



# FORDHAM | IPED

GRADUATE PROGRAM IN INTERNATIONAL POLITICAL ECONOMY AND DEVELOPMENT

FORDHAM UNIVERSITY

# 2019



# FORDHAM'S POPE FRANCIS GLOBAL POVERTY INDEX

*“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.”*





### 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 Well-being components: Education, Gender Equity, and Religious Freedom.

Copyright © 2019

by Fordham University's Graduate Program in International Political Economy and Development  
441 East Fordham Road, Bronx, NY 10458, USA

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without prior permission.

# ACKNOWLEDGEMENTS

The Fordham Francis Index would not exist without the invitation of the US 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 are indebted to many of our readers who have provided us with suggestions over the last three years on how to improve the index. And finally we want to thank Fordham University's Graduate Program in International Political Economy and Development (IPED) for their official sponsorship and financial support.. All remaining errors and omissions are solely the responsibility of the authors.



# 2019

**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 the basic human needs essential for a minimal level of spiritual well-being. 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 well-being 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, better sanitation, and press freedom. The FFI is innovative in two ways. First, when compared to other measures of poverty, it has a stronger emphasis on basic human needs and favors outcomes that benefit the marginalized. Second, besides including indicators of material well-being, it also includes indicators of spiritual well-being. These spiritual 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.





# Table of Contents

<b>Foreword</b> .....	5
<b>Guest Commentary by Archbishop Bernardito C. Auza</b> .....	7
<b>Pope Francis’ Primary Indicators</b> .....	11
Material Well-being Indicators .....	11
Water .....	12
Food .....	14
Housing .....	17
Employment .....	20
Spiritual Well-being Indicators .....	23
Education .....	23
Gender .....	25
Religious Freedom .....	28
Correlation Matrix .....	31
<b>Fordham Francis Index</b> .....	33
Material Well-being Index .....	34
Spiritual Well-being Index .....	37
Fordham’s Pope Francis Global Poverty Index .....	40
<b>Conclusion</b> .....	43
<b>Appendices</b> .....	47
Appendix A: Variable Definitions and Sources .....	47
Appendix B: Correlation Coefficients between FFI and SDGs .....	50
Appendix C: Ten Lowest Rank Countries: MWI & SWI .....	51
Appendix D: Fordham Francis Index Country Rankings .....	52
Appendix E: Parameters for the Indicators .....	55
Appendix F: Photo Credits and Quote Sources .....	56
<b>Research Group</b> .....	57

# FOREWORD

I am pleased to present to our readers the 2019 issue of *Fordham University's Pope Francis Global Poverty Index*.

Besides our statistical work on global poverty, you also will find on page 5 an excellent guest commentary on “Pope Francis and Integral Ecology.” The author, H.E. Archbishop Bernardito C. Auza is the Apostolic Nuncio and Permanent Observer of the Holy See to the UN. He is also the holder of the Cassamarca Chair for Migration and Globalization at Fordham University.

The Fordham Francis Index (FFI) was inspired by Pope Francis' address to the United Nations General Assembly in 2015. In his address, the Pope identified a simple multidimensional poverty index composed of just seven indicators. These seven indicators of material and spiritual well-being would measure whether the minimal level of basic human needs deemed



essential for a dignified human life are being met.. For material well-being the indicators were water, food, housing, and employment. And for spiritual well-being they were education, religious freedom, and other civil rights such as gender equity.

## ***Global Trend***

Using the Fordham Francis Index (FFI) we were able to identify recent short term global trends such as improved access to drinking water, access to better remunerative employment, and reduced illiteracy. On the other hand, we also found that the recent global trend in gender equity was stagnant and that access to adequate nutrition had worsened.

Geographically we found that material deprivation is highly concentrated in Sub-Saharan Africa, while spiritual deprivation, especially the lack of religious freedom, is more predominant in northern Africa, the





Middle East and Asia.

### ***UN's Sustainable Development Goals (SDGs)***

We are able to report that the Fordham Francis Index (FFI) is broadly indicative of development trends in the fight against global poverty. Its indicators correlate well with many of the targets of the UN's Sustainable Development Goals (SDG's) such as: poverty reduction, improved health, better sanitation and press freedom.

### ***Innovative Global Poverty Measure***

The Fordham Francis Index (FFI) is innovative in two very important ways. First, when compared to other measures of poverty such as per capita GDP or the Human Development Index, the FFI has a stronger emphasis on basic human needs and therefore gives more weight to outcomes that benefit the poor and the marginalized. Second, besides including indicators of material well-being, it also includes indicators of spiritual well-being. These

spiritual 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, in the words of Pope Francis, "dignified agents of their own destinies."

The development of a simple technical instrument of verification like the Fordham Francis Index (FFI) can also empower civil society organizations who want to promote integral human development. They can use the FFI to monitor and evaluate the effects of national and international development efforts. Do these politics and programs benefit the poor? Do these politics and programs empower the marginal to champion their own causes?

We welcome and invite your comments and critiques. Please contact us at your convenience.

Prof. Henry Schwalbenberg  
Research Director  
iped@fordham.edu

# GUEST COMMENTARY

## POPE FRANCIS AND INTEGRAL ECOLOGY

*By His Excellency, Archbishop Bernardito Auza, Apostolic Nuncio, Permanent Observer of the Holy See to the United Nations and the Cassamarca Chair for Migration and Globalization at Fordham University*

### ***Introduction: Our Common Home and Catholic Social Teaching***

... [Pope Francis' celebrated Encyclical, *Laudato Si': On Care For Our Common Home*] gives us the term "integral ecology," the overarching principle that Pope Francis uses in his approach to environmental concerns. The approach of "integral ecology" starts with how the Holy Father sees our planet. He approaches the earth not as a mere object of concern or a good to be used; he sees it primarily as a "home," our "common home." "Home" signifies something familial. We belong. It's in some sense ours. Just like in a home, we are brothers and sisters in this common home. "Common" means that it's something we share with all of the other family members, who similarly belong and with us are fellow stewards. He says it's something we must work together to repair and to build (LS 13, 60, 61). Moreover, the adjective "common" leads us to two other expressions fundamental in Catholic Social



Teaching: the common good and the common destination of the goods of this earth. In *Laudato Si'*, Pope Francis defines the common good as "the sum of those conditions of social life that allow social groups and their individual members relatively thorough and ready access to their own fulfillment" (LS 156). Human ecology "is inseparable from the notion of the common good," which means "logically and inevitably a summons to solidarity and a preferential option for the poorest of our brothers and sisters" as well as to "intergenerational solidarity" since the world we have also belongs to those who will follow us (LS 156, 158-9). Our climate is a common

good, belonging to all and meant for all.

Flowing from the notion of the “common good” is the “common destination of goods.” The earth, Pope Francis writes, “is essentially a shared inheritance, whose fruits are meant to benefit everyone” (LS 93). There is certainly a right to private property, but there’s also a “social mortgage” on all private property, subordinating it to the common good. The natural environment is therefore both the “patrimony of all humanity and the responsibility of everyone.” To the extent that we make anything our own, we do so as stewards, with the responsibility to administer it for the good of all (LS 93, 95).

### ***Reception at the United Nations***

When I consider the discussions on the environment at the UN from Pope Francis’ perspective of our common home, I can safely affirm that there is a growing sense of awareness that we are all in it together, that the decisions made in one room of our common home impact many if not all of the other rooms and those in them. So there has been a huge focus on coming together to address them. We see it in the 2030 Agenda for Sustainable Development. We see it in the Paris Agreement. We see it in the Katowice Climate Package. We see it in how it has become so much in vogue at the UN to underline the interconnectedness of peace and security, respect for human rights and development, as pillars of the United Nations’ mission, as the UN Charter spells out.

But we also see that many challenges remain to the type of solidarity needed in our common home. We have witnessed it with regard to various States’



seeking to withdraw from the Paris Agreement or to weaken its commitments. Moreover, there remain deep divisions between the developed and developing world, for example, on financing measures to curb climate change, technology transfer and energy issues. There are also differences in interpretation on how the principle of “common but differentiated respective responsibilities and capacities” should be applied in actual burden-sharing. The end result is that effective solidarity still needs to pass from words to actions. In fact, the call to “integral ecology” cannot be answered adequately if there is greed and indifference instead of solidarity among the brothers and sisters living in our common home.

When UN Secretary General Ban Ki-Moon welcomed Pope Francis to the General Assembly Hall [in 2015], he underlined the Pope’s call for a holistic approach to environmental concerns. “You have spoken often of an ‘integral ecology,’ one that encompasses the environment, economic growth, social justice and human well-being.” He called the Pope’s “moral” approach “critical,” calling the Holy Father a

“resounding voice of conscience” not only on environmental issues but “across the global agenda.” Integral ecology is what is behind Pope Francis’ emphasis of the connection between the way we care for our planet and the way we care for each other, which he mentioned in his UN address. In *Laudato Si’*, he insisted on keeping the environmental, economic, social and cultural aspects of the ecological crisis united. “We are faced not with two separate crises, one environmental and the other social,” he wrote, “but rather with one complex crisis that is both social and environmental.” Therefore, “strategies for a solution demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature” (LS 139). He emphasized that there can be “no ecology without an adequate anthropology. ... Our relationship with the environment can never be isolated from our relationship with others and with God. Otherwise, it would be nothing more than romantic individualism dressed up in ecological garb” (LS 118-9).

That’s why, Pope Francis says, that, on the one hand, we must be concerned with injuries to our planet and



the irresponsible treatment of other living beings; on the other hand, however, we must resist the trends and ideologies that focus almost exclusively on protecting the planet or other species while allowing offenses against human dignity. He gives several examples of this ecologically-garbed individualism: when we combat trafficking in endangered species while remaining indifferent to human trafficking (LS 91); when we worry about cruelty to animals while justifying the grisly practice of abortion of our younger, more vulnerable brothers and sisters (LS 117, 120); when we fight against genetically modified organisms but allow experimentation on the human genome and human embryos (LS 136); when we seek to keep natural environment intact as a gift, and care for the male and female members of endangered species, but then think we have absolute power over our created bodies, trying to cancel out human sexual difference through gender ideology (LS 155). Integral ecology calls us to be consistent, to care for both our common home and our roommates....

### ***Concluding Reflections***

I would like to finish with two reflections: one from the UN which, I think, reflects the impact of *Laudato Si’* on the thinking of the international community and peoples, regardless of religious background; and one from Pope Francis.

The then UN Secretary-General Ban Ki-Moon, on the day Pope Francis published *Laudato Si’*, issued a press release “very much welcom[ing]” the encyclical and its call for “all humankind to come together to address climate change, one of the principal challenges facing the human community.” ... He

Image courtesy of pixabay.com



thanked Pope Francis deeply “for taking such a strong stand on the need for urgent global action.” ... the deep and widespread influence of *Laudato Si'* in the international community was [also apparent during the 2016 negotiations for the Paris Agreement on Climate Change] ... Pope Francis was cited by more than thirty Heads of State or Government in their Interventions at the Plenary Session. I can also “reveal” that there was a “Plan B” ...: In the event that one or more of the States who vigorously contested some parts of the draft of the Paris Agreement during the negotiations, Pope Francis would be asked to call the Presidents of those countries to convince them to adopt the Agreement, in spite of their reservations. In fact, the Agreement had to be adopted by consensus, in a way that if one State Party ... disagreed, the Paris Agreement would not have been adopted. Thank God there was no need for the Holy Father to pick up the phone ... but the Holy See Delegation did work hard with those Delegations who showed signs of refusing the Agreement.

Finally, a last word of wisdom from the Holy Father. “What kind of world,” Pope Francis asks, “do we want to leave to those who come after us, to children who are now growing up? This question,” he says, “not only concerns the environment in isolation; the issue cannot be approached piecemeal. When we ask ourselves what kind of world we want to leave behind, we think in the first place of its general direction, its meaning and its values. Unless we struggle with these deeper issues, I do not believe that our concern for ecology will produce significant results. But if these issues are courageously faced, we are led inexorably to ask other pointed questions: What is the purpose of our life in this world? Why are we here? What is the goal of our work and all our efforts? What need does the earth have of us?” (LS 160).

After asking those questions, Pope Francis declares, “It is no longer enough simply to state that we should be concerned for future generations. We need to see that what is at stake is our own dignity. Leaving an inhabitable planet to future generations is, first and foremost, up to us. The issue is one which dramatically affects us, for it has to do with the ultimate meaning of our earthly sojourn.”

---

*These comments are excerpted from Archbishop Auza's Cassamarca Lecture given on March 27, 2019 at Fordham University. The full text can be found at:*

*<<https://holyseemission.org/contents//statements/5c9e90cd2f961.php>>.*

# POPE FRANCIS' PRIMARY INDICATORS

Pope Francis identified seven basic human needs that are essential for a minimal level of both material and spiritual well-being. 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 well-being.

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. Initially, we wanted a statistic that best captured Pope Francis' views of each of these seven basic human needs. 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, you will receive a more detailed definition, identification, and justification for each of our seven chosen measures. It is worth mentioning that in this year's report, we continue to overcome caveats in the previous years' reports by identifying and updating our measures of housing, employment and gender equity in order to improve on the robustness of the FFI going forward.

Once we selected a statistical measure of a primary indicator, we graphed its global trend from 2013 to 2016, mapped its 2016 data to better visualize geographical disparities around the world, and identified the ten countries who most lacked each particular basic human need. Finally, we calculated the coefficients of correlation to empirically test the relationships between our FFI indicator measures and various UN Sustainable Development Goals (SDG's). The SDG's we examined were: poverty, health, sanitation, energy, growth, inequality and justice.

Through this process, we were able to document that these seven primary indicators are indeed correlated with many of the targets of the UN's Sustainable Development Goals. In future iterations of this report, we hope to eventually regress all seven of the primary indicators selected with all 169 targets within the UN Sustainable Development Goals (SDGs) framework.

## 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. We will describe the choice of statistics we used to measure each indicator, describe recent global trends, identify those areas of the world most lacking these basic material needs, and then relate the successful provision of these basic material needs to the achievement of some of the UN's Sustainable Development Goals.*



## WATER

We estimate that in 2016 roughly 927 million people, or 12.5% of the world's population, lack basic access to drinking water. These numbers show 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.

“Access to this good [water] is a fundamental human right, which must be respected, because the life of the people and their dignity are at stake.”

- Pope Francis, World Water Day (2019)

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. For 2016, the WHO/UNICEF Joint Monitoring Programme (JMP) for water and sanitation database provided us with data covering 202 countries.



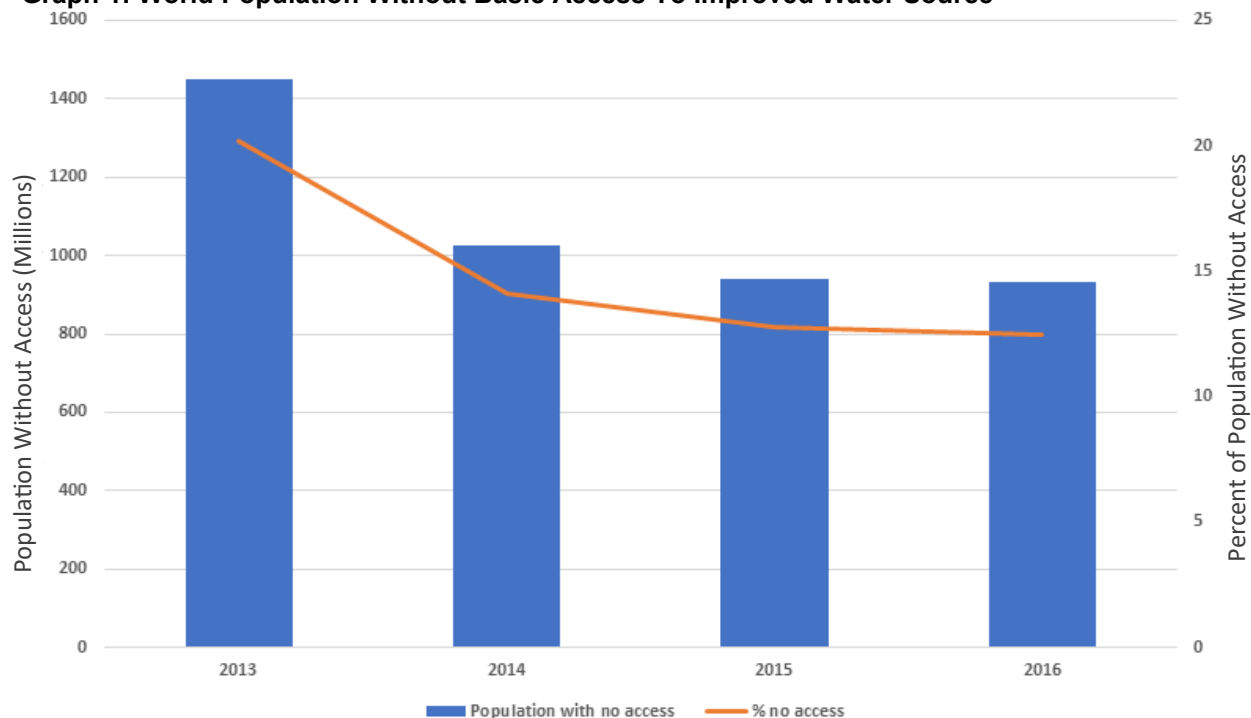
### *International Distribution of Needs*

Table 1 lists the ten countries whose populations have basic access to drinking water. As the table shows, nine out of the ten countries most deprived of access

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

Rank	Country	% No Access (2016)	Population (in Million)
1	Eritrea	81	2.7
2	Ethiopia	70	71.7
3	Uganda	69	28.6
4	Zambia	60	9.9
5	Angola	59	17.0
6	Somalia	59	8.4
7	Chad	57	8.2
8	Niger	54	11.2
9	Peru	54	17.2
10	Senegal	54	8.3
	<b>WORLD</b>	<b>12.5</b>	<b>927.0</b>

**Graph 1: World Population Without Basic Access To Improved Water Source**



to drinking water are in Africa, while the ninth most drinking water-deprived country—Peru—is in South America.

The map in Figure 1 shows the percentage of each country's population with basic access to drinking water from an improved source, with the darker color indicating increased level of deprivation. The map reveals concentrations of water deprivation across Sub-Saharan Africa in particular, with sporadic deprivation throughout the Middle East and Asia.

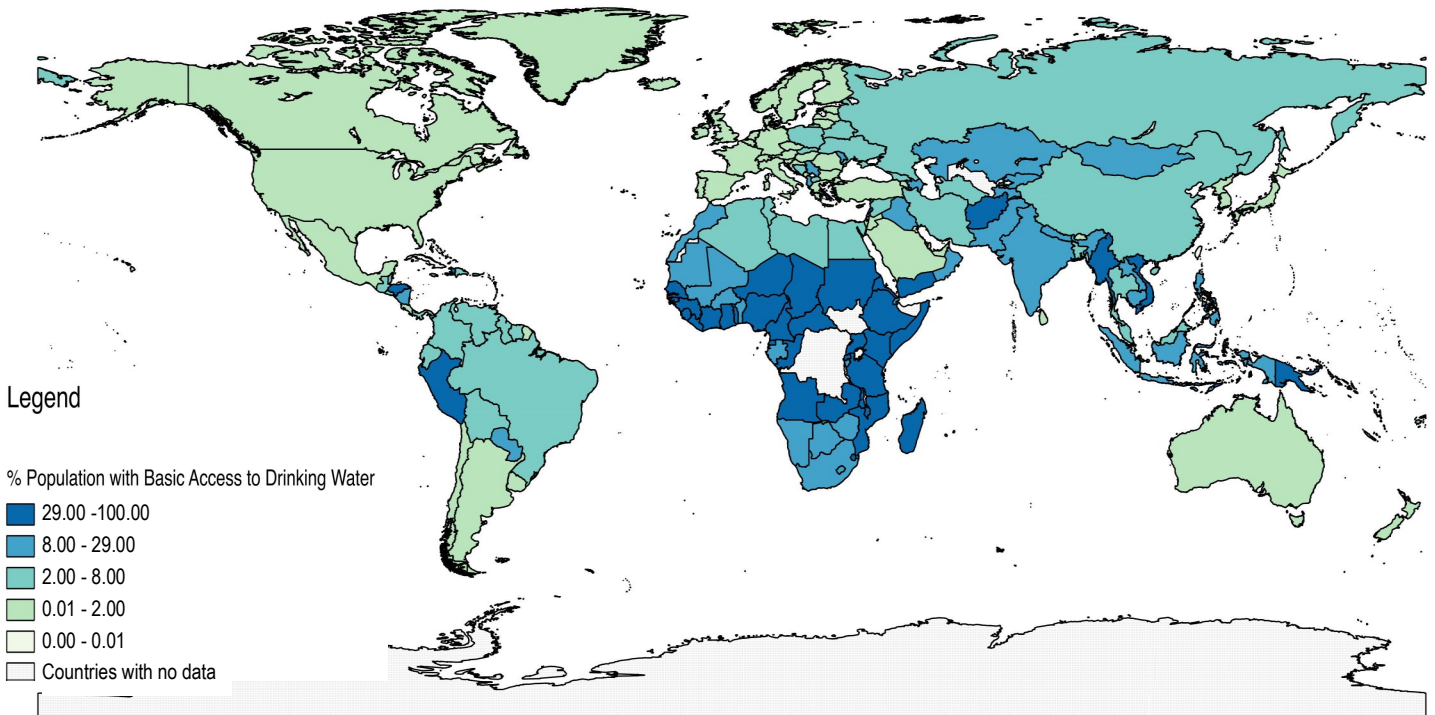
### ***Global Trend***

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

### ***UN's Sustainable Development Goals***

The importance of this indicator is easy to demonstrate empirically. For example, regarding the UN's First Sustainable Development Goal of **No Poverty**, we were able to find a significant statistical relationship between access to water and lower poverty rates. Regarding the third UN Goal of **Good Health**, we were able to determine that access to improved water sources is significantly related to reductions in infant and maternal mortality rates. As expected, we found that access to improved water sources is also clearly correlated with access to sanitation under the sixth Sustainable Development Goal of **Clean Water and Sanitation**. Lastly, we found a significant statistical relationship between water and the seventh Sustainable Development Goal of **Affordable and Clean Energy**.

**Figure 1: Map of the percentage of the population lacking basic access to drinking water (2016)**



(See Appendix B for more details regarding the statistical correlations between the Fordham Francis Index primary statistical measures and the UN Sustainable Development Goals.)

## FOOD

We estimate that in 2016 roughly 800 million people, or close to 11% of the world's population, are undernourished. Furthermore, we see a rise in the prevalence of and the number 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 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. Although the prevalence of undernourishment covers fewer countries than other metrics, such as the average dietary supply adequacy measure, we chose it because it captures food insecurity across an entire population. Moreover, it is more nuanced insofar as it places

"[A]bove all to guarantee to all human beings the right to be nourished according to their own needs... without having to part from their loved ones."

-Pope Francis's Address on World Food Day (2017)



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

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

Rank	Country	% Without Adequate Nourishment (2016)	Population (In Million)
1	Central African Republic	61.8	2.8
2	Zimbabwe	46.6	7.5
3	Haiti	45.8	5.0
4	Zambia	44.5	7.4
5	North Korea	43.4	11.0
6	Madagascar	43.1	10.7
7	Uganda	41.4	17.2
8	Chad	39.7	5.7
9	Liberia	38.8	1.8
10	Congo	37.5	1.9
	<b>WORLD</b>	<b>10.8</b>	<b>802.0</b>

reports the data as three-year moving averages and is available every two years for 162 countries.

### *Global Trend*

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

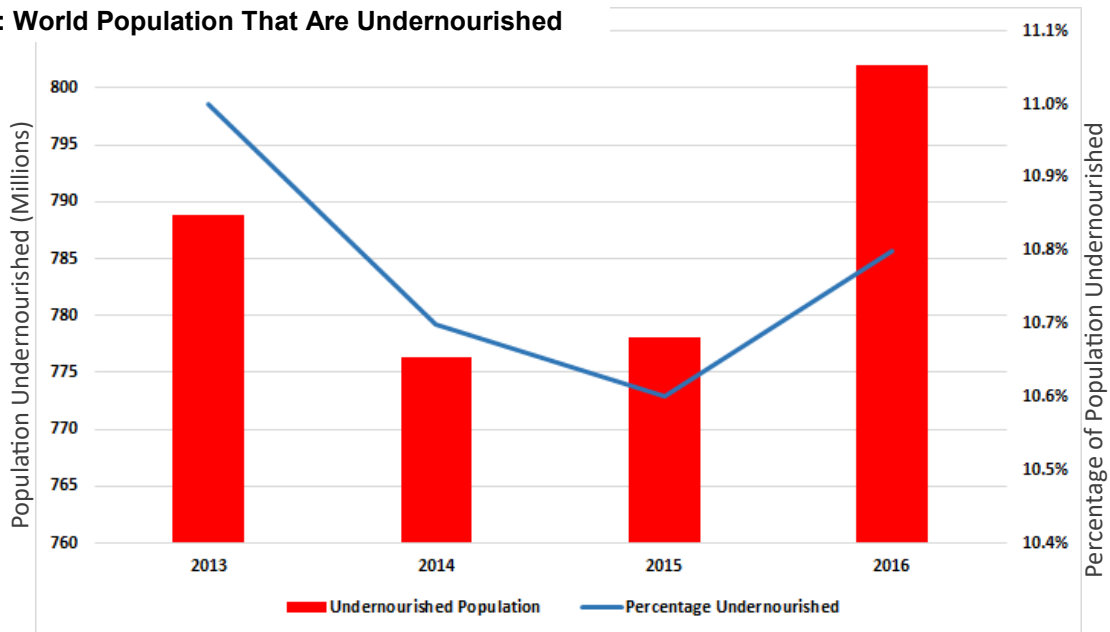
### *International Distribution of Need*

Table 2 indicates that eight of the ten countries that most lack adequate nourishment are located in Sub-Saharan Africa. The country with the highest value in the world is the Central African Republic. Using averaged data over a three-year period from 2015-2017, the dark red areas of the map in Figure 2 reveals the prevalence of undernourishment across Sub-Saharan Africa, Asia, and parts of Latin America.

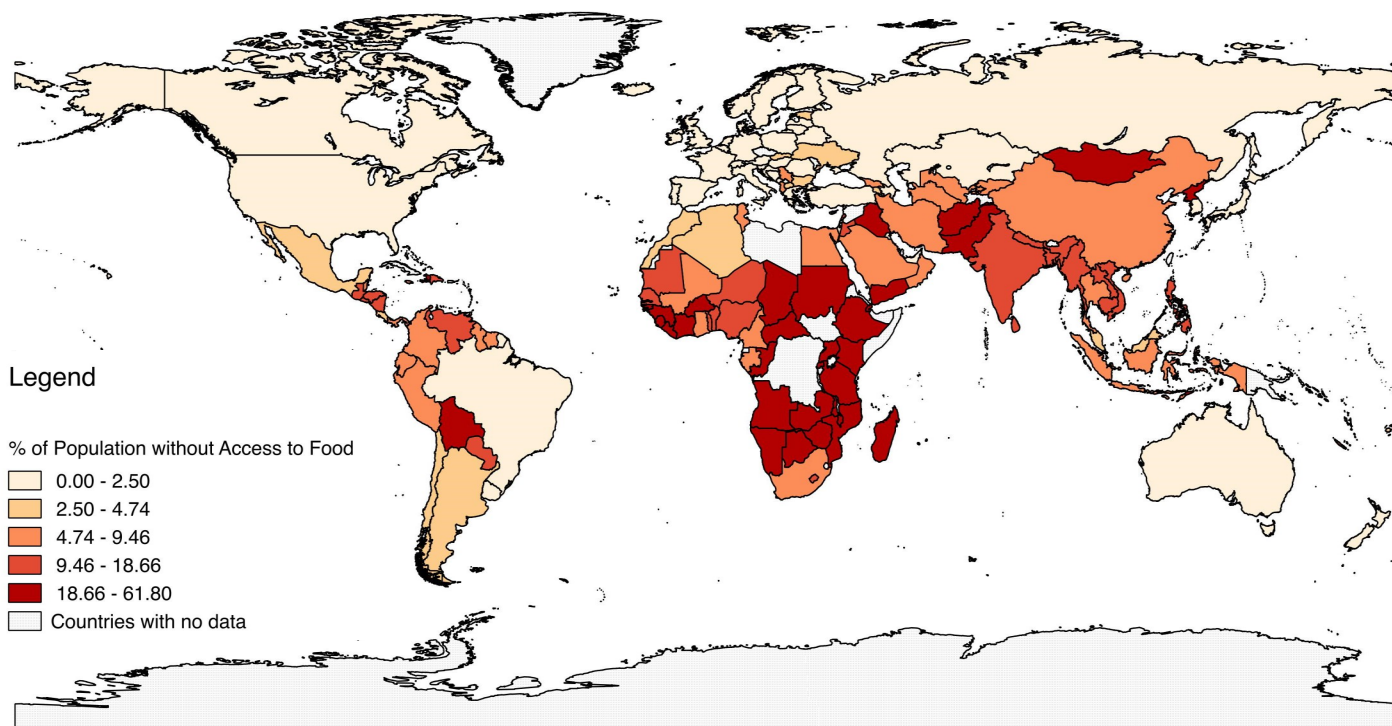
### *UN Sustainable Development Goals*

Like water, it is easy to demonstrate empirically the importance of human access to food. Regarding the First UN's Sustainable Development Goal of **No Poverty**, we were able to find a significant statistical relationship between adequate nourishment and poverty reduction. Our statistic is a direct measure of the UN's second Sustainable Development Goal of **Zero Hunger**. And with regard to the third goal of achieving **Good Health**, we were able to show that adequate nourishment is significantly related to reductions in infant and maternal mortality rates. Regarding the UN's sixth Sustainable Development Goal of **Clean Water and Sanitation**, we found a significant relationship between nourishment and access to sanitation. Lastly, within the UN's seventh Sustainable Development Goal of **Affordable and Clean Energy**, we were able to show that adequate

**Graph 2: World Population That Are Undernourished**



**Figure 2: Map of the percentage of the population without adequate access to food (2016)**



nourishment is significantly related to access to electricity.

(See Appendix B for more details regarding the statistical correlations between the Fordham Francis Index primary statistical measures and the UN Sustainable Development Goals.)

## HOUSING

We estimate that in 2016 nearly 1.95 billion people, or 26.3% of the world's population, lack adequate housing.

*"We can find no social or moral justification...no justification whatsoever, for lack of housing."*

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

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.



© UNICEF Cambodia\2013\Phok Sophea

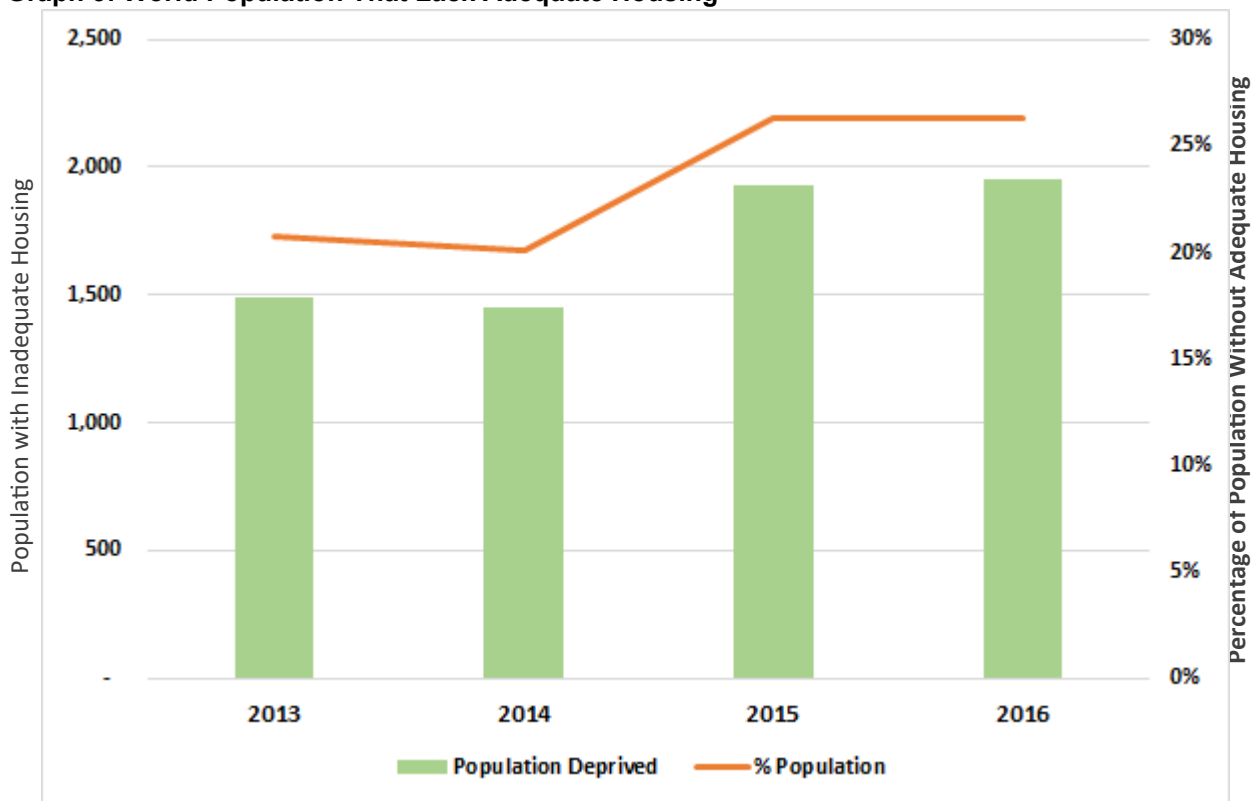
**Table 3: Top ten most deprived nations with respect to access to adequate flooring**

Rank	Country	% Inadequate Housing (2016)	Population (In Millions)
1	South Sudan	90.8	11.1
2	Niger	88.5	18.3
3	Ethiopia	83.2	85.6
4	Chad	83.0	12.0
5	Central African Republic	73.1	3.4
6	Burkina Faso	71.8	13.4
7	Somalia	71.0	10.2
8	Madagascar	70.5	17.5
9	Burundi	70.0	7.4
10	Mozambique	69.0	19.9
	<b>WORLD</b>	<b>26.3</b>	<b>1,953</b>

Adequate housing with secure tenure can also provide households with regular access to basic sewage, safe drinking water, garbage collection, and electricity. The lack of proper housing and the proliferation of slums around the world often mark whole groups of people who are experiencing homelessness and exclusion from mainstream society.

Starting with data in 2016 and following the lead of the Oxford Poverty & Human Development Initiative in partnership with UNDP, we changed our measure to their new indicator, *Access to Adequate Housing*. In previous years we only had data on their older indicator, *Access to Adequate Flooring*, which we then used as a proxy for 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

**Graph 3: World Population That Lack Adequate Housing**



lacks a roof or wall or if either are constructed using rudimentary materials such as cane, mud, grass, thatch, bamboo, plastics, plywood, cardboard, etc. We obtained our data on *Access to Adequate Housing* from the Oxford Poverty & Human Development Initiative. Their database was started in 2010 and contains data ranging back to 2003. Their most recent data released in 2018 aggregated five measures of adequate housing and covered 119 countries

***Global Trend***

Graph 3 compares the number and percentage of the world population who live in inadequate housing structures for 2013-2016. For the first three years of the trend we used *Access to Adequate Flooring* and

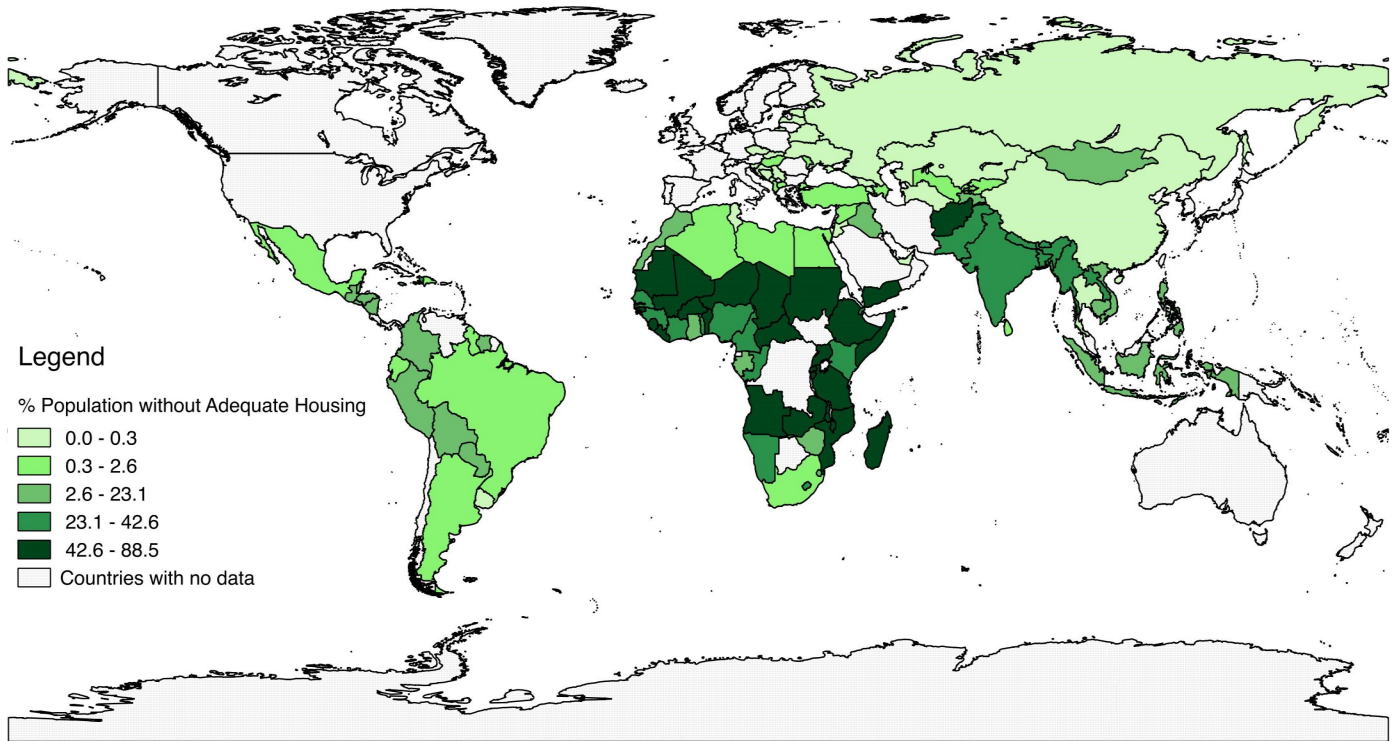
beginning in 2016 we are able to use the new *Access to Adequate Housing* as our measure. Because of the change in indicators we make no comment on the trend except to note that the new indicator for 2016 is similar in value to the old indicator in 2015. The new indicator for 2016 shows that about 26% of the global population continue to experience deprivation in housing, similar to the 2015 data.

***International Distribution of Need***

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

Figure 3 maps the percentage of a population with access to adequate housing. It can be seen that

**Figure 3: Map of the percentage of individuals with inadequate housing (2016)**



housing deprivation is highly concentrated in the dark green areas of Sub-Saharan Africa. Graph 3 shows

### ***UN Sustainable Development Goals***

Similar to water and food, we found that housing is strongly related to achieving several of the UN's Sustainable Development Goals. Regarding the first UN's Sustainable Development Goal of **No Poverty**, we found a significant statistical relationship between access to adequate housing and reduction in the percentage of the population below the poverty line. With respect to the third goal of achieving **Good Health**, we were able to show that access to housing is significantly related to a reduction in maternal and

infant mortality rates. Related to the UN's sixth goal of **Clean Water and Sanitation**, we also found a positive and statistically significant relationship between access to housing and access to sanitation. And finally, we found that housing is significantly correlated with access to electricity which speaks to the seventh Sustainable Development Goal of **Affordable and Clean Energy**.

*(See Appendix B for more details regarding the statistical correlations between the Fordham Francis Index primary statistical measures and the UN Sustainable Development Goals.)*



## EMPLOYMENT

We estimate that in 2016 more than 2.5 billion people, or nearly 33.2% of the world's population, suffer from either the lack of employment or employment at a poverty wage of \$3.20 or less per day, adjusted for purchasing power parity (PPP). We call this combined unemployment rate and poverty employment rate the *distressed labor rate*. From 2013 to 2016 the *distressed labor rate* for the world has decreased.

“Work is fundamental to the dignity of a person.”

- Pope Francis, Address on the Feast of St. Joseph the Worker (2013)

The last material indicator selected by Pope Francis is employment. At 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.” According to Francis, everyone needs the minimum spiritual and material means, not only to live in dignity, but to also create and support a family, the primary cell of any



© Albert Gonzalez Farran / UNAMID / CC

**Table 4: Top ten most deprived nations with respect to employment**

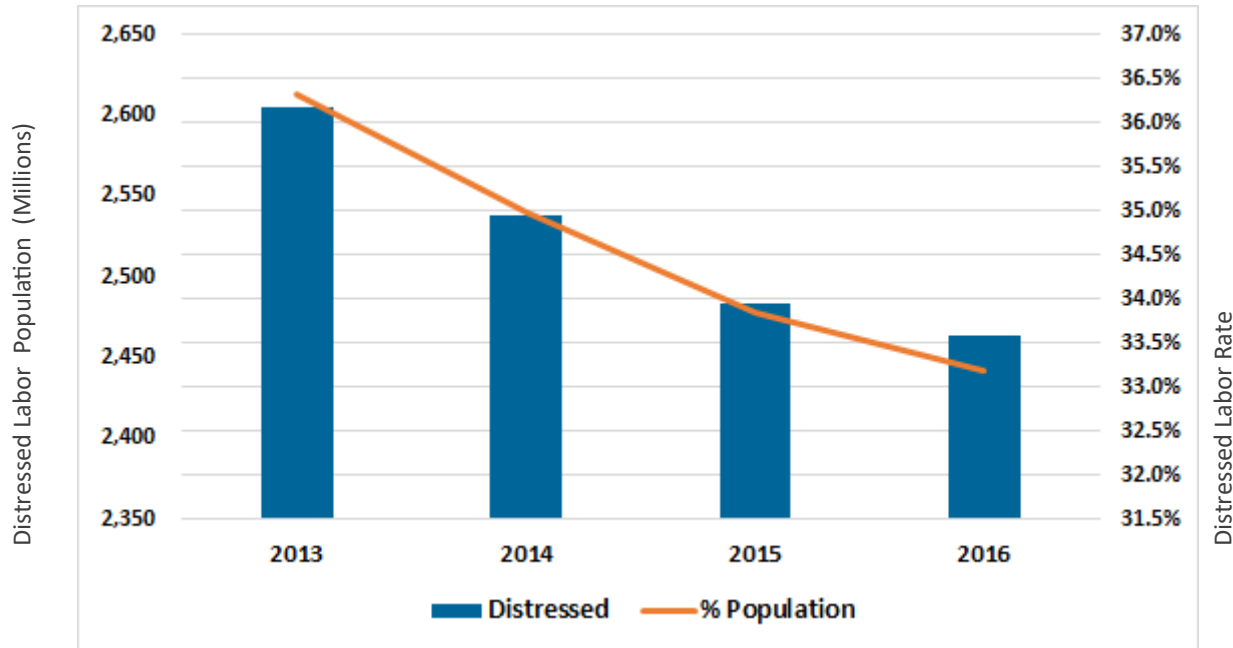
Rank	Country	Distressed Labor Rate (2016)	Population (In Millions)
1	Burundi	89.4	9.4
2	Madagascar	88.9	22.1
3	Central African Republic	87.0	4.0
4	Malawi	86.9	15.7
5	Somalia	84.2	12.1
6	Guinea Bissau	82.2	1.5
7	Yemen	81.4	22.5
8	Mali	81.1	14.6
9	Sierra Leone	79.3	5.9
10	Mozambique	78.6	22.7
	<b>WORLD</b>	<b>33.2</b>	<b>2.473</b>

society. 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.”

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

**Graph 4: Distressed Labor Rate of Adult Working Population**



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 data needed to construct the *Distressed Labor Rate* is available from the ILO covering 133 countries in 2016.

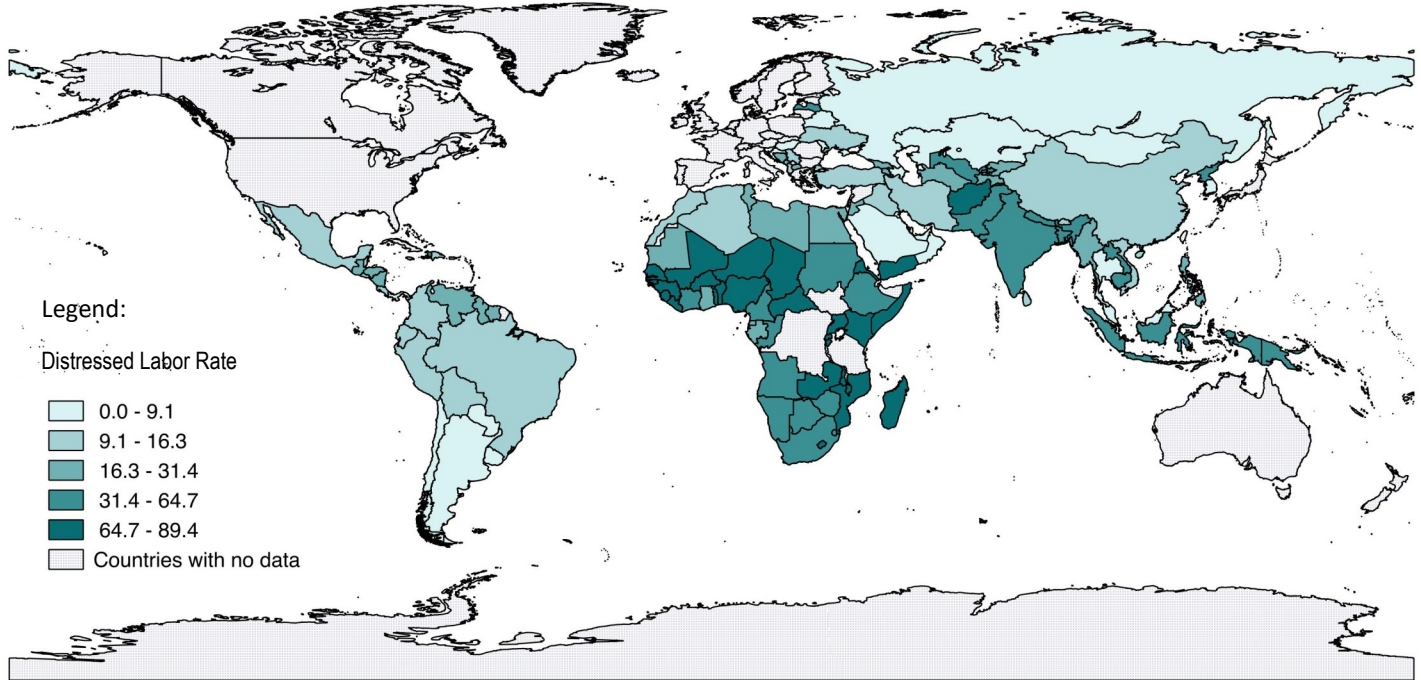
***Global Trend***

Graph 4 shows a downward trend in both the *Distressed Labor Rate* as well as in the world’s population that lacks access to adequately remunerated employment.

***International Distribution of Needs***

Table 4 lists the ten countries in the world with the highest reported *Distressed Labor Rates*. Nine of the worst performing countries are located in Sub-Saharan Africa. Figure 4 maps geographically the lack of access to adequately remunerated employment with higher concentrations in Africa and Asia.

**Figure 4: Map of Lack of Access to Adequately Remunerated Employment (2016)**



### ***UN Sustainable Development Goals***

Similar to water, food, and housing we found that access to adequately remunerated employment is strongly related to achieving several of the UN's Sustainable Development Goals. Regarding the first UN's Sustainable Development Goal of **No Poverty**, we found a significant statistical relationship between access to adequately remunerated employment and reduction in the percentage of the population below the poverty line. Regarding the third goal of achieving **Good Health**, we were able to show that adequately remunerated employment is significantly related to maternal and infant mortality rates. Related to the UN's sixth goal of **Clean Water and Sanitation**, we also found a positive and statistically significant relationship between access to adequately remunerated employment and access to sanitation.

And finally, we found that good jobs have a significant relationship with access to electricity which speaks to the seventh Sustainable Development Goal of **Affordable** and Clean Energy.

*(See Appendix B for more details regarding the statistical correlations between the Fordham Francis Index primary statistical measures and the UN Sustainable Development Goals.)*

# Spiritual Well-being Indicators

*In this section, we will review each of Pope Francis' indicators of spiritual well-being: education, religious freedom, and other civil rights (gender equity), respectively. We will describe the choice of statistics we used to measure each indicator, map its recent global trend, identify those areas of the world most lacking these basic spiritual needs, and then relate the successful provision of these basic spiritual needs to the achievement of some of the UN's Sustainable Development Goals.*

## EDUCATION

We estimate that at least 1.2 billion adults, or roughly 17.3 percent of the world's population, were illiterate in 2016, maintaining the trend of declining adult illiteracy in the last four years.

*“Only by changing education can we change the world.”*

*- Pope Francis, Address To Members of the Gravissimum Educationis Foundation (2018)*

Education is one of the key primary indicators chosen by Pope Francis to measure spiritual well-being. 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 well-being, is a critical element that enables the poor to be “dignified agents of their own destiny.”

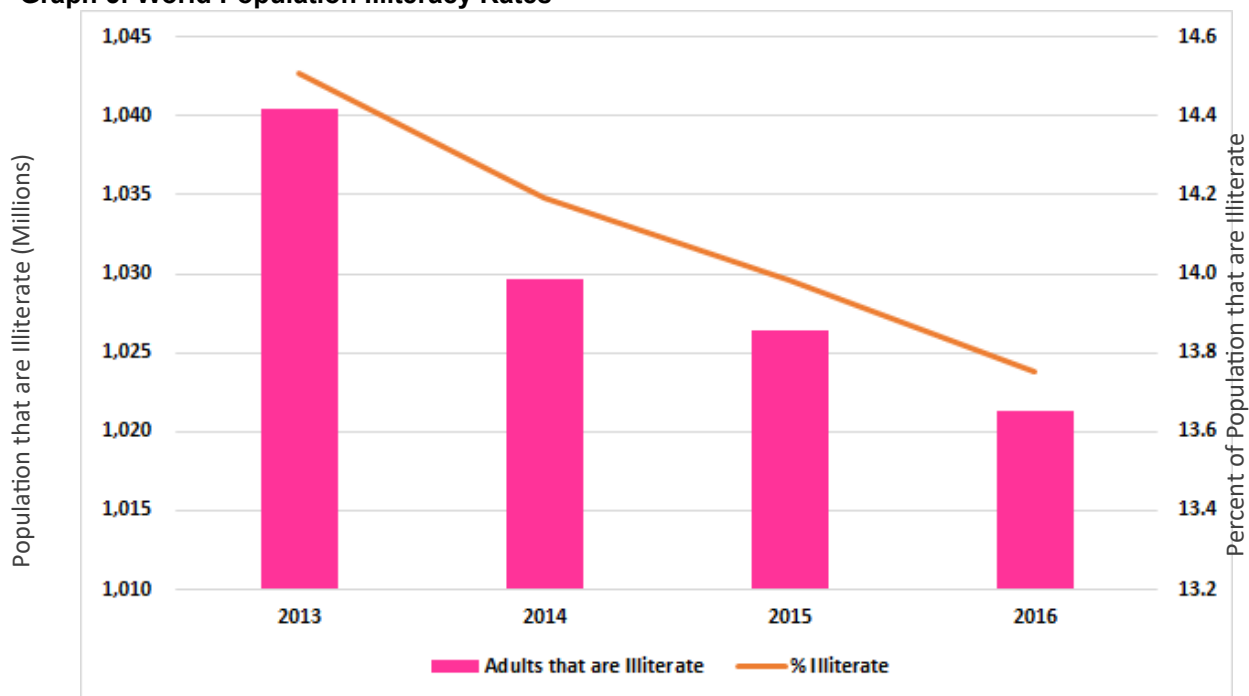
We chose the *adult literacy rate* as our statistic to measure a basic minimum level of education that should be available to all. The Adult Literacy Rate is formally defined as the percentage of the population age 15 and above who can read, write, and comprehend a simple statement about their everyday life.



This measure captures how many individuals received a basic education that enables them to participate in the formal economy. This measure is not simply a performance measure like attendance at school or the completion of a set number of grades. Rather, it is an impact indicator measuring whether or not individuals have mastered basic reading skills. It measures the actual impact of the education provided.

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 2010-2016. A total of 131 countries had data for this time period from UNESCO's database.

**Graph 5: World Population Illiteracy Rates**



### *Global Trend*

Graph 5 show the global trend in literacy rates from 2013 to 2016. Both the percentage and the absolute number of illiterate people have declined.

### *International Distribution of Needs*

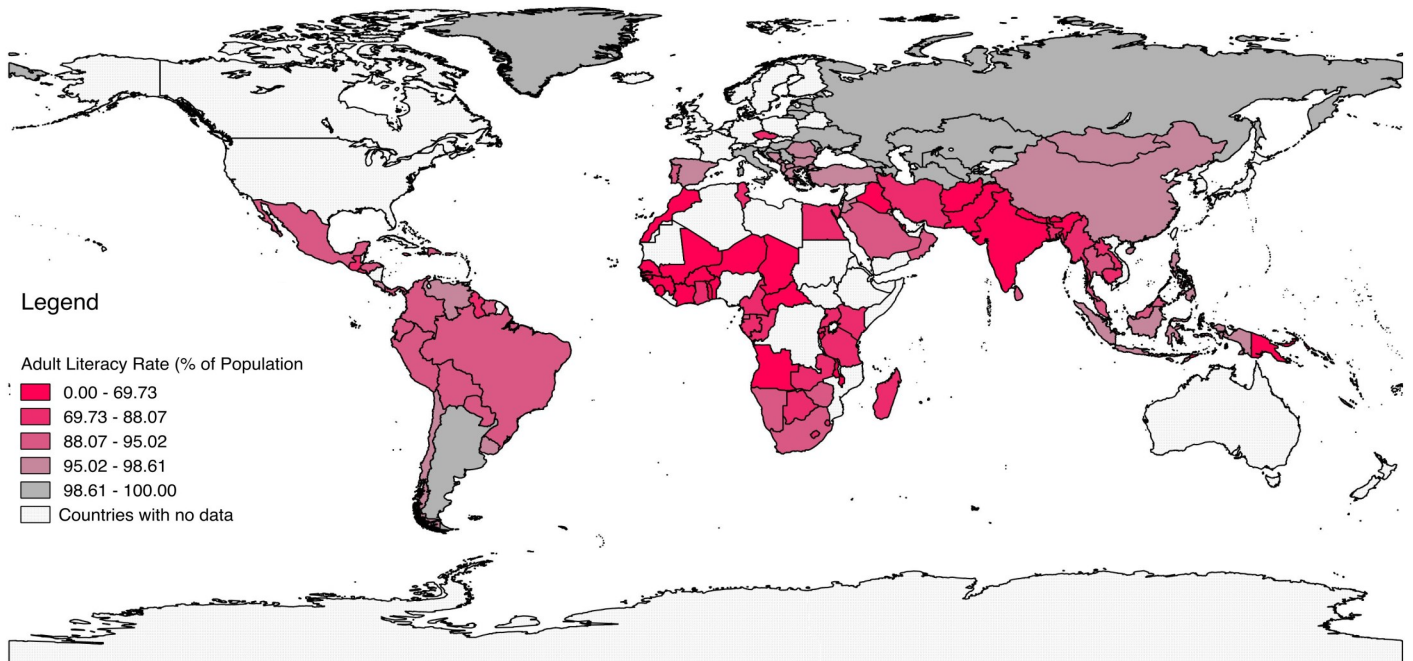
Table 5 lists the ten countries with the lowest rates of adult literacy. Nine out of the ten countries with the lowest rates of adult literacy are in Africa. Afghanistan is the only country on this list are located in Asia.

Figure 5 shows a map of adult literacy rates around the world in 2016. Countries with the lowest literacy rates are shaded in dark pink and seem to be concentrated in Africa and sporadically in Asia.

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

Rank	Country	Illiteracy Rate (2016)	Population (In Millions)
1	Chad	77.7	11.2
2	Niger	69.4	14.4
3	Afghanistan	68.3	23.7
4	Guinea	68.0	12.4
5	Sierra Lone	67.6	7.4
6	Benin	67.1	10.9
7	Mali	66.9	18.0
8	Burkina Faso	65.4	18.6
9	Central African Republic	63.2	4.6
10	Gambia	58.0	1.3
	<b>WORLD</b>	<b>17.34</b>	<b>1,291</b>

**Figure 5: Map of adult literacy rates (2016)**



### ***UN Sustainable Development Goals***

Like water, food, housing and employment, it is easy to demonstrate empirically the importance of education. Regarding the first UN's Sustainable Development Goal of **No Poverty**, we were able to find a highly significant statistical relationship between adult literacy and the percentage of the population below the poverty line. And with regard to the third UN goal of achieving **Good Health**, we were able to show that adult literacy is highly significantly related to reductions in both infant and maternal mortality rates. Related to the UN's sixth goal of **Clean Water and Sanitation**, we also found a positive relationship between education and access to better sanitation. And finally, we found that education has a significant relationship with access to

electricity which speaks to the seventh Sustainable Development Goal of **Affordable and Clean Energy**.

*(See Appendix B for more details regarding the statistical correlations between the Fordham Francis Index primary statistical measures and the UN Sustainable Development Goals.)*

### **GENDER**

For the year 2016, we estimate that 43% of women in the world or 1.47 billion women live in countries with severe discrimination against women. There appears to have been some limited progress since 2013.

In promoting civil rights to life, dignity, and

“Violence against women is ‘a plague’.”

- Pope Francis, Homily in Peru addressing Latin America’s Faithful (2018)

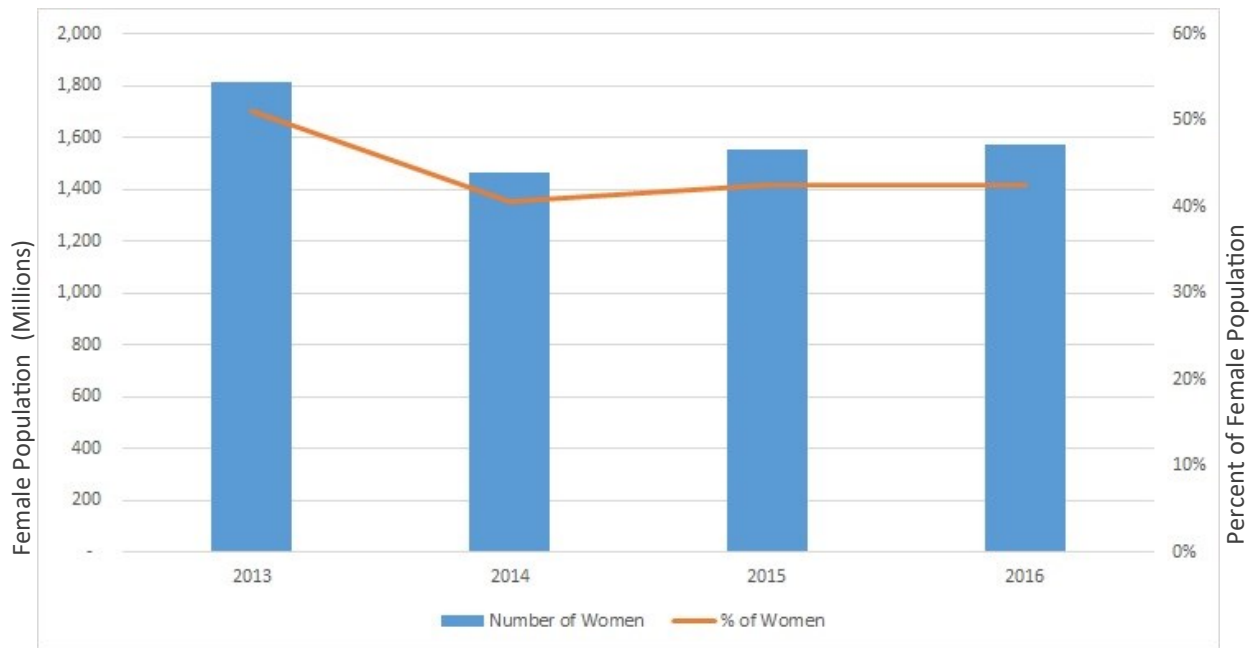
development, Pope Francis emphasized that access to these rights must be inclusive. In his address to the UN, Pope Francis specifically stressed that girls should not be excluded from education. It is through exclusion and marginalization that many women continue to suffer in poverty today.

For this year’s report, we have chosen to use the Health and Survival Index reported in The Global Gender Gap Report (2016) produced by the World Economic Forum measuring missing women in 141 countries. The Index is based on two different factors: the female-over-male ratio at birth and the

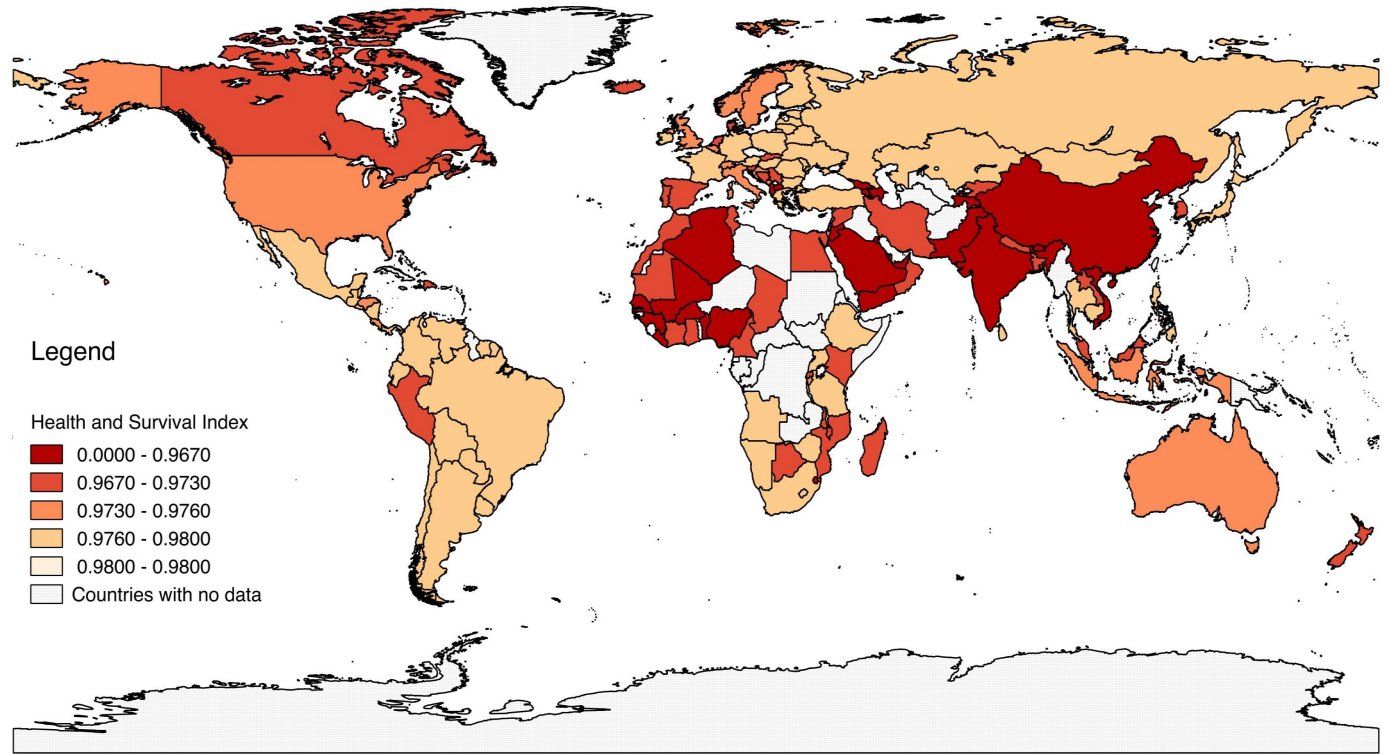
**Table 6: Top ten most deprived nations with respect to gender equality**

Rank	Country	Health and Survival Index
1	China	0.919
2	Armenia	0.939
3	India	0.942
4	Albania	0.947
5	Mali	0.949
6	Azerbaijan	0.950
7	Viet Nam	0.950
8	Kuwait	0.957
9	Qatar	0.957
10	Eswatini	0.961
	<b>Women Experiencing Gender Gap</b>	<b>1.47 billion women</b>

**Graph 6: Female Population Experiencing Gender Inequality**



**Figure 6: Map of health and survival gap between women and men (2016)**



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.

In last year's report, we used *the percentage of women who agree that a husband/partner is justified in beating his wife/partner under certain circumstances* as a parameter for

gender equality. A climate of violence against women can clearly marginalize and exclude women from their





rights to life, dignity, and development. While this measure seems to capture Pope Francis' desire to promote basic needs, a new measure had to be sought given the unavailability of data for violence against women for succeeding years.

Previous work done by Fordham researchers in 2017 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. Additionally, extensive data exists to measure women political participation. We were concerned, however, that we were looking at a measure that reflected elite welfare and were diverging away from the Pope's emphasis on basic human needs and rights.

### ***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 definition. Graph 6 illustrates the percentage of world population and the number of people experiencing severe gender inequality by considering populations in countries that have a health and survivor index score of 0.9658 or less. Chart 6 plots the trend in global gender inequity from 2013 to 2016. There appears to be some improvement followed by a slight increase and stagnation since 2013 in the number of women as well as the percentage of all the world's women who live in countries that have a high survival and health gap between women and men.

### ***International Distribution of Needs***

Table 6 highlights the 10 countries in 2016 that had the highest gender equity gaps. Most of these countries are in Asia and the Middle East.

Figure 6 maps the geographical distribution of the health and survival gap between women and men in 2016. The map indicates that the darker the shade, the stronger the preference for boy children and/or the greater the survival of boy children relative to girl children. All of the countries in the lowest quintile are located in Asia, the Middle East and Africa.

### ***UN Sustainable Development Goals***

The percentage health and survival gap between women and men is a direct measure of the fifth UN Sustainable Development Goal of **Gender Equality**.

*(See Appendix B for more details regarding the statistical correlations between the Fordham Francis Index primary statistical measures and the UN Sustainable Development Goals.)*

## **RELIGIOUS FREEDOM**

---

In 2016 we estimated that more than 4.5 billion people lived in countries where religious freedom is severely restricted. Roughly 60% 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

*“Our religious traditions remind us that, as human beings, we are called to acknowledge an Other, who reveals our relational identity “*

*- Pope Francis, Meeting for Religious Liberty  
( Sept. 2015)*

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.”

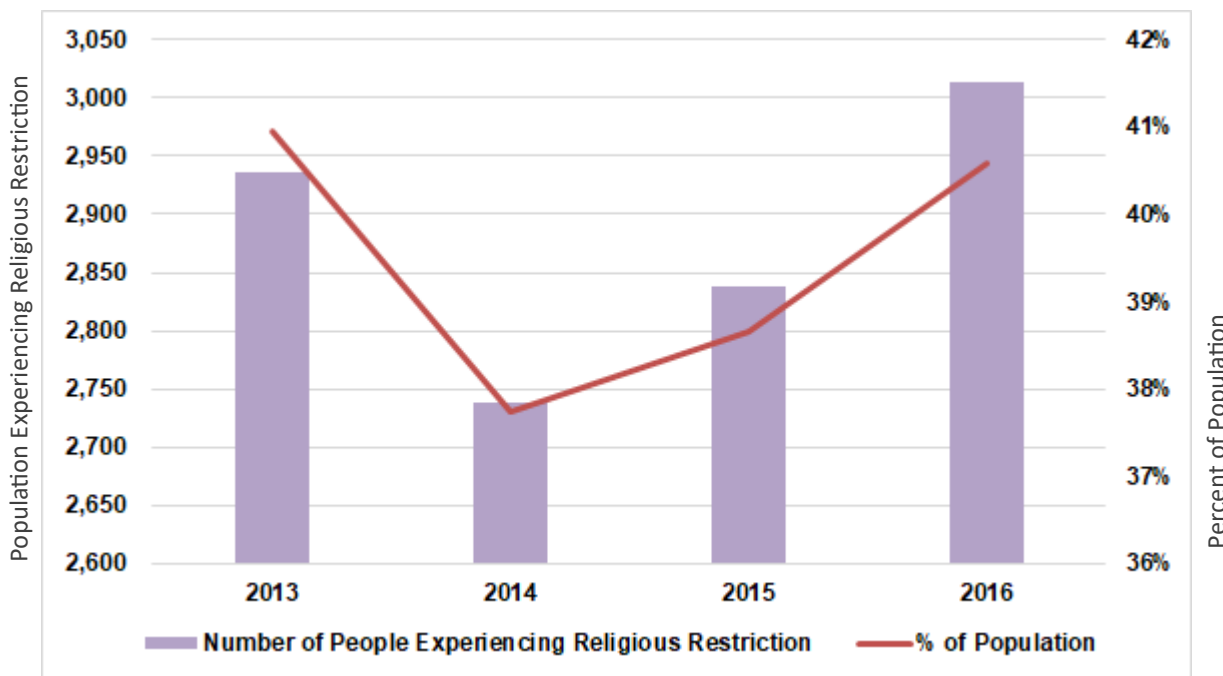
We used the *Government Restrictions Index (GRI)* from the Pew Research Center as our metric to measure religious freedom. We found this measure to be most suitable because it also accounts for the role of government institutions in promoting or deterring religious freedom.

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 Pew Research Center employs extensive

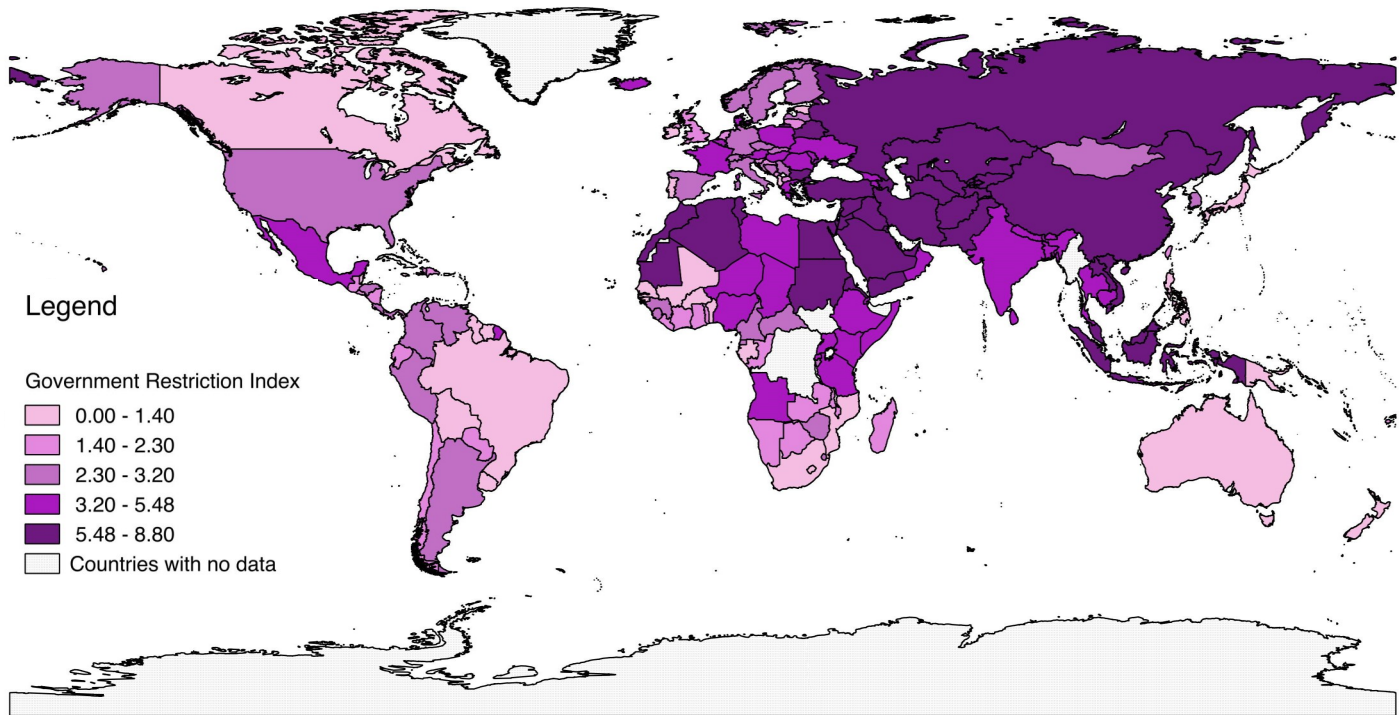
**Table 7: Top ten most deprived nations with respect to religious freedom**

Rank	Country	Government Restrictions Index (2016)
1	China	8.8
2	Indonesia	8.5
3	Iran	8.5
4	Malaysia	8.2
5	Maldives	8.2
6	Russia	8.1
7	Egypt	7.9
8	Turkmenistan	7.9
9	Algeria	7.8
10	Syria	7.8
<b>Bottom Quintile Population</b>		<b>4.56 billion people</b>

**Graph 7: World Population Experiencing Religious Restriction**



**Figure 7: Map of Religious Freedom (2016)**



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.

For the year 2016, the Pew Research Center provided data covering 190 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 definition. Graph 7 illustrates the percentage of world population and the number of people experiencing severe restrictions in

religious freedom by considering populations in countries that have a government restriction index of 5.2 or higher. Our analysis reveals that the number and the percentage of people affected by religious restrictions has been increasing since 2014.

### ***International Distribution of Needs***

Table 7 highlights the top ten nations with the lowest levels of religious freedom. Of these ten countries, five are in Asia, two in the Middle East, two in North Africa and one in Eurasia.

Figure 7 is an international mapping of religious freedom for 2016. Lack of religious freedom, shown in the dark areas on the map, is concentrated in the Middle East and North Africa and in large parts of Asia.



© UNICEF Cambodia\2014\Anne-Sophie Galli

Clearly, the geographical distribution of restrictions on religious freedom with its focus primarily on Asia, the Middle East, and North Africa, is very different from the concentration of material deprivation found primarily in Sub-Saharan Africa.

### *UN Sustainable Development Goals*

In analyzing the correlation of the UN Sustainable Development Goals with religious freedom, we found significant correlations with more press freedom the sixteenth UN goal of **Peace, Justice and Strong Institutions**.

*(See Appendix B for more details regarding the statistical analyses between the Fordham Francis Index indicators and the UN Sustainable Development Goals.)*

## Correlation Matrix

While the seven primary indicators should be highly correlated with all important measures of development, ideally these seven indicators should also be independent from each other. As a rule of thumb, a correlation coefficient with an absolute value of 60% (0.60) or more is deemed high, meaning 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 a correlation matrix in Table 8.

Boxes highlighted in yellow contain correlation coefficients that exceed the absolute value of 60% (0.60). Based on the correlations between our seven indicators over the last four reports we have made some significant improvements in our measures.

**Table 8: Correlation Matrix – Correlation Coefficients of the Seven Primary Indicators in the FFI (2016)**

	Water	Food	Housing	Employment	Education	Gender	Religious Freedom
Water	1						
Food	-0.67	1					
Housing	-0.76	0.71	1				
Employment	0.72	-0.71	-0.85	1			
Education	0.61	-0.56	-0.81	0.73	1		
Gender	0.13	-0.01	-0.08	0.08	0.20	1	
Religious Freedom	-0.02	-0.06	-0.06	0.23	0.08	-0.31	1

While we still have a number of correlations at 60% or above, we no longer have any correlations at 90% or above and we only have two correlations at 80% or above. Those high correlations at 80% or above show that housing, education, and employment strongly go together. Achieving success in one measure is significantly correlated with achieving success in the other two measures. One way to simplify the composite Fordham Francis Index (FFI) would be to drop two out of these three indices.

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, gender equity and potentially other civil rights as important indicators of development, the Pope is urging us to study an under-explored area of analysis into the drivers of poverty and development.

Additionally, as can be seen in Appendix B, gender does not correlate to any of the other SDGs we have considered to date. While the other six indicators—water, food, housing, education, religious freedom and employment—all show strong correlation with multiple SDGs. This result suggests that our measure of gender may be pointing us to explore other dimensions of development not covered by the SDG's.

# FORDHAM FRANCIS INDEX

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 inverted our measures of food (from percent undernourished to percent nourished) and employment (from distressed labor rate to adequately remunerated employment rate), so that a higher number for all seven of our measures would represent a better outcome similar to the Human Development Index.

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

$$\frac{(X - \text{Min Theoretical Value of Statistic})}{(\text{Max Value of Statistic} - \text{Min Theoretical Value of Statistic})}$$

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

**Table 9: Measurement parameters for each indicator**

	Minimum	Maximum
Water	19	100.0
Food	71.5	2.5
Housing	90.8	0.0
Employment	0.96	99.8
Education	10.9	99.9
Gender	0.92	0.98
Religious Freedom	0.0	9.1

value for each indicator within the existing dataset from 1990 (see appendix E for countries and year).

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 =**

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

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 Well-being Index (SWI) by computing the geometric mean of the three normalized indices of education, gender equity, and religious freedom according to the following formula:

*Spiritual Well-being Index =*

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

As was the case with the Material Well-being Index, we gave equal weight to all three components when computing the Spiritual Well-being 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 Well-being Index according to the following formula:

*Fordham Francis Index =*

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

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

Data collected for each indicator were from 2016, except in the instance of food. The food measure is reported as a three-year average from 2014-2016. The year 2016 was selected for all other indicators as it was the most recent year that had a large number of available observations for all variables. That said, the employment variable was the most limiting variable with only 115 observations which subsequently limits the dataset for our Material Well-being Index and consequently the Fordham Francis Index.

## Material Well-being Index

In order to provide a comparison between the Material Well-being Index (MWI) and the more conventional measures of poverty and deprivation, the Material Well-being Index (MWI) was regressed separately on *economic well-being*, measured as the *logarithm of Per Capita GDP*, and on the Human Development Index (HDI). The Human Development Index (HDI) expands our economic well-being 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). These two measures are in addition to a more traditional indicator of economic well-being measured by per capita gross national income. Our results indicate a strong statistical relationship of our Material Well-being Index (MWI) with both economic well-being and the Human Development Index (HDI) (Table 10). Additionally, R<sup>2</sup> values imply that 72% of the variation in values of the Material Well-being Index (MWI) is explained by economic well-being,

**Table 10: Ordinary least squares regression results of the MWI and two commonly used poverty measures**

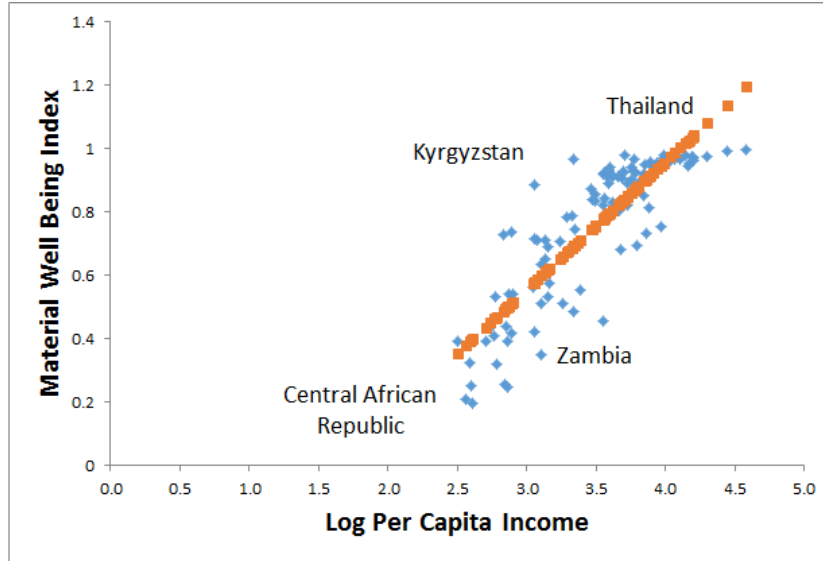
Variables	Material Well-being		Economic Interpretation
	Regression Coefficient (t-stat)	R <sup>2</sup>	
Economic Well-being (GDP per Capita in	0.43 (15.50)	0.72	A 1% increase in per capita income is associated with a 0.43% increase in the MWI
Human Development Index	1.61 (21.13)	0.82	An increase in the HDI by .01 is associated to an increase of 0.0161 in the MWI

while 82% is explained by the Human Development Index (HDI). The unexplained variation in Material Well-being Index (MWI) can be attributed to the additional indicators not considered by the former two indices. The graph in Figure 8 illustrates a positive relationship between the log of Gross Domestic Product (GDP) per capita and the MWI score. Transforming the data on the Gross Domestic Product (GDP) per capita into a logarithmic scale allows us to run a linear regression analysis. Countries are essentially ranked from low to high income.

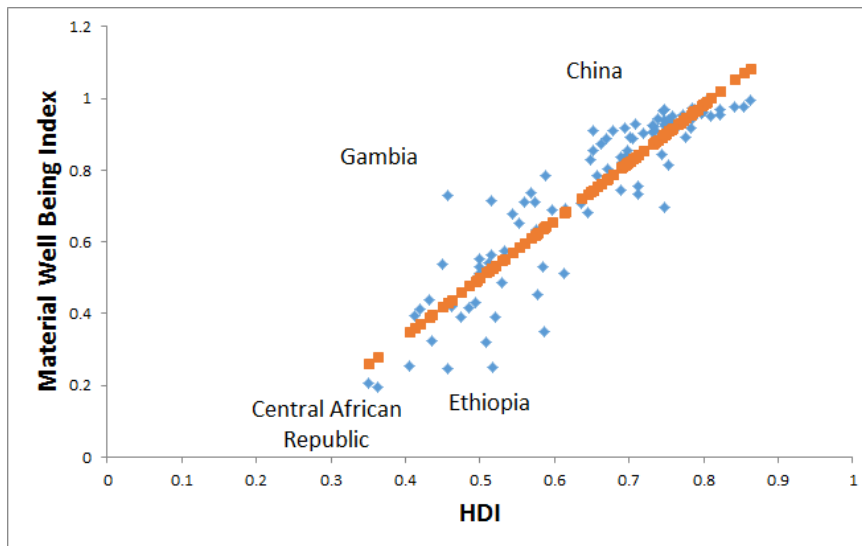
An interpretation of the  $R^2$  shows that GDP per capita explains 72% of changes in Material Well-being Index as measured by Pope Francis' primary indicators. Other factors, such as government policy, can explain the remaining 28%. For instance, Kyrgyzstan and Zambia have similar levels of income,

yet there is a large difference in their Material Well-being Index (MWI) scores (0.89 and 0.34, respectively). Zambia has significantly lower scores in nutrition, food and employment compared to Kyrgyzstan, even though both have similar levels of income. The Fordham Francis Index ranks countries

**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)**





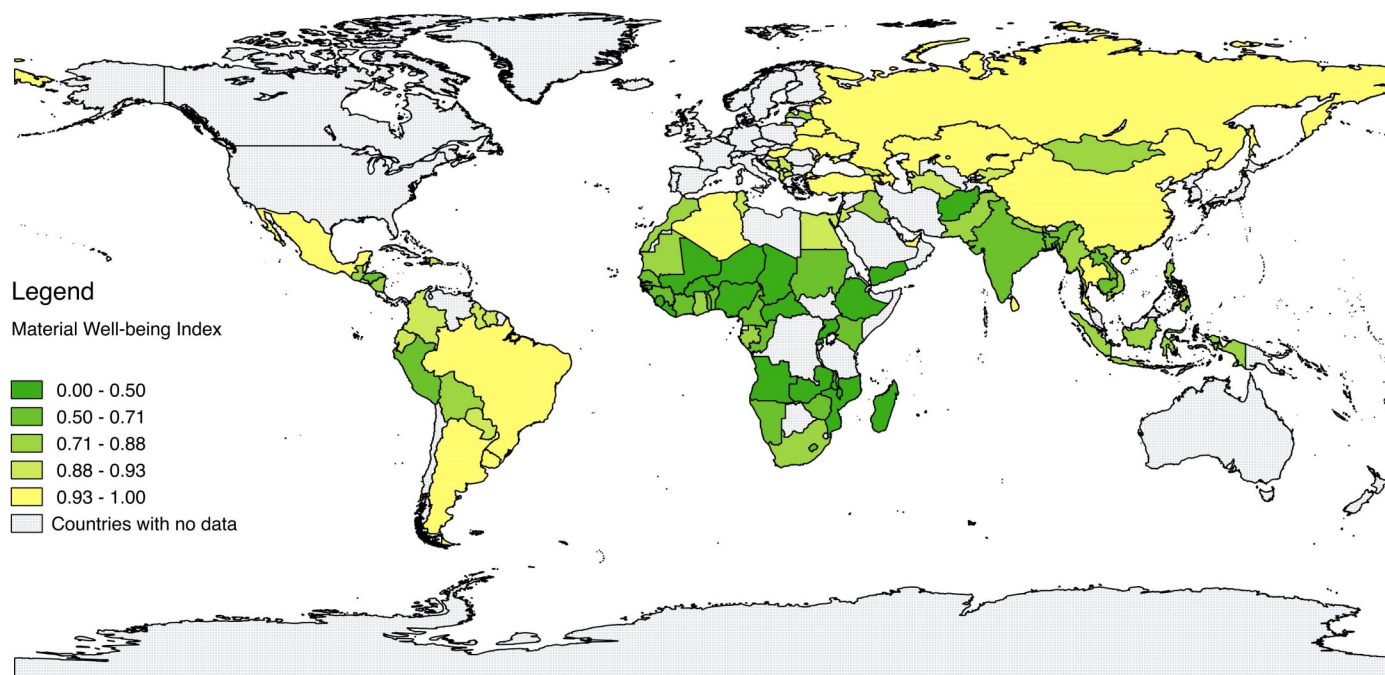
who use their economic resources to meet basic material needs higher than countries who may have the same level of resources but decide not to focus on the basic human needs of water, food, housing, and employment.

Similar to economic well-being, there is also a strong positive relationship between our Material Well-being Index (MWI) and the UN Human Development Index (HDI). The Material Well-being Index (MWI) scores are dispersed in countries with low to medium Human Development Index (HDI) (Figure 9). Interestingly, 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 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 0.46 but a Material Well-being Index of 0.73. Compare this to Ethiopia which has similar levels of HDI (0.46) but has a low Material Well-being Index (MWI) score of 0.24. Ethiopia's low level of Material Well-being Index (MWI) score is primarily due to its low levels of housing, water and employment.

The map in Figure 10 highlights the geographical distribution of the Material Well-being Index scores across the sample. The lowest scores are largely distributed across Sub-Saharan Africa, while South American countries have relatively high Material Well-being Index scores.

**Figure 10: Material Well-being Index (2016)**



## Spiritual Well-being Index

In order to provide a comparison between the Spiritual Well-being Index (SWI) and alternative measures of development, the Spiritual Well-being Index (SWI) was also regressed with *economic well-being*, measured as the *logarithm of GDP per capita*, and the Human Development Index (HDI). The results indicate that there is a positive, but not statistically significant, relationship between our Spiritual Well-being Index (SWI) and economic well-being. We do find, however, a significant positive statistical relationship between our Spiritual Well-being Index (SWI) and the Human Development Index (HDI) (Table 11). The respective R<sup>2</sup> values of the regressions, however, imply that at most 6% of the variations in the Spiritual Well-being Index can be explained by changes in either economic well-being or in the Human Development Index. The large unexplained variations in our Spiritual Well-being Index (SWI) can be attributed to the additional dimensions of gender and religious freedom not considered by the other two poverty measures.

A low R<sup>2</sup> of only 5 % indicates that Spiritual Well-being is weakly linked to Economic Well-being. For example, Chad and Uganda have similar levels of per

capita GDP, but have very different scores on our Spiritual Well-being Index (SWI). Uganda is an example of a country that does much better than countries with the same level of income, while Chad's overall score is pulled down primarily by its low score on the education indicator. The results imply that high income does not necessarily translate into high spiritual well-being.

Furthermore, the Spiritual Well-being Index (SWI) is also weakly linked to the Human Development Index (HDI). The HDI only explains about 6% of the SWI. (Figure 12).

There are many countries that are ranked low by the Human Development Index (HDI) that exhibit a high measure of spiritual well-being, while many countries ranked high or very high by the HDI exhibit a low measure of spiritual well-being. Bolivia for instance, has a low HDI score (mainly because of its low per capita income) but has a high Spiritual Well-being Index (SWI) score because of its high scores in education, gender and religious freedom. Conversely, Saudi Arabia has a high HDI score, but is doing poorly in terms of its Spiritual Well-being Index (SWI) score. While Saudi Arabia is performing well in terms of per capita income, they are among those countries with limited religious freedom. The map in

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

Variables	Spiritual Well-being		Economic Interpretation
	Coefficient (t-stat)	R <sup>2</sup>	
GDP per Capita Log form	0.08 (2.26)	0.05	A 1% increase in Per Capita GDP is associated with a .08% increase in the SWI
HDI	0.34 (2.54)	0.06	A .01 increase in HDI is associated with a 0.0034 increase in SWI

Figure 11: Regression results of Spiritual Well-being Index (SWI) and the log of GDP per capita

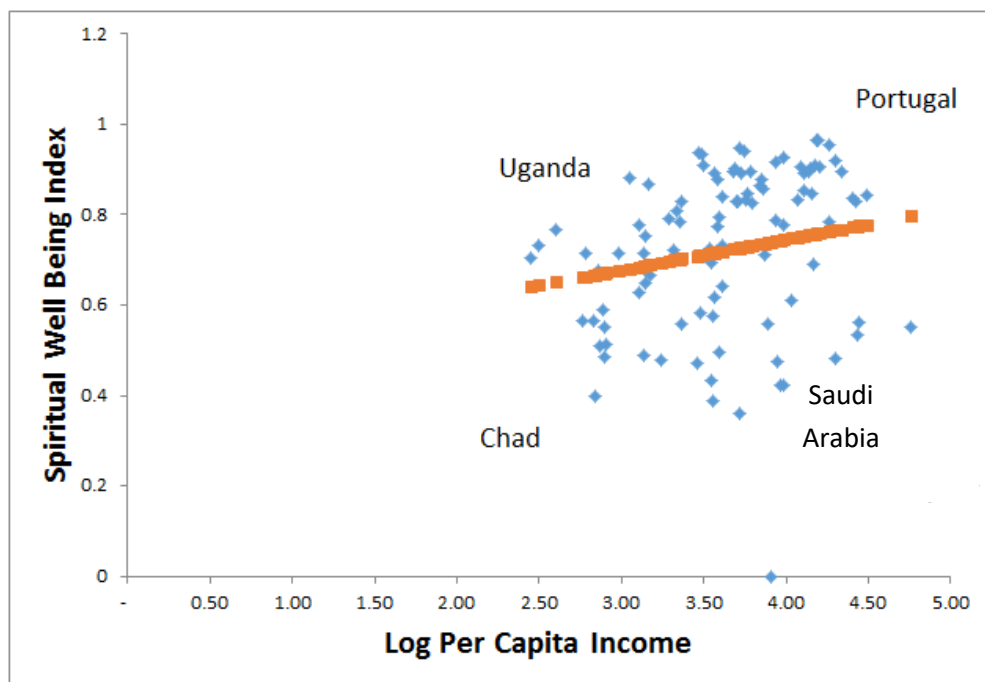


Figure 12: Regression results of Spiritual Well-being Index (SWI) and the Human Development Index

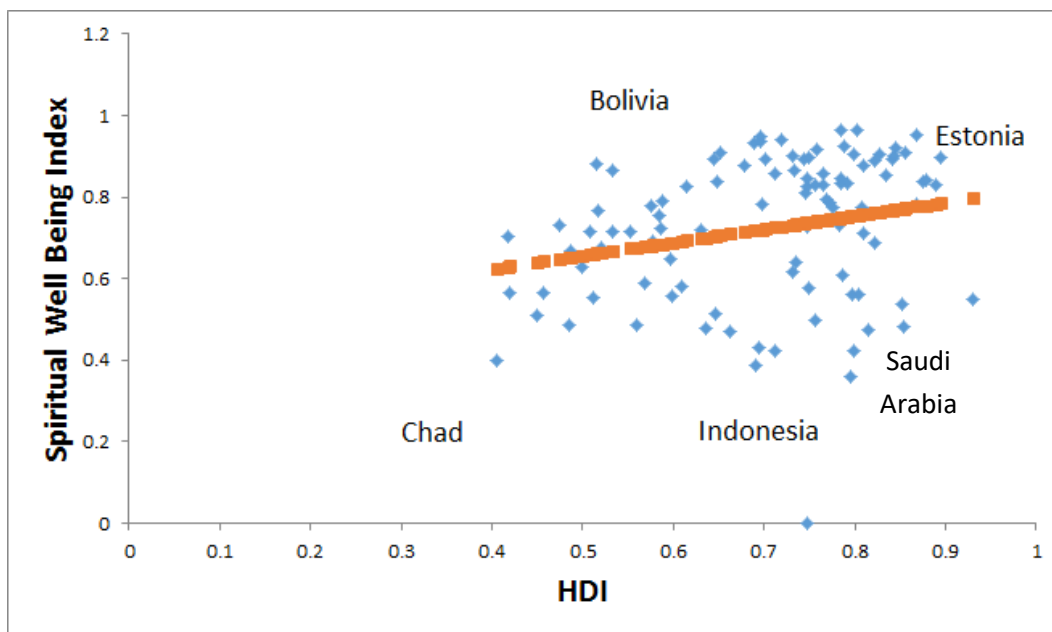


Figure 13: Map of Spiritual Well-being Index (2016)

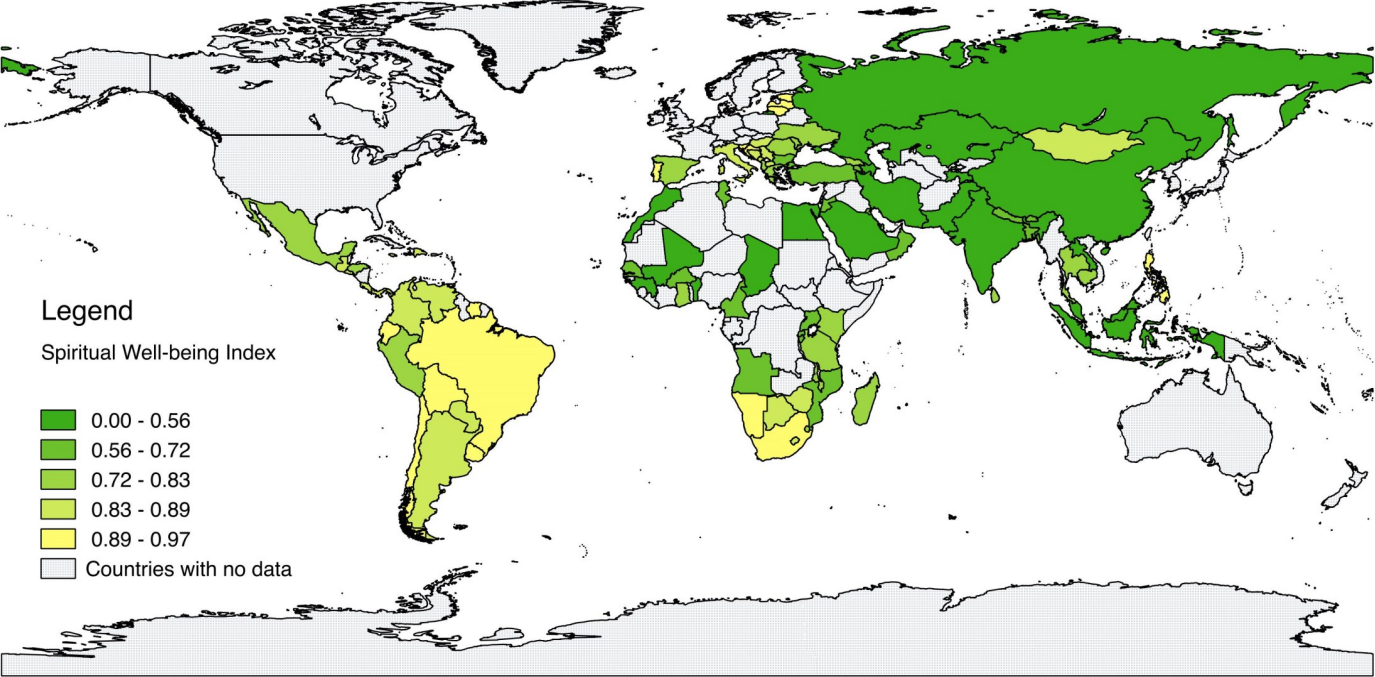


Figure 13 highlights the geographical distribution of Spiritual Well-being Index scores across our sample of 101 countries. Our mapping shows that low SWI scores are largely concentrated around Asia, North and West Africa and the Middle East.

# 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 Well-being Index (SWI) by taking their geometric mean.

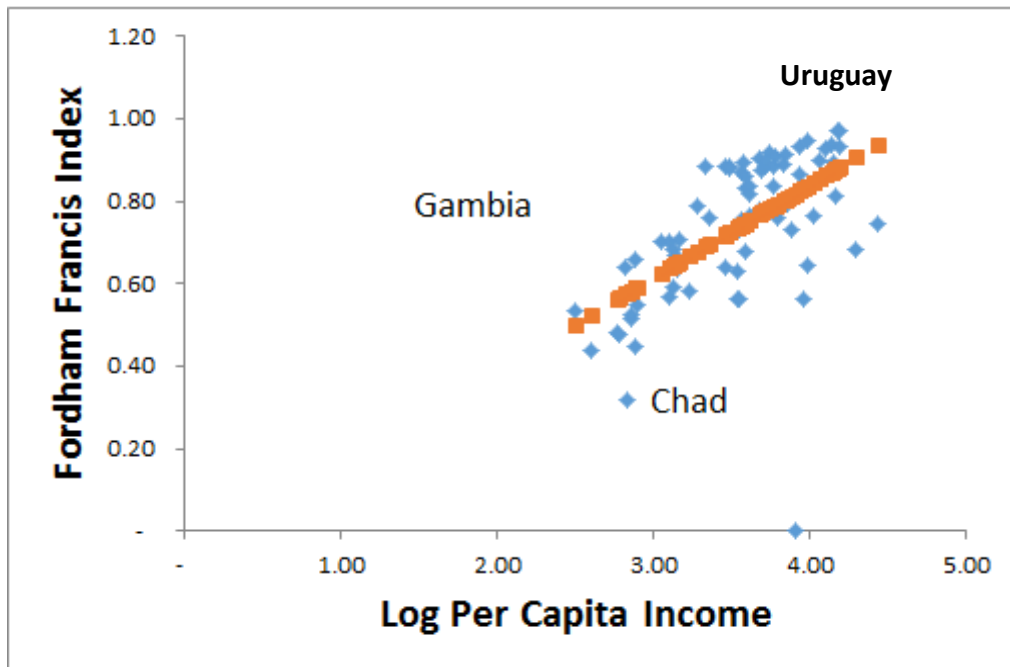
In order to provide a comparison between the Fordham Francis Index (FFI) and standard measures of poverty, the Fordham Francis Index (FFI) was regressed on economic well-being, measured as the *logarithm of GDP per capita*, and on the Human Development Index (HDI). The results indicate a strong statistical relationship of the Fordham Francis Index (FFI) with both economic well-being and the Human Development Index (HDI) (Table 12).

**Table 12: Regression results of the FFI and two commonly used poverty measures**

Variables	Fordham Francis Index		Economic Interpretation
	Coefficient (t-stat)	R <sup>2</sup>	
Economic Well-being	0.26 (6.55)	0.39	A 1% increase in the log GDP per capita is associated with a 0.26% increase in Fordham Francis Index
HDI	1.01 (7.25)	0.44	A .01 increase in HDI is associated with a 0.0101 increase in Fordham Francis Index

Additionally, the R<sup>2</sup> values of the regressions imply that 39% and 44% of the variation in values of the

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

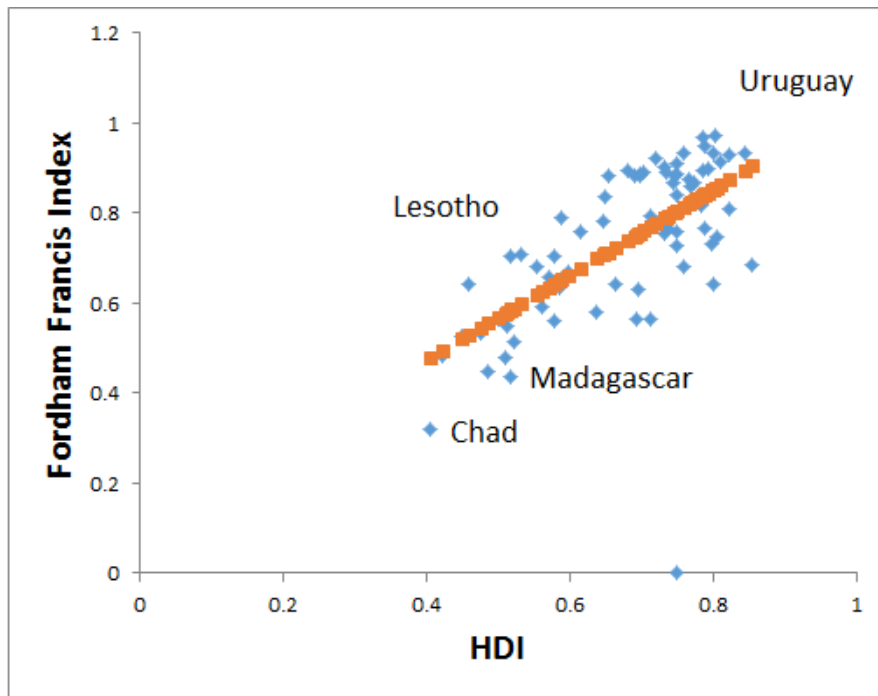


Fordham Francis Index (FFI) can be explained by either economic well-being or the Human Development Index (HDI), respectively. The inability of the more traditional measures to be able to explain about 2/3rd's of the variation in the FFI is due to the additional dimensions captured in the Fordham Francis 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.

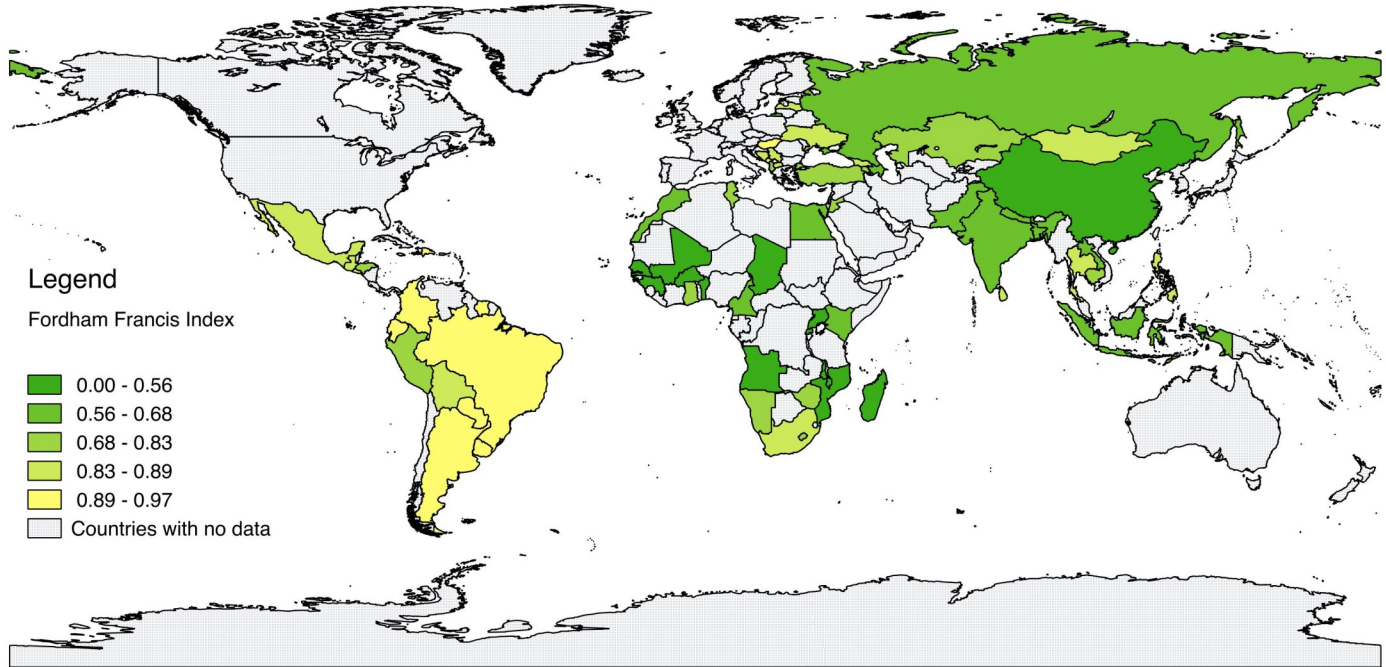
The graph in Figure 14 represents the positive relationship between economic well-being and the Fordham Francis Index (FFI). It indicates where countries stand in levels of deprivation pertaining to Pope Francis' seven primary indicators relative solely to their per capita GDP. One can notice countries 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, one can see that the variation between scores measured by the Fordham Francis Index (FFI) primarily stem from the divergence in the spiritual primary indicators of literacy, gender equity in health and survival and religious freedom from government restrictions. 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).

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



**Figure 16: Map of the Fordham Francis Index (2015)**



The graph in Figure 15 represents the relationship between the Fordham Francis Index (FFI) and the Human Development Index (HDI). It reveals disparities between the two poverty measurements. 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 interesting pairs, one can see that the variation in Fordham Francis Index (FFI) scores between countries stems from the divergence in the spiritual well-being and most notably differences in religious freedom. But there are some countries at the lower levels of human development index where the variation in FFI scores is driven not 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.

To summarize, 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 needs of the poor as well as a stronger value on political freedoms and in particular religious freedom and gender equity.

The map in Figure 16 highlights the analysis done for 69 countries and shows that low Fordham Francis Index scores are largely concentrated in both Africa and Asia.

# CONCLUSION

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. In his address, Pope Francis identified four basic human needs as essential for a minimal level of material well-being. They were water, food, housing, and employment. Pope Francis also identified religious freedom, education, and other civil rights, such as gender equity, as the basic human needs essential for a minimal level of spiritual well-being.

## *Global Trend—Material Poverty*

In measuring material poverty, our **water indicator** shows improvement, but still more than 900 million people, or 12.5% of the world's population, lack basic access to drinking water. Our **food indicator**, on the other hand, reveals some recent deterioration. Roughly 800 million people, or 11% of the world's population, are undernourished. And our **housing indicator shows** that nearly 2 billion people, or 26% of the world's population, lack adequate **housing**. Finally, our **employment indicator** has improved recently, but still nearly 2.5 billion people, or 33 % of the world's population, lack access to remunerated employment of at least \$3.20 per day.

## *Global Trend—Spiritual Poverty*

In measuring spiritual poverty, our **education indicator** shows improvement, but still an estimated 1.2 billion people, or 17% of the world's population, is illiterate. While our **gender indicator** has been stagnant and reveals that roughly 1.5 billion women, nearly half of the women in the world, live in

countries where the health and survival outcomes for women are significantly less than for men. And finally our **religious** freedom indicator has worsened and shows that 4.5 billion people, the majority of the world's population, live in countries where governments severely restrict religious freedom.

## *Geographical Dispersion of Poverty*

Geographically we found that material deprivation is highly concentrated in Sub-Saharan Africa, while spiritual deprivation, especially the lack of religious freedom, is more predominant in Asia.

## *A Simple Tool to Measure Global Poverty*

The Fordham Francis Index (FFI) is a simple tool. It relies on only seven indicators. It attempts to identify appropriate measures for each of Pope Francis' seven basic human needs. We believe that the statistics we use to measure water (percentage of a population using an improved drinking water source), food (prevalence of undernourishment), housing (access to adequate housing), education (illiteracy) and religious freedom (Pew Center's Government Restrictions Index) are very good. They adequately represent the perspective expressed by Pope Francis in his UN Address. The data is collected, reviewed, and published by respected international organizations

Do we favor the basic  
needs of the poor?





yielding credible and easily obtainable datasets on the internet. Finally, these statistics consistently cover a large number of countries on a regular basis.

We were not satisfied with our previous measures of gender equity and have attempted to utilize a new measure of gender equity, *the health and survival gap between men and women*. Our initial measure of gender equity in 2016, the parity between literacy between girls and boys, was extremely correlated at 90% with our measure of education (illiteracy), meaning that it

added 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. Again we were not satisfied with this measure since we felt that it did not adequately express Pope Francis' vision. We felt that it was more a measure of the welfare of elite women and perhaps not directly reflective of the welfare of women living at the margins of our societies. In 2018, we chose a measure focused on domestic violence. We like this

**Do we enable the poor to become “dignified agents of their own destinies?”**



© UNICEF\Bana 2014-01667\Mawa

measure very much; but, unfortunately, this data is not available on a regular basis. In this year's 2019 report we chose a statistic that measures the gender gap in health and survival. The measure should capture disparities in opportunities in health, quality of living, and even impact of violence in survival. 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.

We were previously not satisfied with our measure of employment, 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 availability of jobs but also with the quality of employment. In this year's report, we chose the

distressed labor rate which 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.

### ***A Broad Measure of Global Poverty***

The Fordham Francis Index (FFI) is also a broad measure of global poverty. Its indicators are related to many of the UN's Sustainable Development Goals (SDGs). To date we have documented a strong correlation between many of the FFI indicators and various SDG targets such as poverty reduction, improved health, and better sanitation. We found that Religious Freedom is closely associated with Press Freedom.

### ***An Innovative Measure of Global Poverty***

To see how the Fordham Francis Index (FFI) is innovative compared to other measures such as Per Capita Income and the UN Human Development Index (HDI), we aggregated our statistical measures into a material well-being index, a spiritual well-being index, and an overall Fordham Francis Index. We found that the Fordham Francis Index (FFI) is unique in two ways.

First, when compared to other measures of poverty such as per capita income and the Human Development Index, the FFI has a stronger emphasis on meeting basic human needs and therefore favors outcomes that benefit the poor. We are able to use the FFI to identify numerous countries with similar resources that either outperform or underperform their peers in meeting the basic human needs of the poor. In the future, we hope to discern patterns that

might explain why some countries are better able to serve the poor than other countries with similar resources.

Second, besides including indicators of material well-being, the FFI also includes indicators of spiritual well-being. These spiritual indicators, such as education, the civil rights of religious freedom, and gender equity, may play an important role in empowering the marginal to be champions of their own causes.

The development of a simple technical instrument of verification like the Fordham Francis Index (FFI) can also empower civil society to carry out their own oversight responsibilities. They can use the FFI to evaluate the efforts of national and international governmental agencies as well as other national and international actors to promote integral human development through the proper attainment of the UN's Sustainable Development Goals (SDGs). The FFI is designed to help answer two key questions. Do our actions favor the basic needs of the poor? Do our actions enable the poor to become "dignified agents of their own destinies"?

# APPENDICES

## APPENDIX A: VARIABLE DEFINITIONS & SOURCES

Variable	Definition
<b>Level of Poverty</b>	<p>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.</p> <ul style="list-style-type: none"> <li>- World Bank</li> <li>- <a href="http://iresearch.worldbank.org/PovcalNet/index.htm">http://iresearch.worldbank.org/PovcalNet/index.htm</a></li> </ul>
<b>Maternal Mortality</b>	<p>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.</p> <ul style="list-style-type: none"> <li>- World Bank</li> <li>- <a href="http://data.worldbank.org/indicator/SH.STA.MMRT">http://data.worldbank.org/indicator/SH.STA.MMRT</a></li> </ul>
<b>Infant Mortality</b>	<p>Infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year.</p> <ul style="list-style-type: none"> <li>- World Bank</li> <li>- <a href="https://data.worldbank.org/indicator/SP.DYN.IMRT.IN">https://data.worldbank.org/indicator/SP.DYN.IMRT.IN</a></li> </ul>
<b>Incidence of TB</b>	<p>Measured as the estimated incidence (all forms) per 100,000 population</p> <ul style="list-style-type: none"> <li>- WHO</li> <li>- <a href="http://www.who.int/tb/en/">http://www.who.int/tb/en/</a></li> </ul>
<b>Sanitation</b>	<p>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</p> <ul style="list-style-type: none"> <li>- WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation</li> <li>- <a href="https://washdata.org/data">https://washdata.org/data</a></li> </ul>

<p><b>Corruption</b></p>	<p>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).</p> <ul style="list-style-type: none"> <li>- Transparency International</li> <li>- <a href="http://www.transparency.org/cpi2014/results">http://www.transparency.org/cpi2014/results</a></li> </ul>
<p><b>Press Freedom</b></p>	<p>Measured as 0 to 100, with 100 as worst/least free</p> <ul style="list-style-type: none"> <li>- Reporters Without Borders</li> <li>- <a href="https://rsf.org/en/detailed-methodology">https://rsf.org/en/detailed-methodology</a></li> </ul>
<p><b>Income Inequality</b></p>	<p>Inequality in income is a distribution based on data from household surveys estimated using the Atkinson inequality index.</p> <ul style="list-style-type: none"> <li>- UNDP Human Development Index</li> <li>- <a href="http://hdr.undp.org/en/indicators/101706">http://hdr.undp.org/en/indicators/101706</a></li> </ul>
<p><b>Water Indicator: Percentage of population who drink improved drinking water.</b></p>	<p>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</p> <ul style="list-style-type: none"> <li>- WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation</li> <li>- <a href="https://washdata.org/data">https://washdata.org/data</a></li> <li>- Data Download Date: June 20, 2019</li> </ul>
<p><b>Food Indicator: Prevalence of Undernourishment</b></p>	<p>The percentage of the population that is continuously unable to consume enough food to meet dietary energy requirements</p> <ul style="list-style-type: none"> <li>- Food and Agriculture Organization (FAO)</li> <li>- <a href="http://faostat.fao.org/beta/en/#data/FS">http://faostat.fao.org/beta/en/#data/FS</a></li> </ul>
<p><b>Housing Indicator: Access to Adequate Housing</b></p>	<p>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.</p> <ul style="list-style-type: none"> <li>- Oxford Poverty &amp; Human Development Initiative</li> <li>- <a href="http://www.ophi.org.uk/multidimensional-poverty-index/mpi-resources/#2015resources">http://www.ophi.org.uk/multidimensional-poverty-index/mpi-resources/#2015resources</a></li> </ul>

<b>Employment Indicator: Distressed Labor Rate</b>	<p>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. Data on working age population, unemployed and the employed earning poverty wages below \$3.20 PPP per day can be found at:</p> <ul style="list-style-type: none"> <li>- International Labor Organization</li> <li>- <a href="http://ilo.org/ilostat">http://ilo.org/ilostat</a></li> </ul>
<b>Education Indicator: Adult Literacy Rate</b>	<p>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.</p> <ul style="list-style-type: none"> <li>- UNESCO/World Bank</li> <li>- <a href="http://databank.worldbank.org/data/reports.aspx?source=2&amp;series=SE.ADT.LITR.ZS&amp;country=#">http://databank.worldbank.org/data/reports.aspx?source=2&amp;series=SE.ADT.LITR.ZS&amp;country=#</a></li> </ul>
<b>Gender Indicator: Health and Survival Index</b>	<p>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</p> <ul style="list-style-type: none"> <li>- Gender Gap Report of World Economic Forum</li> <li>- <a href="http://reports.weforum.org/global-gender-gap-report-2016/">http://reports.weforum.org/global-gender-gap-report-2016/</a></li> </ul>
<b>Religious Freedom Indicator: Government Restrictions Index</b>	<p>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.</p> <ul style="list-style-type: none"> <li>- Pew Research Center</li> <li>- <a href="http://www.pewforum.org/2016/06/23/trends-in-global-restrictions-on-religion/">http://www.pewforum.org/2016/06/23/trends-in-global-restrictions-on-religion/</a></li> </ul>

**APPENDIX B: CORRELATION COEFFICIENTS BETWEEN THE SEVEN PRIMARY STATISTICAL MEASURES IN THE FFI AND SEVERAL TARGETS OF THE UN SUSTAINABLE DEVELOPMENT GOALS (Strong correlations above 60% are highlighted in yellow.)**

SDG Targets	Primary Indicators						
	Water	Food	Housing	Employment	Education	Gender	Religious Freedom
<b>SDG 1: No Poverty</b>							
Percent of Population below the Poverty line	- 0.67	0.66	0.70	- 0.88	- 0.67	- 0.11	- 0.19
<b>SDG 3: Good Health</b>							
Maternal Mortality	- 0.67	0.62	0.74	- 0.76	- 0.80	- 0.12	- 0.09
Infant Mortality	- 0.69	0.65	0.72	- 0.75	- 0.79	- 0.19	- 0.03
Incidence of TB	- 0.46	0.51	0.32	- 0.47	- 0.30	0.03	- 0.15
<b>SDG 6: Clean Water and Sanitation</b>							
Access to Sanitation	0.75	- 0.63	- 0.77	0.76	0.74	0.12	0.19
<b>SDG 7: Affordable and Clean Energy</b>							
Electricity (% of population)	0.75	- 0.79	- 0.84	0.84	0.67	0.04	0.14
<b>SDG 8: Decent work and Economic Growth</b>							
GDP per capita Growth Rate	0.13	- 0.15	- 0.12	0.10	0.02	- 0.04	0.06
<b>SDG 10: Reduced Inequalities</b>							
Income Inequality	- 0.20	0.33	0.01	- 0.05	- 0.05	0.13	- 0.18
<b>SDG 16: Peace, Justice, and Strong Institutions</b>							
Corruption Index (0-100, 100 very clean)	0.54	- 0.54	- 0.36	0.42	0.36	0.07	- 0.25
Press Freedom (0-100, 100 less free)	- 0.23	0.21	0.03	- 0.02	0.00	- 0.36	0.61
Unsentenced detainees as a proportion of overall prison population	- 0.10	0.15	-0.07	- 0.05	- 0.22	- 0.03	- 0.23

## APPENDIX C: TEN LOWEST RANKED COUNTRIES: MWI AND SWI

Country	Material Index	Water	Food	Housing	Employment
Central African Republic	0.19	0.43	0.14	0.20	0.12
Niger	0.21	0.33	0.83	0.03	0.26
Ethiopia	0.24	0.14	0.73	0.08	0.38
Madagascar	0.25	0.40	0.41	0.22	0.10
Chad	0.25	0.30	0.46	0.09	0.34
Uganda	0.31	0.15	0.44	0.46	0.31
Mozambique	0.32	0.36	0.59	0.24	0.21
Zambia	0.34	0.26	0.39	0.51	0.26
Rwanda	0.39	0.47	0.51	0.42	0.22
Malawi	0.39	0.60	0.66	0.47	0.12

Country	Spiritual index	Education	Gender	Religious Freedom
China	0.00	0.95	0.00	0.03
Iran	0.36	0.84	0.85	0.07
Indonesia	0.39	0.95	0.93	0.07
Chad	0.40	0.13	0.80	0.62
Maldives	0.42	0.98	0.77	0.10
Malaysia	0.42	0.93	0.82	0.10
Egypt	0.43	0.72	0.85	0.13
Morocco	0.47	0.66	0.85	0.19
Russia	0.48	1.00	0.98	0.11
India	0.48	0.66	0.38	0.44



## APPENDIX D: FORDHAM FRANCIS INDEX COUNTRY RANKINGS

Rank	Country	FFI	Material Index	Water	Food	Housing	Employment	Spiritual Index	Education	Gender	Religion
1	Uruguay	0.97	0.98	0.99	1.00	1.00	0.92	0.96	0.98	1.00	0.91
2	Trinidad and	0.97	0.97	0.96	0.97	1.00	0.97	0.97	0.99	1.00	0.91
3	Brazil	0.93	0.95	0.96	1.00	0.99	0.86	0.92	0.91	1.00	0.85
4	Barbados	0.93	0.96	0.98	0.98	1.00	0.90	0.91	1.00	1.00	0.75
5	Argentina	0.93	0.97	1.00	0.98	0.98	0.91	0.89	0.99	1.00	0.71
6	Suriname	0.92	0.90	0.94	0.93	0.96	0.78	0.94	0.92	1.00	0.90
7	Hungary	0.92	0.99	1.00	1.00	0.99	0.97	0.85	0.99	0.98	0.64
8	Montenegro	0.91	0.95	1.00	1.00	1.00	0.82	0.88	0.98	0.92	0.75
9	Ecuador	0.91	0.92	0.93	0.92	0.97	0.87	0.90	0.94	1.00	0.77
10	Jamaica	0.90	0.91	0.91	0.91	0.97	0.84	0.90	0.87	1.00	0.85
11	El Salvador	0.89	0.91	0.93	0.89	0.93	0.89	0.88	0.87	1.00	0.78
12	Paraguay	0.89	0.89	0.81	0.87	0.96	0.92	0.89	0.94	1.00	0.76
13	Dominican	0.89	0.92	0.93	0.89	0.98	0.89	0.86	0.93	0.85	0.81
14	Colombia	0.89	0.93	0.96	0.94	0.96	0.85	0.85	0.94	0.98	0.66
15	Philippines	0.89	0.84	0.89	0.84	0.94	0.70	0.94	0.96	1.00	0.86
16	Ukraine	0.88	0.97	0.98	0.99	1.00	0.91	0.81	1.00	0.98	0.54
17	Bolivia	0.88	0.83	0.93	0.75	0.81	0.86	0.93	0.92	1.00	0.89
18	South Africa	0.88	0.82	0.81	0.95	0.98	0.60	0.95	0.94	1.00	0.91
19	Bosnia and	0.88	0.92	0.98	1.00	1.00	0.74	0.83	0.97	0.89	0.67
20	Republic of	0.87	0.92	0.89	0.96	1.00	0.85	0.83	0.99	0.89	0.66
21	Latvia	0.87	0.85	0.99	1.00	1.00	0.52	0.90	1.00	1.00	0.74
22	Macedonia	0.87	0.92	0.96	0.98	0.99	0.76	0.83	0.98	0.79	0.75
23	Mongolia	0.87	0.84	0.80	0.77	0.90	0.91	0.89	0.98	1.00	0.73

## APPENDIX D: FORDHAM FRANCIS INDEX COUNTRY RANKINGS

Rank	Country	FFI	Material Index	Water	Food	Housing	Employment	Spiritual Index	Education	Gender	Religion
24	Mexico	0.87	0.95	0.99	0.98	0.98	0.87	0.79	0.94	1.00	0.52
25	Sri Lanka	0.86	0.93	0.99	0.88	0.97	0.88	0.80	0.91	1.00	0.55
26	Thailand	0.84	0.97	0.98	0.91	1.00	0.99	0.73	0.92	1.00	0.42
27	Guatemala	0.83	0.83	0.94	0.81	0.75	0.84	0.84	0.79	1.00	0.75
28	Georgia	0.83	0.89	0.91	0.93	1.00	0.74	0.77	1.00	0.79	0.59
29	Albania	0.82	0.92	0.89	0.96	0.99	0.84	0.73	0.97	0.46	0.88
30	Ghana	0.79	0.78	0.64	0.95	0.81	0.76	0.79	0.68	0.89	0.82
31	Namibia	0.78	0.68	0.74	0.67	0.65	0.66	0.89	0.87	1.00	0.82
32	Jordan	0.76	0.91	0.99	0.84	1.00	0.83	0.64	0.98	0.77	0.35
33	Turkey	0.76	0.96	0.99	1.00	0.98	0.89	0.60	0.96	1.00	0.23
34	Honduras	0.76	0.69	0.48	0.81	0.80	0.72	0.83	0.88	0.93	0.69
35	Tunisia	0.75	0.92	0.93	0.97	1.00	0.82	0.62	0.76	0.82	0.37
36	Peru	0.75	0.69	0.33	0.91	0.87	0.85	0.83	0.93	0.84	0.73
37	Kazakhstan	0.73	0.96	0.89	1.00	1.00	0.95	0.56	1.00	1.00	0.18
38	Armenia	0.73	0.92	0.99	0.97	1.00	0.75	0.58	1.00	0.33	0.58
39	Lesotho	0.70	0.56	0.65	0.85	0.70	0.26	0.88	0.74	1.00	0.92
40	Cambodia	0.70	0.63	0.70	0.77	0.83	0.36	0.78	0.78	1.00	0.60
41	Zimbabwe	0.70	0.57	0.77	0.36	0.75	0.53	0.85	0.87	1.00	0.70
42	Russia	0.68	0.97	0.95	1.00	1.00	0.95	0.48	1.00	0.98	0.11
43	Cameroon	0.68	0.65	0.57	0.93	0.57	0.58	0.71	0.68	0.80	0.67
44	Azerbaijan	0.68	0.93	0.80	1.00	0.98	0.95	0.50	1.00	0.51	0.24
45	Bangladesh	0.67	0.69	0.96	0.82	0.58	0.49	0.65	0.69	0.85	0.46
46	Nepal	0.66	0.74	0.85	0.90	0.64	0.61	0.59	0.55	0.87	0.43

## APPENDIX D: FORDHAM FRANCIS INDEX COUNTRY RANKINGS

Rank	Country	FFI	Material Index	Water	Food	Housing	Employment	Spiritual Index	Education	Gender	Religion
47	Morocco	0.64	0.87	0.80	0.98	0.87	0.85	0.47	0.66	0.85	0.19
48	Gambia	0.64	0.73	0.75	0.90	0.68	0.61	0.56	0.35	0.89	0.58
49	Kenya	0.63	0.53	0.58	0.69	0.57	0.34	0.75	0.76	0.89	0.64
50	Egypt	0.63	0.92	0.98	0.97	0.99	0.76	0.43	0.72	0.85	0.13
51	Laos	0.62	0.69	0.78	0.80	0.71	0.52	0.56	0.83	0.87	0.24
52	East Timor	0.61	0.52	0.63	0.64	0.56	0.33	0.72	0.53	0.85	0.82
53	Pakistan	0.59	0.71	0.86	0.74	0.61	0.66	0.49	0.52	0.79	0.29
54	India	0.58	0.71	0.85	0.82	0.74	0.48	0.48	0.66	0.38	0.44
55	Indonesia	0.56	0.82	0.75	0.92	0.97	0.68	0.39	0.95	0.93	0.07
56	Senegal	0.56	0.50	0.33	0.87	0.65	0.34	0.63	0.36	0.79	0.88
57	Maldives	0.56	0.75	0.44	0.88	1.00	0.81	0.42	0.98	0.77	0.10
58	Angola	0.56	0.45	0.27	0.69	0.51	0.42	0.69	0.62	1.00	0.54
59	Benin	0.55	0.54	0.68	0.89	0.51	0.28	0.55	0.25	0.79	0.87
60	Malawi	0.53	0.39	0.60	0.66	0.47	0.12	0.73	0.58	0.89	0.77
61	Guinea	0.52	0.54	0.60	0.75	0.63	0.29	0.51	0.24	0.79	0.71
62	Rwanda	0.51	0.39	0.47	0.51	0.42	0.22	0.68	0.67	0.87	0.53
63	Burkina Faso	0.48	0.41	0.74	0.73	0.21	0.25	0.57	0.27	0.79	0.87
64	Mozambique	0.48	0.32	0.36	0.59	0.24	0.21	0.71	0.51	0.80	0.88
65	Uganda	0.47	0.31	0.15	0.44	0.46	0.31	0.72	0.67	1.00	0.55
66	Mali	0.45	0.42	0.69	0.95	0.25	0.18	0.49	0.25	0.49	0.93
67	Madagascar	0.44	0.25	0.40	0.41	0.22	0.10	0.77	0.68	0.89	0.75
68	Chad	0.32	0.25	0.30	0.46	0.09	0.34	0.40	0.13	0.80	0.62
69	China	-	0.94	0.96	0.91	1.00	0.89	-	0.95	-	0.03

## APPENDIX E: PARAMETERS FOR THE INDICATORS

	Food	Education	Water	Employment	Religious Freedom	Gender	Housing
<b>Year/Country of the Minimum</b>	2000 Angola	1993 Chad	2000 Eritrea	2001 Congo	2013 China	2015/2016 China	2010 South Sudan
<b>Year/Country of the Maximum</b>	Multiple years Multiple countries	Multiple years Multiple countries	Multiple years Multiple countries	2012 Qatar	2014 New Zealand	2015 Ecuador	2005 Belarus

## APPENDIX F: PHOTO CREDITS & QUOTE SOURCES

### PHOTO CREDITS

- UNICEF
- UNAMIS
- UN News Centre (news.un.org)
- Pixabay.com

### SOURCES FOR QUOTATIONS FROM POPE FRANCIS:

Component	Source
Water	World Water Day 2019: A Message by Pope Francis, March 22, 2019.
Food	Pope Francis' Address on World Food Day, October 16, 2017.
Housing	Meeting with the Homeless at St. Patrick in the City, Washington, D.C., September 24, 2015.
Employment	Pope Francis' Wednesday Audience address on the Feast of St. Joseph the Worker, May 1, 2013.
Education	Address of His Holiness Pope Francis To Members of the "Gravissimum Educationis" Foundation, June 25, 2018.
Gender	Pope Francis, Homily in Peru addressing Latin America's Faithful, January 20, 2018.
Religious Freedom	Pope Francis' Address during the Meeting for Religious Liberty with the Hispanic Community and other Immigrants, September 26, 2015.

# RESEARCH GROUP

**Professor Henry Schwalbenberg**, *Research Director*

**Donna Mae Odra**, *Managing Director*

**Basisipho Jack**, *Research Associate*

**Composite Team:**

**Shannon Bader, Rensi Pua, Megan Madeo**

**Water Team:**

**Hannah Daru, Megan Madeo**

**Food Team:**

**James Duke**

**Housing Team:**

**Gurpreet Singh, Allison Bloss**

**Employment Team:**

**Natasia Harrison, Greg Ferraro, Ronghan Liu, Zilong Wang, Wenhao Ye**

**Education Team:**

**Shannon Bader**

**Religious Freedom Team:**

**Paul Michael, Rensi Pua**

**Gender Team:**

**Hannah Fort, Rensi Pua, Basisipho Jack**









# FORDHAM | IPED

GRADUATE PROGRAM IN INTERNATIONAL POLITICAL ECONOMY & DEVELOPMENT  
FORDHAM UNIVERSITY

Dealy Hall Room E517  
441 East Fordham Road  
Bronx, NY 10458

Email: [iped@fordham.edu](mailto:iped@fordham.edu)  
Tel: 718.817.4064  
Fax: 718.817.4565  
[iped.fordham.edu](http://iped.fordham.edu)