79 | 0.16 | - | 0.78 | | 0.78 |
| Cook Islands | | - | - | 1.00 | | | | - | | | |
| Costa Rica | 10 | 0.90 | 0.95 | 1.00 | 0.99 | 1.00 | 0.82 | 0.85 | 0.98 | 0.89 | 0.71 |
| Côte d'Ivoire | 37 | 0.78 | 0.68 | 0.65 | 0.84 | 0.73 | 0.52 | 0.91 | 0.89 | 0.98 | 0.85 |
| Croatia | | - | - | | 1.00 | 1.00 | | 0.90 | 0.99 | 0.97 | 0.76 |
| Cuba | | - | - | 0.98 | 1.00 | 0.99 | | 0.73 | 1.00 | 0.89 | 0.43 |
| Cyprus | | - | - | 1.00 | 1.00 | | | 0.76 | 0.99 | 0.69 | 0.66 |
| Czechia | | - | - | 1.00 | 1.00 | 1.00 | | - | | 0.97 | 0.74 |
| Dem. People's Republic of Korea | | - | - | 0.94 | 0.50 | | | - | | | |
| Democratic Republic of the Congo | 76 | 0.50 | 0.30 | 0.34 | 0.51 | 0.35 | 0.13 | 0.84 | 0.74 | 0.94 | 0.85 |
| Denmark | | - | - | 1.00 | 1.00 | | | - | | 0.75 | 0.56 |
| Djibouti | | - | - | 0.72 | 0.83 | 0.68 | | - | | | 0.61 |
| Dominica | | - | - | | 0.96 | | | - | | | 0.74 |
| Dominican Republic | 3 | 0.93 | 0.95 | 0.97 | 0.93 | 0.98 | 0.92 | 0.92 | 0.93 | 1.00 | 0.84 |
| Ecuador | 24 | 0.86 | 0.91 | 0.96 | 0.88 | 0.97 | 0.84 | 0.82 | 0.93 | 0.82 | 0.73 |
| Egypt | 65 | 0.58 | 0.90 | 1.00 | 0.96 | 0.99 | 0.69 | 0.38 | 0.68 | 0.82 | 0.10 |
| El Salvador | 8 | 0.90 | 0.94 | 0.99 | 0.92 | 0.93 | 0.92 | 0.87 | 0.88 | 1.00 | 0.75 |
| Equatorial Guinea | | - | - | | | | | - | 0.94 | | 0.65 |
| Eritrea | | - | - | | | | | - | 0.74 | | 0.28 |
| Estonia | | - | - | 1.00 | 1.00 | 1.00 | | 0.92 | 1.00 | 0.92 | 0.85 |
| Eswatini | 41 | 0.77 | 0.69 | 0.65 | 0.89 | 0.90 | 0.42 | 0.86 | 0.87 | 1.00 | 0.72 |
| Ethiopia | 74 | 0.53 | 0.45 | 0.39 | 0.83 | 0.26 | 0.49 | 0.63 | 0.46 | 0.86 | 0.63 |
| Falkland Islands (Malvinas) | | - | - | 0.95 | | | | - | | | |
| Faroe Islands | | - | - | 1.00 | | | | - | | | |
| Fiji | | - | - | 0.94 | 0.96 | | 0.91 | - | | 0.88 | 0.84 |
| Finland | | - | - | 1.00 | 1.00 | | | - | | 0.85 | 0.73 |
| France | | - | - | 1.00 | 1.00 | | | - | | 0.85 | 0.51 |
| French Guiana | | - | - | 0.94 | | | | - | | | |
| French Polynesia | | - | - | 1.00 | 0.98 | | | - | | | |
| Gabon | | - | 0.82 | 0.83 | 0.83 | 0.90 | 0.74 | - | 0.83 | | 0.88 |
| Gambia | 46 | 0.72 | 0.77 | 0.78 | 0.86 | 0.82 | 0.63 | 0.69 | 0.45 | 0.82 | 0.88 |

| Country | FFI Rank | FFI | MWI | Water | Food | Housing | Employment | SWI | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Georgia | 17 | 0.88 | 0.92 | 0.98 | 0.92 | 1.00 | 0.80 | 0.83 | 1.00 | 0.95 | 0.61 |
| Germany | | - | - | 1.00 | 1.00 | | | - | | 0.88 | 0.66 |
| Ghana | 26 | 0.85 | 0.85 | 0.84 | 0.95 | 0.85 | 0.77 | 0.85 | 0.76 | 0.97 | 0.83 |
| Gibraltar | | - | - | 1.00 | | | | - | | | |
| Greece | | - | - | 1.00 | 1.00 | | | 0.74 | 0.98 | 0.78 | 0.53 |
| Greenland | | - | - | 1.00 | | | | - | | | |
| Grenada | | - | - | | | | | - | 0.98 | | 0.78 |
| Guadeloupe | | - | - | 1.00 | | | | - | | | |
| Guam | | - | - | 1.00 | | | | - | | | |
| Guatemala | 28 | 0.84 | 0.84 | 0.94 | 0.82 | 0.75 | 0.85 | 0.85 | 0.78 | 0.98 | 0.80 |
| Guinea | | - | - | 0.57 | | 0.57 | 0.44 | 0.57 | 0.32 | 0.78 | 0.72 |
| Guinea-Bissau | | - | - | 0.51 | | 0.30 | 0.18 | - | 0.39 | | 0.92 |
| Guyana | 12 | 0.89 | 0.93 | 0.96 | 0.97 | 0.98 | 0.83 | 0.85 | 0.84 | 1.00 | 0.73 |
| Haiti | | - | 0.54 | 0.60 | 0.44 | 0.67 | 0.49 | - | 0.57 | | 0.76 |
| Honduras | 32 | 0.81 | 0.82 | 0.96 | 0.86 | 0.80 | 0.68 | 0.80 | 0.87 | 0.75 | 0.78 |
| Hungary | | - | - | 1.00 | 1.00 | 0.99 | | 0.88 | 0.99 | 1.00 | 0.70 |
| Iceland | | - | - | 1.00 | 1.00 | | | - | | 0.75 | 0.60 |
| India | 64 | 0.59 | 0.76 | 0.89 | 0.84 | 0.74 | 0.59 | 0.46 | 0.71 | 0.34 | 0.40 |
| Indonesia | 56 | 0.67 | 0.90 | 0.92 | 0.95 | 0.99 | 0.78 | 0.50 | 0.96 | 0.86 | 0.15 |
| Iran (Islamic Republic of) | | - | - | 0.98 | 0.96 | | 0.88 | 0.43 | 0.84 | 0.74 | 0.13 |
| Iraq | 57 | 0.66 | 0.81 | 0.99 | 0.56 | 0.99 | 0.78 | 0.54 | 0.84 | 0.82 | 0.24 |
| Ireland | | - | - | 0.98 | 1.00 | | | - | | 0.75 | 0.84 |
| Isle of Man | | - | - | 1.00 | | | | - | | | |
| Israel | | - | - | 1.00 | 1.00 | | | - | | 0.75 | 0.35 |
| Italy | | - | - | 1.00 | 1.00 | | | 0.81 | 0.99 | 0.77 | 0.69 |
| Jamaica | 25 | 0.86 | 0.91 | 0.90 | 0.93 | 0.97 | 0.85 | 0.82 | 0.87 | 0.82 | 0.77 |
| Japan | | - | - | 1.00 | 1.00 | | | - | | 0.89 | 0.91 |
| Jordan | 36 | 0.79 | 0.92 | 1.00 | 0.91 | 1.00 | 0.80 | 0.67 | 0.98 | 0.65 | 0.47 |
| Kazakhstan | 40 | 0.77 | 0.98 | 0.96 | 1.00 | 1.00 | 0.96 | 0.61 | 1.00 | 0.92 | 0.25 |
| Kenya | 58 | 0.66 | 0.56 | 0.54 | 0.72 | 0.59 | 0.42 | 0.79 | 0.79 | 0.92 | 0.67 |
| Kiribati | | - | - | 0.74 | 0.98 | 0.79 | | - | | | 0.90 |
| Kosovo | | - | - | | | | | - | | | 0.69 |
| Kuwait | | - | - | 1.00 | 1.00 | | | 0.64 | 0.96 | 0.82 | 0.33 |
| Kyrgyzstan | 38 | 0.78 | 0.92 | 0.91 | 0.94 | 1.00 | 0.84 | 0.66 | 1.00 | 1.00 | 0.29 |
| Lao People's Democratic Republic | 45 | 0.73 | 0.82 | 0.83 | 0.96 | 0.87 | 0.66 | 0.64 | 0.83 | 0.92 | 0.34 |
| Latvia | | - | - | 1.00 | 1.00 | | | 0.88 | 1.00 | 0.94 | 0.72 |
| Lebanon | | - | - | 0.92 | 0.91 | | 0.86 | 0.74 | 0.94 | 0.85 | 0.51 |
| Lesotho | 42 | 0.76 | 0.65 | 0.67 | 0.73 | 0.82 | 0.44 | 0.88 | 0.74 | 1.00 | 0.94 |
| Liberia | 72 | 0.54 | 0.47 | 0.71 | 0.54 | 0.60 | 0.21 | 0.64 | 0.42 | 0.72 | 0.85 |

| Country | FFI Rank | FFI | MWI | Water | Food | Housing | Employment | SWI | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Libya | | - | - | 1.00 | | 1.00 | | - | | | 0.38 |
| Liechtenstein | | - | - | 1.00 | | | | - | | | 0.78 |
| Lithuania | | - | - | 0.99 | 1.00 | | | 0.89 | 1.00 | 1.00 | 0.70 |
| Luxembourg | | - | - | 1.00 | 1.00 | | | - | | 0.77 | 0.69 |
| Madagascar | 80 | 0.45 | 0.28 | 0.44 | 0.49 | 0.32 | 0.09 | 0.73 | 0.74 | 0.77 | 0.70 |
| Malawi | 71 | 0.56 | 0.41 | 0.64 | 0.81 | 0.45 | 0.12 | 0.76 | 0.58 | 1.00 | 0.76 |
| Malaysia | | - | - | 0.98 | 0.99 | | 0.96 | 0.41 | 0.94 | 0.88 | 0.09 |
| Maldives | | - | - | 1.00 | | 1.00 | 0.94 | 0.47 | 0.97 | 0.62 | 0.17 |
| Mali | 78 | 0.49 | 0.47 | 0.80 | 0.90 | 0.33 | 0.21 | 0.50 | 0.22 | 0.68 | 0.82 |
| Malta | | - | - | 1.00 | 1.00 | | | 0.82 | 0.94 | 0.77 | 0.76 |
| Marshall Islands | | - | - | 0.87 | | | | - | 0.98 | | 0.94 |
| Martinique | | - | - | 1.00 | | | | - | | | |
| Mauritania | 66 | 0.57 | 0.69 | 0.66 | 0.92 | 0.52 | 0.73 | 0.47 | 0.48 | 0.65 | 0.34 |
| Mauritius | | - | - | 1.00 | 0.95 | | 0.92 | 0.91 | 0.90 | 1.00 | 0.84 |
| Mayotte | | - | - | 0.97 | | | | - | | | |
| Mexico | 19 | 0.87 | 0.96 | 1.00 | 0.94 | 0.98 | 0.91 | 0.79 | 0.95 | 0.92 | 0.56 |
| Micronesia (Fed. States of) | | - | - | | | | | - | | | 0.97 |
| Monaco | | - | - | 1.00 | | | | - | | | 0.72 |
| Mongolia | 11 | 0.89 | 0.91 | 0.83 | 0.98 | 0.93 | 0.92 | 0.87 | 0.99 | 1.00 | 0.67 |
| Montenegro | 14 | 0.89 | 0.95 | 1.00 | 1.00 | 1.00 | 0.80 | 0.83 | 0.99 | 0.85 | 0.69 |
| Montserrat | | - | - | 0.99 | | | | - | | | |
| Morocco | 48 | 0.71 | 0.92 | 0.89 | 0.98 | 0.96 | 0.85 | 0.55 | 0.71 | 0.71 | 0.33 |
| Mozambique | 77 | 0.50 | 0.35 | 0.56 | 0.64 | 0.23 | 0.19 | 0.70 | 0.56 | 1.00 | 0.61 |
| Myanmar | 60 | 0.66 | 0.80 | 0.81 | 0.94 | 0.61 | 0.86 | 0.54 | 0.88 | 1.00 | 0.18 |
| Namibia | 33 | 0.81 | 0.71 | 0.82 | 0.78 | 0.65 | 0.61 | 0.92 | 0.90 | 1.00 | 0.86 |
| Nauru | | - | - | 1.00 | | | | - | | | 0.81 |
| Nepal | 49 | 0.71 | 0.84 | 0.89 | 0.97 | 0.82 | 0.70 | 0.60 | 0.64 | 0.77 | 0.44 |
| Netherlands | | - | - | 1.00 | 1.00 | | | - | | 0.72 | 0.59 |
| New Caledonia | | - | - | 1.00 | 0.94 | | | - | 0.98 | | |
| New Zealand | | - | - | 1.00 | 1.00 | | | - | | 0.78 | 0.95 |
| Nicaragua | 30 | 0.82 | 0.82 | 0.79 | 0.79 | 0.85 | 0.85 | 0.82 | 0.80 | 0.97 | 0.70 |
| Niger | | - | - | 0.36 | | 0.02 | 0.27 | 0.47 | 0.27 | 0.75 | 0.52 |
| Nigeria | 63 | 0.61 | 0.59 | 0.74 | 0.85 | 0.64 | 0.31 | 0.62 | 0.57 | 0.80 | 0.53 |
| Niue | | - | - | 0.98 | | | | - | | | |
| North Macedonia | 13 | 0.89 | 0.95 | 0.98 | 1.00 | 1.00 | 0.82 | 0.83 | 0.98 | 0.85 | 0.70 |
| Northern Mariana Islands | | - | - | 1.00 | | | | - | | | |
| Norway | | - | - | 1.00 | 1.00 | | | - | | 0.75 | 0.66 |
| Oman | | - | - | 0.92 | 0.93 | | | 0.66 | 0.95 | 0.71 | 0.42 |

| Country | FFI Rank | FFI | MWI | Water | Food | Housing | Employment | SWI | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pakistan | 68 | 0.57 | 0.76 | 0.89 | 0.87 | 0.66 | 0.64 | 0.42 | 0.53 | 0.45 | 0.32 |
| Palau | | - | - | 1.00 | | | | - | 0.96 | | 0.95 |
| Panama | | - | - | 0.94 | 0.94 | | 0.86 | 0.89 | 0.95 | 0.89 | 0.84 |
| Papua New Guinea | 67 | 0.57 | 0.48 | 0.34 | 0.72 | 0.42 | 0.51 | 0.68 | 0.57 | 0.68 | 0.83 |
| Paraguay | 4 | 0.92 | 0.95 | 1.00 | 0.92 | 0.96 | 0.92 | 0.89 | 0.94 | 0.91 | 0.82 |
| Peru | 18 | 0.87 | 0.91 | 0.93 | 0.92 | 0.92 | 0.87 | 0.84 | 0.94 | 0.75 | 0.83 |
| Philippines | 6 | 0.91 | 0.89 | 0.94 | 0.91 | 0.95 | 0.78 | 0.93 | 0.96 | 0.98 | 0.85 |
| Poland | | - | - | 1.00 | 1.00 | | | - | | 1.00 | 0.62 |
| Portugal | | - | - | 1.00 | 1.00 | | | 0.91 | 0.96 | 0.88 | 0.89 |
| Puerto Rico | | - | - | 1.00 | | | | - | 0.91 | | |
| Qatar | | - | - | 1.00 | | | | 0.58 | 0.93 | 0.51 | 0.42 |
| Republic of Korea | | - | - | 1.00 | 1.00 | | 0.97 | - | | 0.94 | 0.72 |
| Republic of Moldova | | - | - | 0.90 | | 0.99 | 0.96 | 0.79 | 0.99 | 1.00 | 0.51 |
| Réunion | | - | - | 1.00 | | | | - | | | |
| Romania | | - | - | 1.00 | 1.00 | | | 0.78 | 0.99 | 1.00 | 0.48 |
| Russian Federation | 53 | 0.69 | 0.98 | 0.98 | 1.00 | 1.00 | 0.96 | 0.49 | 1.00 | 1.00 | 0.12 |
| Rwanda | 70 | 0.56 | 0.43 | 0.52 | 0.59 | 0.43 | 0.26 | 0.72 | 0.70 | 0.91 | 0.59 |
| Saint Barthélemy | | - | - | 1.00 | | | | - | | | |
| Saint Helena | | - | - | 1.00 | | | | - | | | |
| Saint Kitts and Nevis | | - | - | | | | | - | | | 0.83 |
| Saint Lucia | | - | - | 0.97 | | 0.99 | | - | | | 0.80 |
| Saint Martin (French part) | | - | - | 1.00 | | | | - | | | |
| Saint Pierre and Miquelon | | - | - | 0.91 | | | | - | | | |
| Saint Vincent and the Grenadines | | - | - | | 0.96 | | | - | | | 0.85 |
| Samoa | | - | - | 0.91 | 0.97 | | | - | 0.99 | | 0.85 |
| San Marino | | - | - | 1.00 | | | | - | | | 0.94 |
| Sao Tome and Principe | | - | - | 0.74 | 0.88 | 0.99 | | - | 0.92 | | 0.90 |
| Saudi Arabia | | - | - | 1.00 | 0.98 | | | 0.55 | 0.97 | 0.75 | 0.23 |
| Senegal | 52 | 0.70 | 0.70 | 0.83 | 0.94 | 0.75 | 0.42 | 0.70 | 0.46 | 0.80 | 0.92 |
| Serbia | 16 | 0.88 | 0.95 | 0.95 | 0.98 | 1.00 | 0.89 | 0.81 | 0.99 | 0.83 | 0.63 |
| Seychelles | | - | - | | | 1.00 | | - | 0.95 | | 0.72 |
| Sierra Leone | 75 | 0.52 | 0.48 | 0.56 | 0.70 | 0.56 | 0.23 | 0.57 | 0.36 | 0.78 | 0.67 |
| Singapore | | - | - | 1.00 | | | | 0.57 | 0.97 | 0.74 | 0.26 |
| Slovakia | | - | - | 1.00 | 0.98 | 1.00 | | - | | 1.00 | 0.68 |
| Slovenia | | - | - | 1.00 | 1.00 | 1.00 | | 0.92 | 1.00 | 0.95 | 0.81 |
| Solomon Islands | | - | - | 0.61 | 0.82 | | 0.43 | - | | | 0.89 |
| Somalia | | - | - | 0.47 | 0.28 | 0.22 | | - | | | 0.65 |
| South Africa | 21 | 0.87 | 0.82 | 0.94 | 0.95 | 0.95 | 0.53 | 0.92 | 0.94 | 0.98 | 0.83 |
| South Sudan | | - | - | 0.28 | | 0.01 | | - | 0.27 | | 0.74 |

| Country | FFI Rank | FFI | MWI | Water | Food | Housing | Employment | SWI | Education | Gender | Religion |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Spain | | - | - | 1.00 | 1.00 | | | 0.74 | 0.98 | 0.77 | 0.54 |
| Sri Lanka | 35 | 0.80 | 0.93 | 0.92 | 0.95 | 0.98 | 0.88 | 0.69 | 0.91 | 1.00 | 0.35 |
| State of Palestine | | - | - | 0.99 | | 1.00 | 0.74 | - | 0.97 | | 0.54 |
| Sudan | | - | 0.55 | 0.52 | 0.88 | 0.43 | 0.46 | - | 0.56 | | 0.27 |
| Suriname | 15 | 0.88 | 0.87 | 0.99 | 0.92 | 0.99 | 0.64 | 0.89 | 0.94 | 0.83 | 0.90 |
| Sweden | | - | - | 1.00 | 1.00 | | | - | | 0.72 | 0.72 |
| Switzerland | | - | - | 1.00 | 1.00 | | | - | | 0.75 | 0.72 |
| Syrian Arab Republic | | - | - | 0.94 | | 0.98 | 0.30 | - | | 0.77 | 0.11 |
| Tajikistan | | - | - | 0.79 | | 0.94 | 0.86 | 0.60 | 1.00 | 0.83 | 0.26 |
| Thailand | 27 | 0.84 | 0.98 | 1.00 | 0.93 | 1.00 | 0.99 | 0.73 | 0.93 | 0.97 | 0.43 |
| Timor-Leste | 55 | 0.68 | 0.58 | 0.83 | 0.75 | 0.54 | 0.33 | 0.79 | 0.64 | 0.88 | 0.89 |
| Togo | 54 | 0.68 | 0.61 | 0.62 | 0.77 | 0.73 | 0.39 | 0.76 | 0.62 | 0.98 | 0.72 |
| Tokelau | | - | - | 1.00 | | | | - | | | |
| Tonga | | - | - | 1.00 | | 0.99 | | - | 0.99 | | 0.83 |
| Trinidad and Tobago | 1 | 0.97 | 0.97 | 1.00 | 0.95 | 1.00 | 0.95 | 0.96 | 0.99 | 1.00 | 0.89 |
| Tunisia | 39 | 0.77 | 0.95 | 0.98 | 0.99 | 1.00 | 0.83 | 0.63 | 0.76 | 0.83 | 0.40 |
| Turkey | 44 | 0.74 | 0.96 | 0.98 | 1.00 | 0.98 | 0.87 | 0.58 | 0.96 | 0.80 | 0.25 |
| Turkmenistan | | - | 0.98 | 1.00 | 0.98 | 1.00 | 0.93 | - | 1.00 | | 0.18 |
| Turks and Caicos Islands | | - | - | | | | | - | | | |
| Tuvalu | | - | - | 1.00 | | | | - | | | 0.78 |
| Uganda | | - | - | 0.47 | | 0.45 | 0.35 | 0.79 | 0.74 | 1.00 | 0.68 |
| Ukraine | 20 | 0.87 | 0.96 | 0.94 | 1.00 | 1.00 | 0.92 | 0.78 | 1.00 | 0.97 | 0.49 |
| United Arab Emirates | | - | - | 1.00 | 0.98 | 1.00 | | 0.65 | 0.97 | 0.74 | 0.38 |
| United Kingdom | | - | - | 1.00 | 1.00 | | | - | | 0.78 | 0.66 |
| United Republic of Tanzania | 73 | 0.54 | 0.45 | 0.53 | 0.71 | 0.48 | 0.24 | 0.64 | 0.75 | 0.85 | 0.41 |
| United States of America | | - | - | 1.00 | 1.00 | | | - | | 0.85 | 0.66 |
| United States Virgin Islands | | - | - | 1.00 | | | | - | | | |
| Uruguay | 2 | 0.95 | 0.97 | 1.00 | 1.00 | 1.00 | 0.90 | 0.93 | 0.99 | 1.00 | 0.83 |
| Uzbekistan | | - | 0.89 | 0.99 | 1.00 | 0.99 | 0.66 | - | 1.00 | | 0.23 |
| Vanuatu | | - | - | 0.90 | 0.91 | 0.67 | | 0.88 | 0.86 | 0.92 | 0.86 |
| Venezuela (Bolivarian Republic of) | | - | - | 0.93 | 0.69 | | 0.47 | 0.83 | 0.97 | 1.00 | 0.59 |
| Viet Nam | 51 | 0.70 | 0.95 | 0.97 | 0.95 | 0.97 | 0.93 | 0.52 | 0.95 | 0.46 | 0.31 |
| Wallis and Futuna Islands | | - | - | 1.00 | | | | - | | | |
| Western Sahara | | - | - | | | | | - | | | 0.41 |
| Yemen | | - | 0.39 | 0.53 | 0.46 | 0.50 | 0.20 | - | | 0.82 | 0.35 |
| Zambia | | - | - | 0.58 | | 0.56 | 0.24 | 0.83 | 0.85 | 1.00 | 0.67 |
| Zimbabwe | | - | - | 0.55 | | 0.82 | 0.35 | 0.81 | 0.87 | 1.00 | 0.61 |

# APPENDIX B: VARIABLE DEFINITIONS & SOURCES

| Variable | Definition | Source |
|---|---|---|
| ***Variables Used for the FFI Computation*** | | |
| **Water Indicator: Percentage of population who drink improved drinking water.** | Basic access to drinking water services refers to drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing. Improved drinking water sources are those that have the potential to deliver safe water by nature of their design and construction, and include: piped water, boreholes or tube wells, protected dug wells, protected springs, rainwater, and packaged or delivered water | WHO/UNICEF Joint Monitoring Programme ( JMP ) for Water Supply and Sanitation<br>https://washdata.org/data/downloads#WLD<br>Accessed: June 2, 2022 |
| **Food Indicator: Prevalence of Undernourishment** | The percentage of the population that is continuously unable to consume enough food to meet dietary energy requirements | Food and Agriculture Organization (FAO)<br>https://www.fao.org/faostat/en/#data<br>Accessed: June 12, 2022 |
| **Housing Indicator: Access to Adequate Housing** | The percent of the population with access to adequate housing. The definition of inadequate housing is that the floor or the roof or both are made of rudimentary materials. Inadequate flooring is made of mud, clay, earth, sand or dung; while inadequate roofing occurs if a dwelling lacks a roof or wall or if either are constructed using rudimentary materials such as cane, mud, grass, thatch, bamboo, plastics, plywood, cardboard, etc. | Oxford Poverty & Human Development Initiative Multidimensional Poverty Index Report<br>https://ophi.org.uk/multidimensional-poverty-index/data-tables-do-files/<br>Accessed: June 12, 2022 |
| **Employment Indicator: Distressed Labor Rate** | The Distressed Labor Rate refers to the percentage of the working age population who are able to work but are unemployed or who are employed but earning less than $3.20 PPP per day and are unlikely to meet their basic needs without assistance. | International Labor Organization<br>https://ilostat.ilo.org/data/<br>Accessed: June 21, 2022 |
| **Education Indicator: Adult Literacy Rate** | The proportion of the adult population aged 15 years and over that is literate. This unit of measurement is expressed as a percentage (%). This indicator provides a measure of the stock of literate persons within the adult population who are capable of using written words in daily life and to continue to learn. It reflects the accumulated accomplishment of education in spreading literacy. Any shortfall in literacy would provide indications of efforts required in the future to extend literacy to the remaining adult illiterate population. | United Nations Educational, Scientific and Cultural Organization (UNESCO)<br>Data collected from:<br>https://databank.worldbank.org/reports.aspx?source=world-development-indicators#<br>Accessed: June 24, 2022 |

| Variable | Definition | Source |
|---|---|---|
| **Gender Indicator: Health and Survival Index** | The Index is based on two different factors: sex ratio at birth (converted to female-over-male ratio) and ratio of female healthy life expectancy over male healthy life expectancy | Gender Gap Report of World Economic Forum<br>*Data downloaded from World Economic Forum dataset hosted on World Bank's website*<br>https://tcdata360.worldbank.org/indicators/e06df634?country=AFG&indicator=28163&viz=line_chart&years=2006,2021<br>Accessed: June 25, 2022 |
| **Religious Freedom Indicator: Government Restrictions Index** | The Government Restrictions Index (GRI) measures on a 10-point scale government laws, policies and actions that restrict religious beliefs or practices. The GRI is comprised of 20 measures of restrictions, including efforts by governments to ban particular faiths, prohibit conversions, limit preaching or give preferential treatment to one or more religious groups. | Pew Research Center<br><br>Majumdar, Samirah and Virginia Villa, Septemger 30, 2021. Globally, Social Hostilities Related to Religion Decline in 2019, While Government Restrictions Remain at Highest Levels |
| **Population Data** | Total population<br>Female Population<br>Adult Population – population of those age 15 or older | UN Population Division, Department of Economic and Social Affairs<br>https://population.un.org/wpp/Download/Standard/Population/<br>Accessed July 12, 2022 |
| **GDP Per Capita** | Gross Domestic Product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. | World Bank<br>https://data.worldbank.org/indicator/NY.GDP.PCAP.CD<br>Accessed: July 29, 2022 |
| **Human Development Index** | A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. | United Nations Development Progamme Human Development Reports<br>https://hdr.undp.org/data-center/human-development-index#/indicies/HDI<br>Accessed: July 29, 2022 |

| Variable | Definition | Source |
|---|---|---|
| ***UN Sustainable Development Goals (SDG) Targets*** | | |
| **SDG 1.1.1 Level of Poverty** | Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population): Poverty headcount ratio at $1.90 a day is the percentage of the population living on less than $1.90 a day at 2011 international prices. As a result of revisions in PPP exchange rates, poverty rates for individual countries cannot be compared with poverty rates reported in earlier editions. | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 3.1.1 Maternal Mortality** | Maternal mortality ratio is the number of women who die from pregnancy-related causes while pregnant or within 42 days of birth per 100,000 live births in a given year. | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 3.2.1 Infant Mortality** | Infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year. | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 3.3.2 Incidence of TB** | Measured as the estimated incidence (all forms) per 100,000 population | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 4.3.1 Gender Parity in Education** | Gender parity index for participation rate in formal and non-formal education and training, ratio<br>Parity indices require data for the specific groups of interest. They represent the ratio of the indicator value for one group to that of the other. Typically, the likely more disadvantaged group (female) is placed in the numerator. A value of exactly 1 indicates parity between the two groups.<br><br>Participation rate in formal and non-formal education and training, by sex (%) (both sex) | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 5.2.1 Proportion of Partnered Women Subject to Violence** | Proportion of ever-partnered women and girls subjected to physical and/or sexual violence by a current or former intimate partner in the previous 12 months, by age (%) (age 15+) | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |

| Variable | Definition | Source |
|---|---|---|
| **SDG 5.5.1 Proportion of Women in Parliament** | The proportion of seats held by women in (a) national parliaments is currently measured as the number of seats held by women members in single or lower chambers of national parliaments, expressed as a percentage of all occupied seats. | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 6.2.1 Access to Sanitation** | Percentage of population who use an adequate/ improved sanitation facility. A sanitation facility is considered adequate/improved if it hygienically separates human excreta from human contact. The types of technology that are likely to meet this criterion are: flush to piped sewer system ; flush to septic tank; flush/pour flush to pit; composting toilet; ventilated improved pit (VIP) latrine; pit latrine with a slab | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 7.1.1 Electricity (% of Population)** | Proportion of population with access to electricity | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 7.2.1 Renewable Energy Share** | The renewable energy share in total final consumption is the percentage of final consumption of energy that is derived from renewable resources. | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 8.1.1 GDP Per Capita Growth Rate** | Annual growth rate of real Gross Domestic Product (GDP) per capita is calculated as the percentage change in the real GDP per capita between two consecutive years. Real GDP per capita is calculated by dividing GDP at constant prices by the population of a country or area. The data for real GDP are measured in constant US dollars to facilitate the calculation of country growth rates and aggregation of the country data. | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 8.6.1 Proportion of youth not in education, employment or training** | Proportion of youth not in education, employment or training, by sex and age (%) | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |

| Variable | Definition | Source |
|---|---|---|
| **SDG 8.10.2 Percent of Population with an account at a financial institution** | Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 10.4.1 Income Inequality** | Labour share of GDP (%) | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 13.1.1 Affected by Disaster** | Number of people affected by disaster (number) | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 15.5.1 Red List Index** | The Red List Index measures change in aggregate extinction risk across groups of species. It is based on genuine changes in the number of species in each category of extinction risk on The IUCN Red List of Threatened Species (IUCN 2015) is expressed as changes in an index ranging from 0 to 1. | *United Nations Department of Economic and Social Affairs, Statistics - SDG Indicators Database*<br>https://unstats.un.org/sdgs/dataportal/database<br>Accessed: Aug 21, 2022 |
| **SDG 16 Corruption** | Measured by Transparency International to rank countries by their perceived levels of corruption, as determined by expert assessments and opinion surveys. Measured from 0 (highly corrupt) to 100 (very clean). | Transparency International<br>https://www.transparency.org/en/cpi/2021/index/results<br>Accessed: Aug 22, 2022 |
| **SDG 16 Press Freedom** | Measured as 0 to 100, with 100 as worst/least free | Reporters Without Borders<br>Source: https://rsf.org/en/index<br>Accessed: Aug 22, 2022 |
| **SDG 16.3.2 Unsentenced detainees as a proportion of overall prison to population** | The total number of persons held in detention who have not yet been sentenced, as a percentage of the total number of persons held in detention, on a specified date. | United Nations Office on Drugs and Crime<br>https://dataunodc.un.org/crime/unsentenced-detainees-as-proportion<br>Accessed: Aug 21, 2022 |
| **SDG 17.8.1 Percent population using the internet** | The indicator proportion of individuals using the Internet is defined as the proportion of individuals who used the Internet from any location in the last three months. | United Nations Office on Drugs and Crime<br>https://dataunodc.un.org/crime/unsentenced-detainees-as-proportion<br>Accessed: Aug 21, 2022 |

# APPENDIX C: TECHNICAL NOTES

## SOURCES AND DEFINITIONS

All data for this report were gathered from international organizations who have resources and expertise to collect and distribute national data on various development indicators.

Definitions of the indicators used for the report are listed in the succeeding appendix.

## METHODOLOGY FOR 2022 REPORT

An important concern in producing this report was geographical coverage and obtaining as many observations as possible. Beginning this 2022 Report, we use national data for whichever is the latest year available for each indicator.

### Water

Water data for access to water from an improved drinking source was taken from the World Health Organization-UNICEF Joint Monitoring Programme (JMP) water and sanitation database. The latest data available was from 2020, covering 211 countries.

The WHO-UNICEF JMP water and sanitation database shows some countries with percentage access to water as ">99". We list these values at 99% for the construction of our FFI water dataset.

To estimate the percent and number of people in the world who experience deprivation in access to clean water, we compute the total number of affected population from countries with observed data and divide that by the total number of population in these countries. This provides us with the estimated global rate. We then multiply this rate by the total world population for 2020 to get the number of people in the world who experience deprivation in water access.

### Food

The data for prevalence of undernourishment was obtained from the UN Food and Agriculture Organization (FAO). The FAO reports the data as three-year moving averages, , with the latest three-year average for 2019. We take the data provided for the 3-year period 2018-2020 to represent data for 2019. For 2019, data was available for 162 countries.

FAO database shows some countries with percent prevalence of undernourishment as "<2.5". We list these values at 2.5% for the construction of our FFI food dataset.

To estimate the percent and number of people in the world who experience deprivation in food, we compute the total number of affected population from countries with observed data and divide that by the total number of population in these countries. This provides us with the estimated global rate. We then multiply this rate to the total world population for 2019 to get the number of people in the world who experience deprivation in food.

### Housing

Data for the housing indicator was obtained from the Oxford Poverty & Human Development Initiative which collects data that show different dimensions of poverty which they use to produce the Global Multidimensional Poverty Index in partnership with

UNDP. The Global MPI was started in 2010 and contains data ranging back to 2000. The latest survey conducted for indicators used in the OPHI database was from the year 2020. Data used for each country is the most recent available for the country. We were able to get housing data for 126 countries.

One of the dimensions measured by the Global MPI is the percentage of households that have inadequate housing materials. This data is taken from various country demographic and health surveys and other similar national surveys that contain housing structure information. As such, years on when the surveys were conducted vary from country to country.

To estimate the percent and number of people in the world who experience deprivation in housing, we compute the total number of affected population from countries with observed data and divide that by the total number of population in these countries. This provides us with the estimated global rate. We then multiply this rate to the total world population for 2020 to get the number of people in the world who experience deprivation in housing.

**Employment**

Data used to compute for the distressed labor rate were sourced from the International Labor Organization Department of Statistics (ILOSTAT). The *Distressed Labor* Rate takes the total number of unemployed plus the total number of employed earning less than $3.20 PPP per day and divides that sum by the total number in the labor force, which includes employed and unemployed still looking for work. Following the practice of the International Labor Office (ILO) we use a maximum salary of $3.20 PPP per day to define employed workers who are receiving moderate and extreme poverty wages. It is argued that a minimum salary of $3.20 PPP per day will allow an individual's continued existence without assistance. Without assistance from community members, NGOs, or governments the lives of individuals earning less than $3.20 PPP per day may be at risk. The latest data available is for 2021 and covers 117 countries.

To estimate the percent and number of adults in the world labor force who experience deprivation in adequately remunerated work, we compute the total number of distressed labor from countries with observed data and divide that by the total number of adults in the labor force in these countries. This provides us with the estimated global distressed labor rate. Meanwhile, we calculate the world labor force by multiplying the World Bank estimated world labor force participation rate by the total world adult population. We then multiply the estimated world distressed labor rate by the total world labor force to get the number of people in the world who experience deprivation in adequately remunerated work.

**Education**

Data for adult literacy rate is taken from the UN Educational, Scientific, and Cultural Organization (UNESCO) and the World Bank who collect and monitor the reliability and accuracy of this measure.

Data for literacy rate is taken from various country demographic surveys, population census and other similar surveys. As such, the timing and frequency of the surveys vary from country to country.

Education data used for each country for the 2022 FFI Report, is the most recent available within the 10 year period of 2010-2020. We use 10 years as the maximum period to extend out availability of literacy data given that the frequency of population/ demographic surveys vary within the 3-10 year range among different countries. We were able to generate

education data from 152 countries for this time period from UNESCO's database.

To estimate the percent and number of adults who experience deprivation in education, we use UNESCO's estimate for world adult literacy rates. We then multiply the percent of illiterate adults by the world adult population for 2020 to get the number of adults who experience deprivation in education.

**Gender**

For the gender indicator, we use the Health and Survival Index (HSI) reported in the *The Global Gender Gap Report* published by the World Economic Forum. The HSI is based on two different factors: the female-over-male ratio at birth and the ratio of female-over-male healthy life expectancy. A value of 0.98 indicates that a country has closed the gender gap. The latest data available for the Health and Survival Index was from 2021. For 2021, data was available for 156 countries.

Given that the FFI was first started in 2013, we use 2013 data as a baseline for monitoring changes in our selected indicators. In 2013, 80% of all observed countries had a score greater than 0.9658 for the HSI. We use this score as a benchmark. Women living in countries with scores at or below 0.9658 faced severe gender inequality by definition.

To estimate the percent and number of women who experience deprivation in gender equity, we compute the total number of females who live in countries with an observed severe gender gap (below or at the threshold) and divide that by the total female population in all observed countries. This provides us with the estimated global rate of women who face a severe gender gap. We then multiply this rate to the total world female population for 2021 to get the number of women in the world who experience deprivation in gender equity.

**Religious Freedom**

We use the Government Restrictions Index (GRI) from the Pew Research Center as the religious freedom indicator. We found this measure to be most suitable because it also accounts for the role of government institutions in promoting or deterring religious freedom. The Pew Research Center compiles 20 measures of restrictions, including efforts by government to ban particular faiths, prohibit conversion, limit preaching, or give preferential treatment to one or more religious groups. The Pew Research Center employs extensive data verification checks and obtains its data from various government and independent sources giving us confidence that the Government Restrictions Index (GRI) is reliable, consistent and comprehensive. The latest data available for the GRI from the Pew Research Center was from 2019. For 2019, data was available for 198 countries.

The GRI is an index with value set between 0 to 10. Higher GRI scores indicate that countries face higher government restrictions. Similar to the gender indicator, we use 2013 as a baseline. In 2013, 80% of all countries had a score less than 5.2 on the government restriction index. We use this score as a benchmark. People in countries with scores at or above 5.2 face severe government restrictions on their religious freedom by definition.

To estimate the percent and number of people who experience deprivation in religious freedom, we compute the total number of people who live in countries with observed severe government restrictions (above or at the threshold) and divide that by the total population in all observed countries. This provides us with the estimated global rate of people who face severe restrictions on religious freedom. We

then multiply this rate by the total world population for 2019 to get the number of people in the world who experience deprivation in religious freedom.

## INDEXATION

Our approach to computing the Fordham Francis Index is identical to the methodology employed by the United Nations Development Program in their calculation of the Human Development Index (HDI). Using the same approach assures that different implications between the indices are due to substantial differences in their components, such as our focus on basic needs both material and spiritual, and not simply due to technical differences in how we aggregated the various components.

Initially, we invert our measures of food (from percent undernourished to percent nourished), housing (from % deprived to % living in good housing conditions), employment (from distressed labor rate to adequately remunerated employment rate), and religious freedom (from a score that indicates the degree of government restrictions to a score that indicates the degree of freedom from government restrictions on religious practices). These are done so that a higher number for all seven of our measures would represent a better outcome.

We then standardize our seven primary statistical indicators of water, food, housing, employment, education, gender, and religious freedom so that they each yield indices with values between 0 and 1 according to the following formula:

$$\textit{Primary Indicator Score} = \frac{(X - \text{Min Theoretical Value of Statistic})}{(\text{Max Value of Statistic} - \text{Min Theoretical Value of Statistic})}$$

### Determination of Maximum & Minimum Threshold for Index Computation

In line with best practice, the maximum and minimum values for each indicator were set to the historical maximum and minimum observed values within each dataset since 1990 (see appendix D for countries and year). 1990 was selected as the base year because the period between 1990 to 2021 can be seen as a period representing a generation. However, only UNESCO's dataset on adult literacy rate have data extending back to 1990 (and beyond). FAO's data for undernourishment only begins in 2001. OPHI's earliest data for housing is from the year 2000. Earliest ILO data for employment is for the year 2010. The World Economic Forum's data for the health and survival index only begins in 2006. The Pew Research Center's data for the GRI only begins in 2007.

### Indexation for Countries Whose Values for the Year are the Historical Minimum

For countries whose indicator value is the historical minimum for that indicator, we assign an index score of 0.01. For the 2022 report, this did not occur for any of the indicators.

### Computation for the Indices for Material Well Being, Spiritual Freedom and Fordham's Pope Francis Global Poverty

We create the Material Well-being Index (MWI) by computing the geometric mean of the four normalized indices of water, food, housing, and employment according to the following formula:

$$\textit{Material Well-being Index} = \textit{Water}^{1/4} * \textit{Food}^{1/4} * \textit{Housing}^{1/4} * \textit{Employment}^{1/4}$$

It is important to note that equal weight was given to all four components when computing the Material

Well-being Index (MWI).

Similarly, we created a Spiritual Freedom Index (SFI) by computing the geometric mean of the three normalized indices of education, gender equity, and religious freedom according to the following formula:

***Spiritual Freedom Index =***

$$Education^{1/3} * Gender^{1/3} * Religious\ Freedom^{1/3}$$

As was the case with the Material Well-being Index, we gave equal weight to all three components when computing the Spiritual Freedom Index.

Finally, we computed Fordham's Pope Francis Global Poverty Index by calculating the geometric mean of the Material Well-being Index and the Spiritual Freedom Index according to the following formula:

***Fordham Francis Index =***

$$Material\ Well\text{-}being\ Index^{1/2} * Spiritual\ Freedom\ Index^{1/2}$$

Again, we gave equal weight to both the Material Well -being Index and the Spiritual Freedom Index.

### Computation for the Global Scores

The global scores is based on the percentage of global population who receive or experience adequate levels of the seven basic material and spiritual needs. These are the inverses of the computed percentage world population of experience deprivation for each of the seven primary indicators. The global score is computed by getting the average of these global adequacy percentage scores.

## CHANGES IN INDICATORS SINCE 2016 REPORT

We continue to overcome caveats in previous years' reports by identifying and updating our measures for some of our indicators. Over the years, we have changed the indicators used for housing, employment and gender equity in order to improve on the robustness of the FFI.

### Changes in Housing

In the 2016 Fordham Francis Index publication, the "measure of access to improved sanitation facilities" was used as a proxy for adequate housing. This measure of sanitation was found to be highly correlated at nearly 80% with another material index measure, access to improved drinking water. Since our measure of housing was more or less simply replicating what we would know from our measure of water we decided to consider alternative indicators to represent adequate housing

Ultimately, the decision was taken to select *Access to Adequate Flooring* to be the new proxy for adequate housing. The definition of flooring is that if the flooring material used in a house is made up of dirt, dung, or sand, the home is considered not to meet minimum standards. The reasons for selecting this measure are three-fold. First, flooring is much less correlated with other measures of material wellbeing. Second, it is fairly simple to walk into a house and determine whether or not the floor is made of dirt, dung, or sand, making it a reliable measure. Thirdly, the quality of flooring indicates an ability to provide a secure and healthy home environment for its members. We obtained our data on access to adequate flooring from the Oxford Poverty & Human Development Initiative (OPHI) database.

By the 2019 report, we changed our housing indicator to Access to Adequate Housing, following the lead of OPHI. OPHI, in partnership with UNDP, updated their measure for the Global Multipoverty Index to using a new indicator, *Access to Adequate Housing*. The definition of inadequate housing is that the floor or the roof or both are made of rudimentary

materials. Inadequate flooring is made of mud, clay, earth, sand or dung; while inadequate roofing occurs if a dwelling lacks a roof or wall or if either are constructed using rudimentary materials such as cane, mud, grass, thatch, bamboo, plastics, plywood, cardboard, etc. Since 2019, *Access to Adequate Housing* has been the housing indicator in the FFI.

**Changes in Employment**

In previous years' reports beginning 2016, we used the *unemployment rate* as the employment indicator. Unemployment is defined as the percent of the labor force that is not employed but actively seeking employment and willing to work, as our indicator.

However, we were not satisfied with the use of the unemployment rate, for two reasons. First, we have found that so far it simply did not correlate well with other measures of the UN's Sustainable Development Goals (SDGs). Second, we were concerned that it did not adequately reflect the focus of Pope Francis on the most marginalized. In his UN Address, he was not only concerned with the availably of jobs but also with the quality of employment.

In 2019, in order to better meet the intention of the Pope for workers to also have properly remunerated work, we have combined the unemployment rate with the poverty employment rate to create what we call the *Distressed Labor Rate*. The *distressed labor rate* captures not only the unemployed but also those employed at below poverty wages and are therefore unable to sustain a decent standard of living. Our new measure of employment is more in line with Pope Francis's intentions and is correlated with a number of SDGs' targets.

The *Distressed Labor* Rate takes the total number of unemployed plus the total number of employed earning less than $3.20 PPP per day and divides that sum by the total number in the labor force, which includes employed and unemployed still looking for work. Following the practice of the International Labor Office (ILO) we use a maximum salary of $3.20 PPP per day to define employed workers who are receiving moderate and extreme poverty wages. It is argued that a minimum salary of $3.20 PPP per day will allow an individual's continued existence without assistance. Without assistance from community members, NGOs, or governments the lives of individuals earning less than $3.20 PPP per day may be at risk.

Since 2019, *Distressed Labor Rate* has been the employment indicator in the FFI.

**Changes in Gender**

In the 2016 Fordham Francis Index Report, we used the *Youth Gender Parity Index* metric as our gender indicator. The reason why this was selected was because Pope Francis had previously stressed gender equity, specifically in education, to foster integral human development. Furthermore, if a country is preventing one gender from accessing education, that may also indicate exclusion from other sectors of society, as well as discrimination against other social groupings. The Youth Gender Parity Index measures the ratio of female youth literacy rates to male youth literacy rates between the ages of 15 and 24. This statistic indicates the disparity in outcomes of access to basic education between males and females. The data was sourced from the World Bank. For our analysis we calculated a four-year average to increase the number of available observations.

Unfortunately this measure of female inclusion in education was closely correlated with our measure of education, adult literacy. In fact we found that our gender indicator was nearly 90% correlated with our education indicator, meaning that our gender measure

simply duplicated our education measure for the most part, adding very little additional information to the Fordham Francis Index.

In 2017, we then attempted to use a statistic that measures women's political participation at the national level. We used the *proportion of seats held by women in national parliaments*. Women's access to the political process and policy-making may be key for the representation and empowerment of women. Many feel that women's empowerment is conducive for development and growth. The political inclusion of women fits in very well with Pope Francis' vision of creating a world where no one is marginalized and all have the ability to become "dignified agents of their own destiny." Data for this was sourced from the Inter-Parliamentary Union.

Again we were not satisfied with this measure since we felt that it did not adequately express Pope Francis' vision on basic human needs and rights. We felt that it was more a measure of elite welfare and perhaps not directly reflective of the welfare of women living at the margins of our societies.

In early 2018, Pope Francis spoke out on violence against women, calling it "a plague" that needs to be combated across the globe. He furthermore said "I'm calling on you to fight against this source of suffering including legislation and a culture that rejects every type of violence." We therefore decided that for the 2018 report, we would look at violence against women as a more fundamental measure of human spiritual poverty than the lack of political participation. We chose *the percentage of women who agree that a husband/partner is justified in beating his wife/partner under certain circumstances*. A climate of violence against women can clearly marginalize and exclude women from their rights to life, dignity, and development. We obtained data for this measure from the Organization for Economic Cooperation and Development (OECD).

We liked this measure very much. Unfortunately, this data is not available on a regular basis. In 2019, we chose the Health and Survival Index reported in *The Global Gender Gap Report* produced by the World Economic Forum. The Index is based on two different factors: the female-over-male ratio at birth and the ratio of female-over-male healthy life expectancy. A value of 0.98 indicates that a country has closed the gender gap

We chose this index as it provides an overview of the differences between women's and men's health. Sex ratio at birth captures the phenomenon of "missing women", prevalent in many countries with a strong preference for boy children. The life expectancy measure provides an estimate of the number of years that women and men can expect to live in good health, taking into account the years lost to violence, disease, malnutrition and other relevant factors.

Since 2019, the *Health and Survival Index* has been the gender indicator in the FFI. However, this indicator had no significant correlations with any of the SDGs' targets that we have so far considered. We are not sure if we should consider another measure of gender disparity for the FFI moving forward or perhaps the SDGs do not adequately address violence against women.

## COMPARABILITY ACROSS REPORTS

Because of the updates we have made in the indicators used for the FFI, and because national and international agencies continually improve on their data collection and methodology. As such, the index computation and the FFI ranks, as well as data presented in this report are not comparable to those published in earlier editions. For FFI comparability across years and countries, we recompute each year using consistent data to see trends.

# APPENDIX D: PHOTO CREDITS

| | | |
|---|---|---|
| **Photo for Water** | UNICEF/ Syria 2017/ Delil Souleiman | https://www.unicef.org/syria/water-sanitation-and-hygiene<br>Date Accessed: August 1, 2022 |
| **Photo for Food** | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7260620<br>NICAID 581804<br>Country Sudan | https://dam.media.un.org |
| **Photo for Housing** | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7420334<br>NICA ID 415245<br>Country Mali | https://dam.media.un.org/ |
| **Photo for Employment** | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7295117<br>NICA ID 547490<br>Country Laos | https://dam.media.un.org/ |
| **Photo for Education** | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7545832<br>NICA ID 317757<br>Country Pakistan | https://dam.media.un.org/ |
| **Photo for Gender** | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7112476<br>NICA ID 755620<br>Country Liberia | https://dam.media.un.org/ |
| **Photo for Religious Freedom** | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7769335<br>NICA ID 60979<br>Country Russian Federation | https://dam.media.un.org/ |
| **Photo for Primary Indicators Page** | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7253324<br>NICA ID 593810<br>Country South Sudan | https://dam.media.un.org |
| **Photos for SDG Correlations Section** | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7771874<br>NICA ID 74876<br>Country Bolivia | https://dam.media.un.org |
| | United Nations Photo Digital Asset Management System.<br><br>Unique Identifier UN7295120<br>NICA ID 547493<br>Country India | https://dam.media.un.org |

# APPENDIX E: POPE FRANCIS QUOTE SOURCES

| Component | Source |
|---|---|
| **Water** | Message sent on behalf of the Holy Father by Cardinal Secretary of State Pietro Parolin for the Ninth Water Forum (21-26 March, Dakar, Senegal), March 21, 2022<br><br>https://press.vatican.va/content/salastampa/en/bollettino/pubblico/2022/03/21/220321e.html |
| **Food** | Message of His Holiness Pope Francis for the World Food Day 2019, October 16, 2019<br><br>https://www.vatican.va/content/francesco/en/messages/food/documents/papa-francesco_20191016_messaggio-giornata-alimentazione.html |
| **Housing** | Visit to the Charitable Center of St. Patrick Parish and Meeting with the Homeless. Greeting of the Holy Father. St. Patrick in the City, Washington, D.C., September 24, 2015.<br><br>https://www.vatican.va/content/francesco/en/speeches/2015/september/documents/papa-francesco_20150924_usa-centro-caritativo.html |
| **Employment** | Morning Mass in the Chapel of the *Domus Sanctae Marthae,* Homily of His Holiness Pope Francis "Work is the vocation of man", May 1 2020<br><br>https://www.vatican.va/content/francesco/en/cotidie/2020/documents/papa-francesco-cotidie_20200501_illavoro-primavocazione-delluomo.html |
| **Education** | Message of His Holiness Pope Francis for the celebration of the 55th World Day of Peace, January 1, 2022. "Dialogue Between Generation, education and work: Tools for Building Lasting Peace"<br><br>https://www.vatican.va/content/francesco/en/messages/peace/documents/20211208-messaggio-55giornatamondiale-pace2022.html |
| **Gender** | Video Message of His Holiness Pope Francis on the Occasion of the 8th International Day of Prayer and Awareness Against Human Traficking, February 8, 2022<br><br>https://www.vatican.va/content/francesco/en/messages/pont-messages/2022/documents/20220208_videomessaggio-contro-trattapersone.html |
| **Religious Freedom** | Pope Francis' January Prayer Intention: For those who suffer religious persecution<br><br>https://www.vaticannews.va/en/pope/news/2022-01/pope-s-january-prayer-intention-for-those-who-suffer-religious.html |

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