WATER

FOOD

HOUSING

EMPLOYMENT

EDUCATION

GENDER

RELIGIOUS FREEDOM

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 in-cludes religious freedom, the right to education and other civil rights."

Photo Credit: UN Photo / Cia Pak

About the Logo:

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

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 the participants at that conference for their comments. We are also deeply appreciative of the contribution of Mr. Timothy Herrmann, Attaché at the Permanent Observer Mission of the Holy See to the United Nations. We are also very thankful for the official sponsorship and financial support of Fordham University's Graduate Program in International Political Economy and Development (IPED). Of course all remaining errors and omissions are solely the responsibility of the authors.

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

I am pleased to present to our readers the 2018 issue of *Fordham University's Pope Francis Global Poverty Index.*

Besides our statistical work on global poverty, you will also find on page 5 an excellent guest commentary on the UN negotiations for a Compact on Global Migration. The author, Mr. Timothy Herrmann, is an Attaché at the Holy See's Mission to the UN and played a critical role in these negotiations. We all know how special the plight of refugees is to Pope Francis. But many of us may not know how crucial was the role that the Holy See played in these negotiations.

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 four basic human needs as essential for a minimal level of material well-being. They were water, food, housing, and employment. 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.

Building on Pope Francis' framework, we were able to estimate the number of individuals suffering from the lack of basic material and spiritual human needs. In measuring material poverty, we estimated that 844 million people lack access to water, 800 million are undernourished, 2 billion have substandard housing, and 400 million are unemployed. In measuring spiritual poverty, we found that 1.4 billion people are

Image courtesy of pixabay.com

illiterate, 1 billion women live in a climate of violence, and 3 billion live under regimes that severely restrict their religious freedom.

The Fordham Francis Index (FFI) is a simple multidimensional poverty measure. It relies on only seven indicators. This report identifies appropriate statistics to measure 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 is broadly indicative of development trends in the fight against global poverty. Its indicators are related to many of the UN's Sustainable Development Goals (SDG's). For example, the FFI is closely related to reduced poverty levels, better nutrition, improved health and sanitation, press freedom, and a more

equal income distribution.

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 efforts of national and international governmental agencies as well as other national and international actors. Do their policies and programs benefit the poor? Do their policies and programs empower the marginal to champion their own destinies?

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

Prof. Henry Schwalbenberg
Research Director
Fordham Francis Index Project
Fordham University
Bronx, NY 10458
iped@fordham.edu

Image courtesy of pixabay.com

FROM CRISIS TO STABILITY:
Moving Towards a More Sustainable Model of Global Migration Management Based on International Cooperation, Solidarity, and Catholic Social Teaching

Written by guest contributor, **Mr. Timothy Herrmann,** *Attaché for the Permanent Observer Mission of the Holy See to the United Nations. He serves as the negotiator for the Mission for the UN's Third Committee on Social, Humanitarian, & Cultural Issues.*

The recent global migration crisis and the Global Compact for Migration

Migration is a human phenomenon that will always be with us. According to the United Nations Secretary-General's recent report, there are an estimated 258 million international migrants.[1] While the vast majority of this migration is voluntary, in many situations, individuals are forced to flee their homeland or find themselves displaced in their own country. In 2017 alone, over 68.5 million people were driven from their homes.[2] Starting in 2015, many European countries were overwhelmed by the marked increase in mixed flows of both regular and irregular migrants and the huge number of forcibly displaced crossing their borders. This led to a major humanitarian and political crisis, particularly in the Mediterranean basin. Even though the immediate pressures of the crisis have diminished through regional agreements consisting of various short-term solutions, the crisis has still not been adequately resolved.

Migration crises are not limited to the Mediterranean. Recently, there has been a significant increase of similar crises in Africa, Asia, and the Americas. In each case, countries of origin, transit, and destination have found themselves underprepared and often at odds in their collective management of the increasing numbers of those forced to flee. If we have understood anything from the most recent crises, it is that no State can manage migration alone and that effective migration management demands international cooperation.

It is one thing to work to better manage future crises, it is another is to avoid them. Further still would be the possibility of putting together a global framework that will allow the international community to manage mixed migration flows inside and outside times of

crisis. This is the purpose of the Global Compact for Migration, a recently negotiated outcome that was agreed to at the United Nations and that will soon be formally adopted in Marrakesh, Morocco in December of 2018 by heads of state and government.

The Holy See and the 20 Action Points

The Holy See was actively engaged throughout the entire intergovernmental process leading to the creation of the "Global Compact for more safe, orderly, and regular migration".[3] Indeed, even before negotiations began, the Holy See was involved in its own preparatory process, led by the section for Migrants and Refugees under the Dicastery for Promoting integral human development. As a response to the crisis, the section, overseen personally by Pope Francis, put together the "20 Action Points".[4]

The Points represent a comprehensive set of best practices born from the experiences of local diocese and Catholic organizations working with migrants, their families, and migrant communities both at home and abroad. They also provide a holistic approach to migration management based in Catholic social teaching and practical experience. As promoted by Pope Francis, the Points are meant to serve as a resource for governments and local communities to better "welcome, promote, protect, and integrate" every migrant, throughout their migratory journey.

Each of these words are action verbs chosen by Pope Francis. They were also chosen as headings to the main sections that make up the Points. Each represents an important phase in the migration journey and is "a call to action". As stated in the introduction to the document, "their ultimate goal is the building of an inclusive and sustainable common home for all."

Image courtesy of pixabay.com

The Holy See and the Global Compact for Migration

The impact of the 20 Action Points on the final draft of the Global Compact is immediately apparent. Not only did they clearly influence the very structure of the Compact, which consists of 23 objectives, but each objective contains many of the same best practices and policy instruments promoted within the 20 Action Points document. Even more importantly, many of the key concepts that guide the Compact clearly find their basis in Catholic social teaching on migration. The following are some important examples:

1. *The right to migrate and the prior right not to migrate*

One of the main purposes of the Global Compact is to ensure that migration is both safe and voluntary, and to prevent it from becoming an act of desperation. This means bringing the international community together to respond to the needs of local

communities and "create conditions that allow [those] communities and individuals to live in safety and dignity in their own countries". This particular phrase was first introduced by the Holy See during the negotiation of the New York Declaration for Refugees and Migrants and later included in the first draft of the Global Compact without ever needing to be renegotiated.

The principle has a long history in Catholic social teaching, likely first tracing itself back to Pope Leo XIII's encyclical *Rerum Novarum (1893)* and his insistence on the right of a person to work to survive and support their family. However, it is most recently and clearly articulated by Saint Pope John Paul II and Pope Emeritus Benedict XVI in a number of their discourses, including those delivered on World Migration Day.

In one particular discourse,[5] Pope Emeritus Benedict XVI, referring directly to Saint Pope John Paul II, recalls the fundamental human right of persons to migrate, as laid out in paragraph 65 of *Gaudium et Spes.* He then goes on to specify that even before the right of persons to migrate, there is the "need to reaffirm the right not to emigrate, that is, to remain in one's homeland". Quoting Saint John Paul II even further,

UN Photo by: IOM/Keith Dannemiller

he reminds us that, "it is a basic human right to live in one's own country. However this right becomes effective only if the factors that urge people to emigrate are constantly kept under control."[6]

For this reason, throughout the negotiation of the Global Compact, the Holy See insisted not only on the need to increase regular pathways for migration, but also on the need for States to fulfill their obligations to provide for the integral human development of all. The Holy See also insisted on the obligation of States to create the necessary conditions for the peace, security, and economic opportunity of their own citizens. This approach was supported by all States present in the room and led to the inclusion of an objective on regular pathways and an objective on addressing the adverse drivers that force individuals to leave their country of origin.

2. A human centered approach to migration

Before it becomes a question of international cooperation and management, migration is a human phenomenon; and those compelled to leave their homes are the first to suffer. Before they are received by a host community, the migrant embarks on a harrowing journey at the risk of their life in search of peace, security, and prosperity both for themselves and their families. This is why the Church has always been perceived as being concerned first and foremost with the plight of the migrant and the protection of their human rights, as well as the promotion of their safety and dignity both at home and throughout their journey.

While the Holy See strongly supports the sovereign right of all States to determine their own migration policy, States must do so in full respect for the human rights of every migrant, regardless of status. This approach was reflected throughout the draft and led to the promotion of access for all migrants to basic

Image courtesy of pixabay.com

The Global Compact and the Francis Global Poverty Index Report

The Compact is the first of its kind. It is an internationally agreed political framework that includes a set of common objectives, concrete actions, and policy options that provide a long term and comprehensive approach to global migration management. Part of that comprehensive approach is to take into consideration the migration journey from start to finish, including by addressing those adverse drivers and root causes of migration. Many of those factors, such as religious freedom, access to housing and food, water, education, and employment, as well as political participation and inclusion are measured by the *Francis Global Poverty Index.*

As the global community approaches the formal adoption of the Global Compact and its implementation, the *Francis Global Poverty Index* will not only be a helpful tool in measuring its success, but should also be used to help point out where the Compact might be improved. All of this with the added benefit of the index using criteria based on Catholic social teaching and complimenting the work already done by the Holy See during the negotiation of the Compact.

services as well as the prohibition of forced returns in situations in which the right to life of the migrant is at risk.

3. *Migration as a "two-way" process*

Similarly, the Holy See has always emphasized that migration, especially in the case of local integration, is a two way process. Not only do the migrant and the host community have a mutual responsibility to respect one another's culture, but they also should not find themselves in a situation of "mutual isolation" which leads to the creation of ghettos. The host community stands to gain from the culture of those that arrive, while migrants have the duty to remain open to the culture and traditions of the receiving country and observe its laws. This idea of mutual respect and rejection of "mutual isolation" is reflected in the final draft of the Compact, particularly in Objective 16, "Empower migrants and societies to realize full inclusion and social cohesion".

_____

[1] "Making migration work for all", Report of the UN Secretary-General Antonio Guterres (2017)

[2] UN Refugee Agency's annual "Global Trends" study (2017)

[3] While known commonly as the Global Compact for Migration, the official name by which the compact will be adopted is the "Global Compact for safe, orderly and regular migraiton" (A/RES/72/244)

[4] https://migrants-refugees.va/20-action-points-migrants/

[5] Message of His Holiness, Pope Benedict XVI for the World Day of Migrants and Refugees (2013)

[6] Address of His Holiness, Pope John Paul II to the Fourth World Congress on the Pastoral Care of Migrants and Refugees (1998)

POPE FRANCIS' PRIMARY INDICATORS

P ope 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 managed to overcome caveats in the previous year's report by identifying and updating our measure of 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 mapped the data to better visualize geographical disparities around the world. We also documented 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 six targets associated with various UN Sustainable Development Goals (SDG's). The targets we examined were: poverty, infant mortality, maternal mortality, sanitation, income equality, and corruption.

Through this process, we were able to document that these seven primary indicators are indeed correlated with the aforementioned 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, 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.

9

WATER

We estimate that in 2015 roughly 844 million people, or 11.5% of the world's population, lack access to drinking water.

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.

> "[A]ccess to safe drinkable water is a basic and universal human right, since it is essential to human survival and, as such, is a condition for the exercise of other human rights."
>
> *- Pope Francis, Carta Enciclica Laudato Si (2015)*

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 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 2015, the WHO/ UNICEF Joint Monitoring Programme (JMP) for water and sanitation database provided us with data

(c)UNICEF/UN0161971/Ayene

covering 216 countries.

International Distribution of Needs

Table 1 lists the ten countries whose populations have the least access to improved water sources. As the table shows, nine out of the ten countries most

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

Rank	Country	% No Access (2015)	Population (in Million)
1	Eritrea	80.7	3.9
2	Papua New Guinea	63.4	5.0
3	Uganda	61.1	24.5
4	Ethiopia	60.9	60.0
5	Somalia	60.0	83.4
6	Angola	59.0	16.4
7	Democratic Republic of the Congo	58.2	4.4
8	Chad	57.5	8.1
9	Niger	54.2	10.8
10	Mozambique	52.7	14.8
	WORLD	**11.5**	**843.7**

Figure 1: Map of the percentage of the population with basic access to drinking water

Legend

% Population with Basic
Access to Drinking Water

- 19.3 - 74.1
- 74.3 - 93.3
- 93.5 - 97.9
- 97.9 - 99.9
- 99.9 - 100

deprived of access to drinking water are in Africa, while the second most drinking water-deprived country—Papua New Guinea—is in Oceania.

The map in Figure 1 shows the percentage of each country's population with basic access to drinking water from an improved source, with 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.

UN's Sustainable Development Goals

The importance of human access to improved drinking water sources 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. And, as might be 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.**

(*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 2015 nearly 800 million people, or close to 11% of the world's population, are undernourished.

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

(c)UNICEF/UN058723/Mukwazhi

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 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

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

Rank	Country	% Without Adequate Nourishment (2015)	Population (In Million)
1	Central African Republic	58.6	2.7
2	Haiti	46.8	5.0
3	Zambia	45.9	7.4
4	Zimbabwe	44.7	7.1
5	Liberia	42.8	1.9
6	Madagascar	42.3	10.3
7	Rwanda	41.1	4.8
8	North Korea	40.8	10.3
9	Uganda	39.0	15.7
10	Chad	32.5	45.5
	WORLD	**10.7**	**788.8**

Figure 2: Map of the percentage of the population with adequate access to food (2015)

Legend

% Population with Adequate Access to Food

	41.4 - 80.9
	82.5 - 90.9
	91.5 - 95.4
	95.4 - 97.5
	97.5 - 97.5
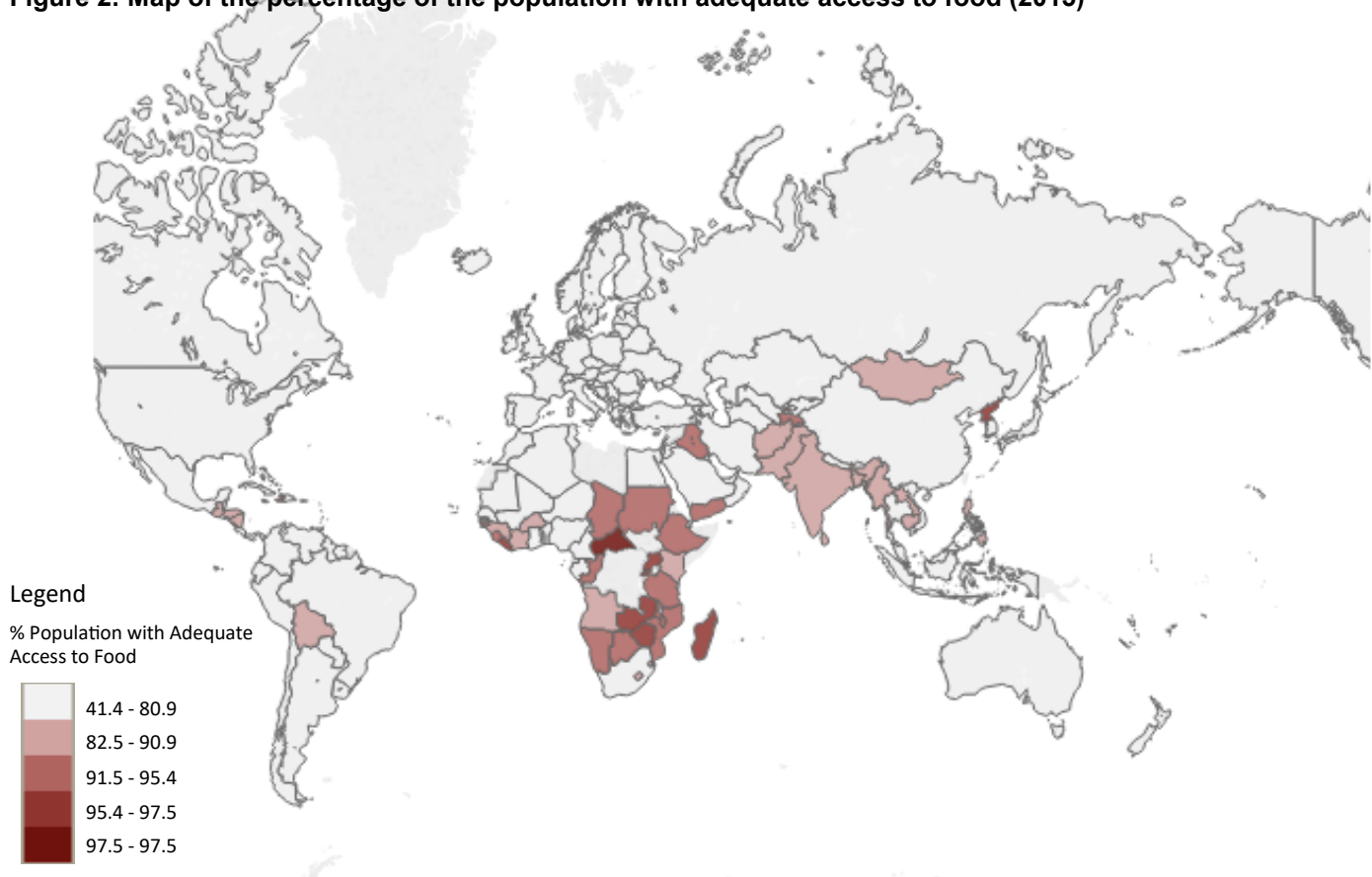
unable to consume enough food to meet dietary energy requirements. The data for prevalence of undernourishment is obtained from the UN Food and Agriculture Organization (FAO). The FAO reports the data as three-year averages and is available every two years for 170 countries.

International Distribution of Need

Table 2 indicates that nine of the ten countries that most lack adequate nourishment are located in Sub-Saharan Africa. Using averaged data over a three-year period from 2014-2016, 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 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 the infant mortality rate.

(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 2015 nearly 2 billion people, or 26% of the world's population, lack adequate housing.

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

Since the 2017 report, we have used *Access to Adequate Flooring* to be the proxy for adequate housing. The definition of flooring is that if the flooring material used in a house is made up of dirt, dung, or sand, the

> "We can find no social or moral justification...no justification whatsoever, for lack of housing."
>
> *- Pope Francis, Meeting with the Homeless (2015)*

Source: UNICEF

home is considered not to meet minimum standards. The reasons for selecting this measure are three-fold. First, flooring is much less correlated with other measures of material well-being. Second, it is fairly simple to walk into a house and determine whether or

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

Rank	Country	% Inadequate Housing (2015)	Population (In Millions)
1	Chad	84.6	11.8
2	Ethiopia	82.6	82.5
3	South Sudan	81.5	2.2
4	Niger	79.8	15.9
5	Burundi	76.4	7.8
6	Central African Republic	69.5	3.2
7	Democratic Republic of the Congo	68.7	52.4
8	Somalia	64.4	9.0
9	Mali	63.8	11.1
10	Guinea-Bissau	62.8	1.1
	WORLD	**26.3**	**1,938.2**

not the floor is made of dirt, dung, or sand, making it a reliable measure. Thirdly, the quality of flooring indicates an ability to provide a secure and healthy home environment for its members. This same measure is used for this year's report.

We obtained our data on access to adequate flooring from the Oxford Poverty & Human Development Initiative. The database was started in 2010 and contains data ranging back to 2003. Their most recent data for 2015 covered 106 countries.

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 flooring. It is easily seen that housing deprivation is highly concentrated in the dark green areas of Sub-Saharan Africa.

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. And with regard 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

Figure 3: Map of the percentage of individuals with flooring in their homes not made of dung, sand, or gravel (2015)

Legend
% Population with Adequate Flooring

- 15.4 - 59.5
- 60.6 - 86.5
- 87.0 - 97.7
- 97.8 - 99.8
- 99.8 - 100
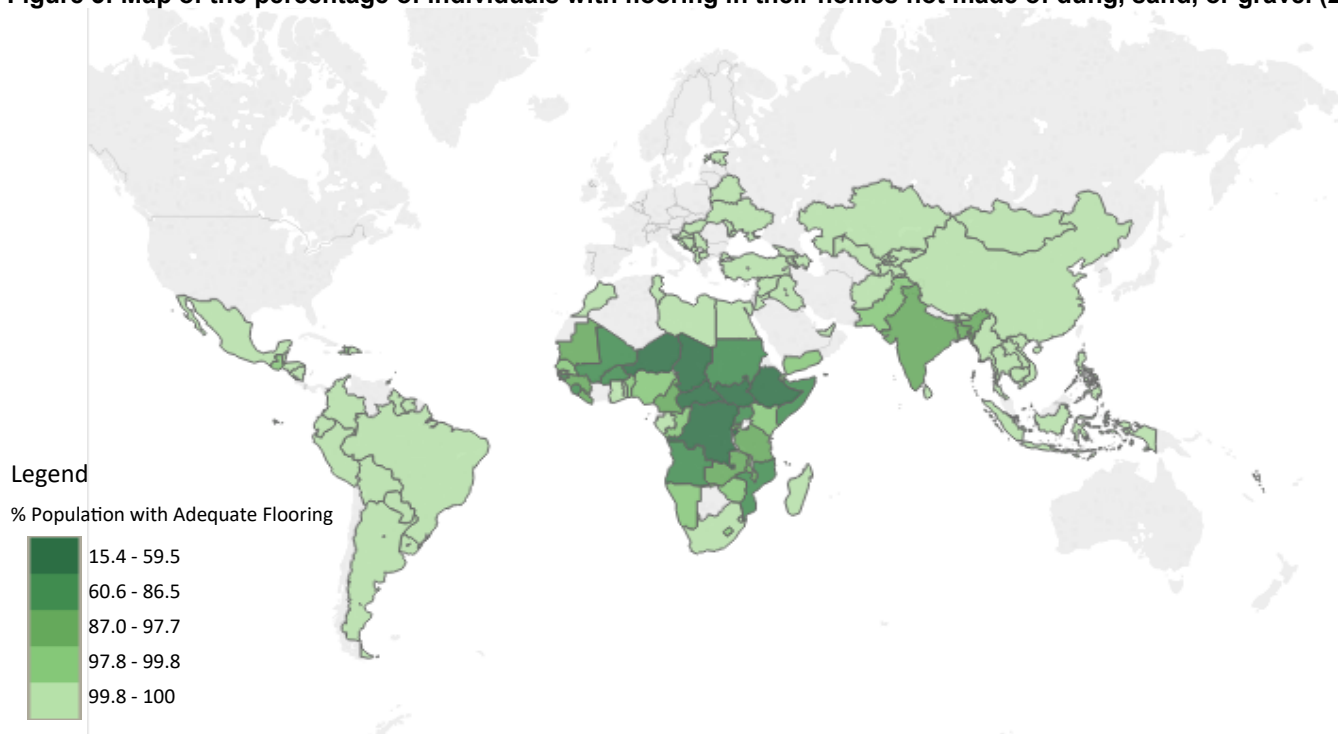
positive and statistically significant relationship between access to housing and access to sanitation.

(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 2015 more than 400 million people, or nearly 6% of the world's population, suffer from unemployment.

The last material indicator selected by Pope Francis was employment. According to Pope Francis, government leaders should ensure that everyone has 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 society. As such, employment is required to facilitate this development.

Our selected metric is 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. For 2015, the World Bank provided unemployment rate data covering 183 countries.

> "Work is fundamental to the dignity of a person."
>
> *- Pope Francis, Address on the Feast of St. Joseph the Worker (2013)*

International Distribution of Needs

Table 4 lists the ten countries in the world with the highest reported unemployment rates. Most of the worst performing countries are located in Sub-

(c)UNICEF/UNI189046/Awekofua

Saharan Africa and southeast Europe, both of which are regions that have been prone to chronic conflict for several decades. Meanwhile, Greece is still recovering from the financial crisis of 2007-2008, which resulted in a large exodus of job opportunities, and the Solomon Islands struggles to develop its fishing economy due to lack of transportation and tourism infrastructure.

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

Rank	Country	Unemployment Rate (2015)	Population (In Millions)
1	Solomon Islands	31 .4	0.2
2	Gambia	29.6	0.6
3	Namibia	29.9	0.7
4	Lesotho	26.5	0.6
5	Bosnia and Herzegovina	26.3	0.9
6	Macedonia	26.1	0.5
7	Swaziland	25.8	0.3
8	South Africa	25.1	13.9
9	Greece	24.9	2.7
10	Mozambique	24.7	7.5
	WORLD	**5.9**	**434.5**

Figure 4: Map of the percentage of the total labor force with employment (2015)

Legend

Employment Rate

- 68.6 - 86.9
- 87.2 - 91.6
- 91.8 - 94.0
- 94.1 - 96.1
- 96.2 - 99.8

Using 2015 data from the World Bank, the dark teal areas of the map in Figure 4 indicate concentrations of low employment levels across Africa, the Middle East, and parts of Europe.

UN Sustainable Development Goals

Perhaps because it effects many of the UN Sustainable Development Goals indirectly through other variables, we have not yet been able to establish a statistically significant relationship between employment and some of the UN Goals that are related to water, food, and housing. The employment rate, however, is a direct measure of achieving the eighth UN Sustainable Development Goal of **Decent Work and Economic Growth**.

(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: religious freedom, education, and other civil rights (gender equity), respectively. We will describe the choice of statistics we used to measure each indicator, 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 1.4 billion adults, or nearly 20 percent of the world's population, were illiterate in 2015.

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

(c)UNICEF/UN051558/Tremeau

> "Only by changing education can we change the world."
> - *Pope Francis, Address To Members of the Gravissimum Educationis Foundation (2018)*

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

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

Rank	Country	Illiteracy Rate (2015)	Population (In Millions)
1	Niger	84.5	16.8
2	Guinea	74.7	9.0
3	Chad	74.0	10.4
4	Benin	71.3	7.5
5	Afghanistan	68.3	23.0
6	Mali	66.9	11.7
7	Burkina Faso	65.4	11.8
8	Central African Republic	63.2	2.9
9	Ethiopia	61.0	60.9
10	Ivory Coast	59.0	13.6
	WORLD	**19.3**	**1,422.5**

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 2010-2015. A total of 147 countries had data for this time period from UNESCO's database.

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 that is located in Asia.

Figure 5 shows a map of adult literacy rates around the world in 2015. Counties with the lowest literacy rates are shaded in dark pink and seem to be concentrated in equatorial Africa and sporadically in Asia.

UN Sustainable Development Goals

Like water, food, and housing, 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

Figure 5: Map of adult literacy rates as a percentage of the population (2015)

Legend

Adult Literacy Rate (% of Population)

15.5 - 68.3
68.8 - 85.9
87.7 - 84.7
94.9 - 98.4
98.5 - 100
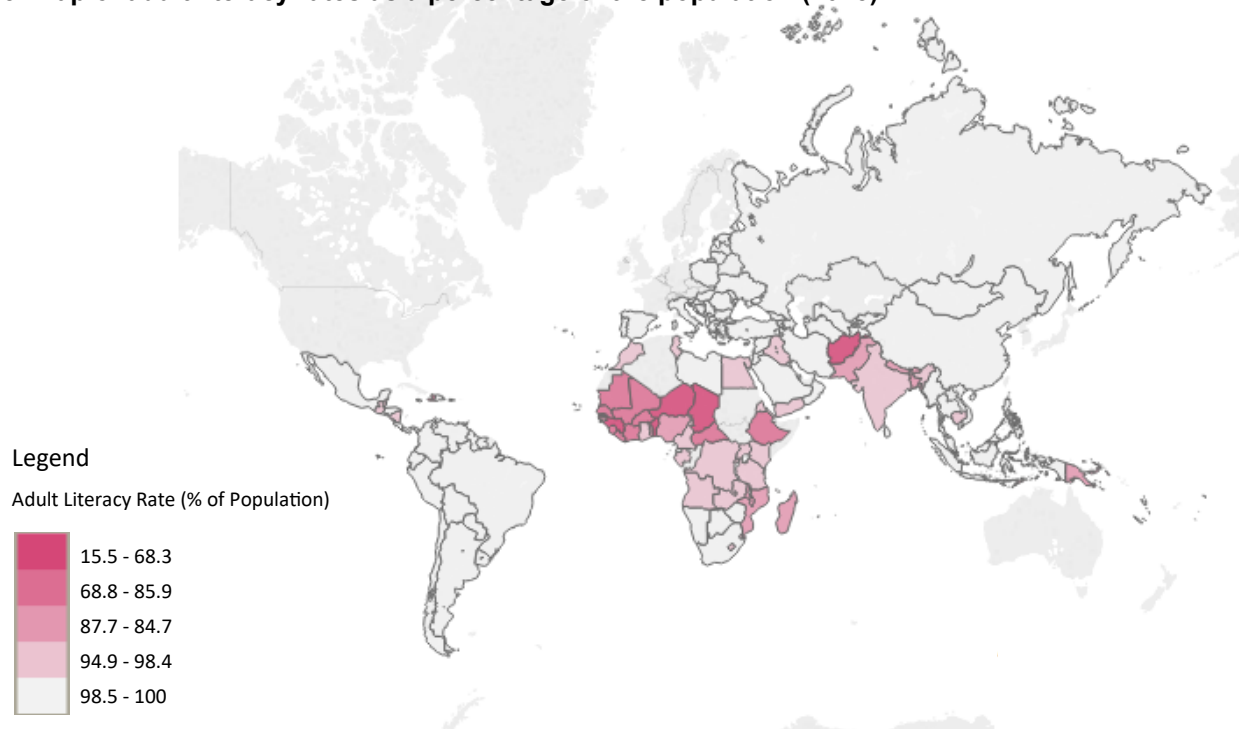
to reductions in both infant and maternal mortality rates. Related to the UN's sixth goal of **Clean Water and Sanitation**, we also found a positive relationship between education and access to better sanitation.

(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 2014 we were able to estimate nearly a billion adult women, accounting for a little more than one third of the world's female adult population, consider certain forms of domestic violence against women an acceptable practice.

In promoting civil rights to life, dignity, and 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.

(c)UNICEF/UN0215366/Vishwanathan

> "Violence against women is 'a plague'."
>
> *- Pope Francis, Homily in Peru addressing Latin America's Faithful (2018)*

For this year's report, we have chosen to use *the percentage of women who agree that a husband/partner is justified in beating his wife/partner under certain circumstances*. A climate of violence against women can clearly marginalize and exclude women from their rights to life, dignity, and development. We obtained data for this measure from the Organization for Economic Cooperation and Development (OECD). For 2014, they provided data for 124 countries.

Previous work done by Fordham researchers in 2016 used the Youth Gender Parity Index as the gender measure for the FFI. This statistic measured the ratio of female youth literacy rates relative to male youth

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

Rank	Country	Female Acceptance of Domestic Violence (2014)	Population (In Millions)
1	Guinea	92.0	3.1
2	Afghanistan	90.0	7.8
3	Mali	87.0	3.9
4	East Timor	86.0	0.3
5	Laos	81.0	1.8
6	Central African Republic	80.0	1.0
7	Democratic Republic of the Congo	76.0	15.2
8	Congo	76.0	1.1
9	Somalia	76.0	2.8
10	Gambia	75.0	0.4
	WORLD FEMALE ADULT POP'N	**36.8**	**966.2**

Figure 6: Map of the percentage of women who disagree that a husband or partner is justified in beating his wife/partner under certain circumstances (2015)

Legend

% Adult Women Population Who Disagree Beating is Justified

- 8 - 44
- 45 - 62
- 62 - 79
- 79 - 89
- 89 - 97
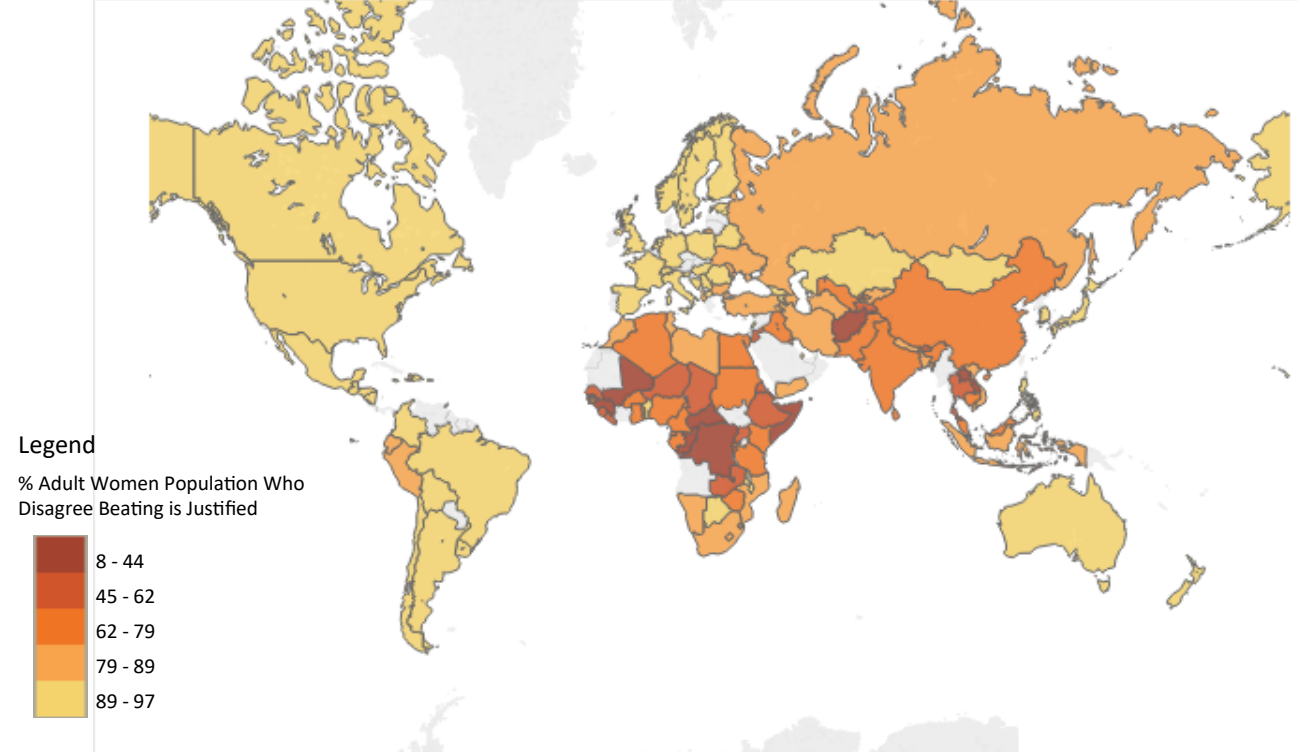
literacy rates between the ages of 15 and 24. Unfortunately this measure of female inclusion in education was closely correlated with our measure of education, adult literacy. In fact we found that our gender indicator was nearly 90% correlated with our education indicator, meaning that our gender measure simply duplicated our education measure for the most part, adding very little additional information to the Fordham Francis Index (FFI). We therefore attempted in 2017 to try another measure of female inclusion in some other significant aspect of society besides education.

For last year's 2017 report we chose to use 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.

In early 2018, Pope Francis spoke out on violence against women, calling it "a plague" that needs to be combated across the globe. He furthermore said "I'm calling on you to fight against this source of suffering including legislation and a culture that rejects every type of violence." We therefore decided that for the 2018 report we would look at violence against women as a more fundamental measure of human spiritual poverty than the lack of political participation.

International Distribution of Needs

Table 6 highlights the top ten nations with the highest percentages of women who agree that beating is justified. Of these ten countries, seven are in Africa, two are in Asia and one is in the Middle East.

Figure 6 provides a visual representation of the percentage of women who disagree that a husband or partner is justified in beating his wife/partner under certain circumstances in 2014. The map indicates that the darker the shade, the less women disagree that beating is justified—hence the more women agree that beating is justified, representing lower levels of gender equity. The map shows that that low levels of gender equity are most heavily concentrated in Africa, the Middle East, and Asia.

UN Sustainable Development Goals

The percentage of women who agree that beating women is justified is a direct measure of the fifth UN Sustainable Development Goal of **Gender Equality**. We also showed that an increase in gender equity is correlated with a statistically significant decrease in maternal mortality and infant mortality, which relates to the third UN Development Goal of **Good Health**.

(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 2015 we estimated that nearly 3 billion people lived in countries where religious freedom is highly restricted. These are countries whose scores on religious freedom are within the lowest quintile or bottom 20% in the world.

"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)*

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

(c)UNICEF/UNI20765/Pirozzi

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

Rank	Country	Religious Freedom (2015)
1	Egypt	1.3
2	China	1.4
3	Iran	1.5
4	Russia	1.8
5	Malaysia	2.0
6	Uzbekistan	2.0
7	Saudi Arabia	2.3
8	Indonesia	2.4
9	Syria	2.4
10	Morocco	2.5
	Bottom Quintile	**2,838 million peo-**

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 data verification checks and obtains its data from

Figure 7: Map of Religious Freedom (2015)

Legend

Government Restriction Index

- 1.3 - 4.8
- 4.9 - 6.9
- 6.9 - 7.8
- 7.8 - 8.7
- 8.8 - 9.8
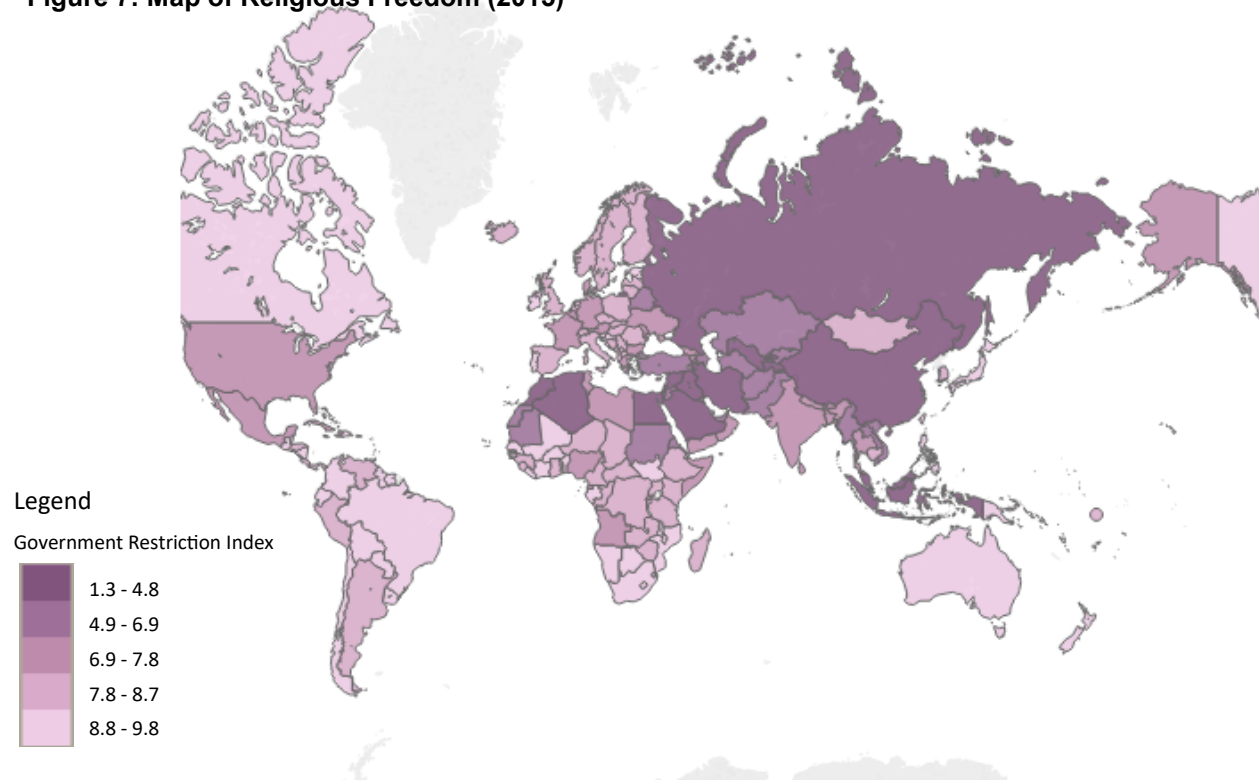
various government and independent sources giving us confidence that the Government Restrictions Index (GRI) is reliable, consistent and comprehensive.

For the year 2015, the Pew Research Center provided data covering 198 countries.

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 North Africa and the Middle East, two in Eurasia, and three in Asia.

Figure 7 is an international mapping of religious freedom for 2015. Lack of religious freedom, shown in the dark areas on the map, is concentrated in the Middle East and in large parts of Asia.

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 and lower income inequality. Governments that demonstrate religious tolerance also tend to show more tolerance towards the press and exist in societies with a more equal distribution of income.

(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 0.60 or more is deemed high, meaning that the two indicators are too strongly correlated, either positively or negatively. We calculated the correlation coefficients for each pair of primary indicators. The results are presented in a correlation matrix (Table 8).

Boxes highlighted in yellow contain correlation coefficients that exceed the absolute value of .60 or 60%. The 2016 correlation matrix showed very high levels of correlation between gender and housing with other indicators. This prompted our selection of different measures for the aforementioned indicators in the 2017 report with housing represented by

Table 8: Correlation Matrix – Correlation Coefficients of the Seven Primary Indicators in the FFI (2015)

	Water	Food	Housing	Employment	Education	Gender	Religious Freedom
Water	1						
Food	0.70	1					
Housing	0.84	0.60	1				
Employment	-0.06	-0.05	-0.20	1			
Education	0.68	0.49	0.77	-0.14	1		
Gender	0.65	0.05	0.55	-0.10	0.60	1	
Religious Freedom	-0.05	-0.10	-0.18	-0.16	-0.12	0.19	1

flooring and gender represented by political participation. These changes enabled us to remove all indicators that were very highly correlated at 80% or 90%. Their removal subsequently improved the robustness of that year's Fordham Francis Index.

This year, due to the question of whether women's political participation captured a basic need, the 2018 report used a new measure capturing violence against women. This new measure provides advantages and disadvantages over the political participation measure used last year. Although the measure seems to better capture Pope Francis' desire to promote basic needs, political participation provided more coverage and highlighted gender inequality in Asia. Therefore in the 2017 report, the material index was more deficient in Africa, and the spiritual index was more deficient in Asia. This year, the material and spiritual indices are both lower in Africa. Additionally, as seen on the correlation matrix from the 2017 report, women's political participation is not highly correlated with any other indicators. While in this year's report, violence against women shows a strong correlation with both water and education.

An analysis of the correlation matrix shows that the water measure is still strongly correlated with both our food and housing measures, as well as education and gender. This suggests the primal importance of water in a person's well-being. Additionally, housing and gender show a strong correlation with education, suggesting an important relationship between housing and education and gender and education. Finally, as was the case in the 2016 and 2017 FFI reports, it is worth noting that religious freedom has very low levels of correlation with any of the other primary indicators. 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, as a means of measuring

development. Other development indexes, such as economic income or the UN Human Development Index (HDI), exclude religious freedom and other political dimensions that are included in the FFI. By including religious freedom and other civil rights 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, employment does not correlate to any of the SDGs we have considered to date. While the other six indicators—water, food, housing, education, gender and religious freedom—all show strong correlation with multiple SDGs. This result suggests our measure of employment is inadequate and that next year, we may wish to consider other measures of employment.

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

Table 9: Measurement parameters for each indicator

	Minimum	Maximum
Water	13.2	100.0
Food	41.4	97.5
Housing	15.4	100.0
Employment	68.7	99.8
Education	15.5	100.0
Gender	8.0	97.0
Religious Freedom	0.9	10.0

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 =

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

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 =

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

As was the case with the Material Well-being Index,

we gave equal weight to all three components when computing the Spiritual 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:

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

Fordham Francis Index =

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

Data collected for each indicator were from 2015, except in the instance of gender and food. The gender measure utilizes data from the year 2014, and the food measure is reported as a three-year average from 2014-2016. The year 2015 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 housing variable was the most limiting variable with only 106 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). This is 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^2 values imply that only 48% and 61% of the variation in values of the Material Well-being Index (MWI) are explained by economic well-being or the Human Development Index (HDI),

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^2	
Economic Well-being (GDP per Capita in log form)	0.13 (9.19)	0.48	A 1% increase in per capita income is associated with a 0.13% increase in the MWI
Human Development Index	1.17 (11.97)	0.61	An increase in the HDI by .01 is associated to an increase of .0117 in the MWI

respectively. 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 only 48% of changes in Material Well-being Index as measured by Pope Francis' primary

indicators. Therefore, other factors, such as government policy, can explain the remaining 52%. For instance, Namibia and Belarus have similar levels of income, yet there is a large difference in their Material Well-being Index (MWI) scores (0.45 and 0.99, respectively). Namibia has significantly lower scores in providing clean water and basic housing compared to Belarus, even though both have similar levels of income. The Fordham Francis Index ranks countries who use their economic resources to meet basic material needs higher than countries who may have the same level of resources but decide not to

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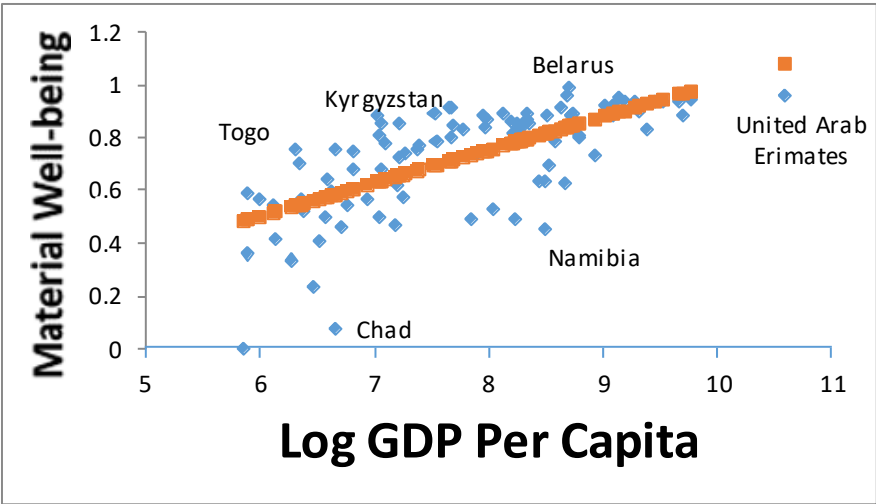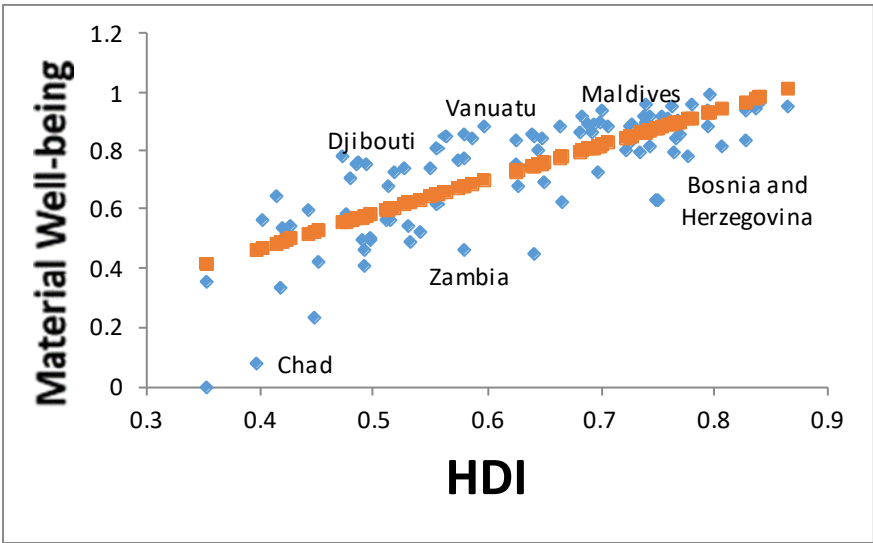

Figure 9: Regression results of the Material Well-being Index (MWI) and the Human Development Index (HDI)


28

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) scores but converge at the upper end of the UN Human Development Index (HDI) range (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 Djibouti which has a low Human Development Index (HDI) score of 0.47 but a Material Well-being Index of 0.78. Alternatively, Bosnia and Herzegovina's Material Well-being Index (MWI) score is 0.63 while its HDI is 0.75. The former's high Material Well-being Index (MWI) score is primarily due to its relatively high levels of education, food, and water.

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

Figure 10: Material Well-being Index (2015)

Legend

Material Well-being Index

- 0 - 0.56
- 0.56 - 0.75
- 0.75 - 0.84
- 0.84 - 0.89
- 0.89 - 0.99
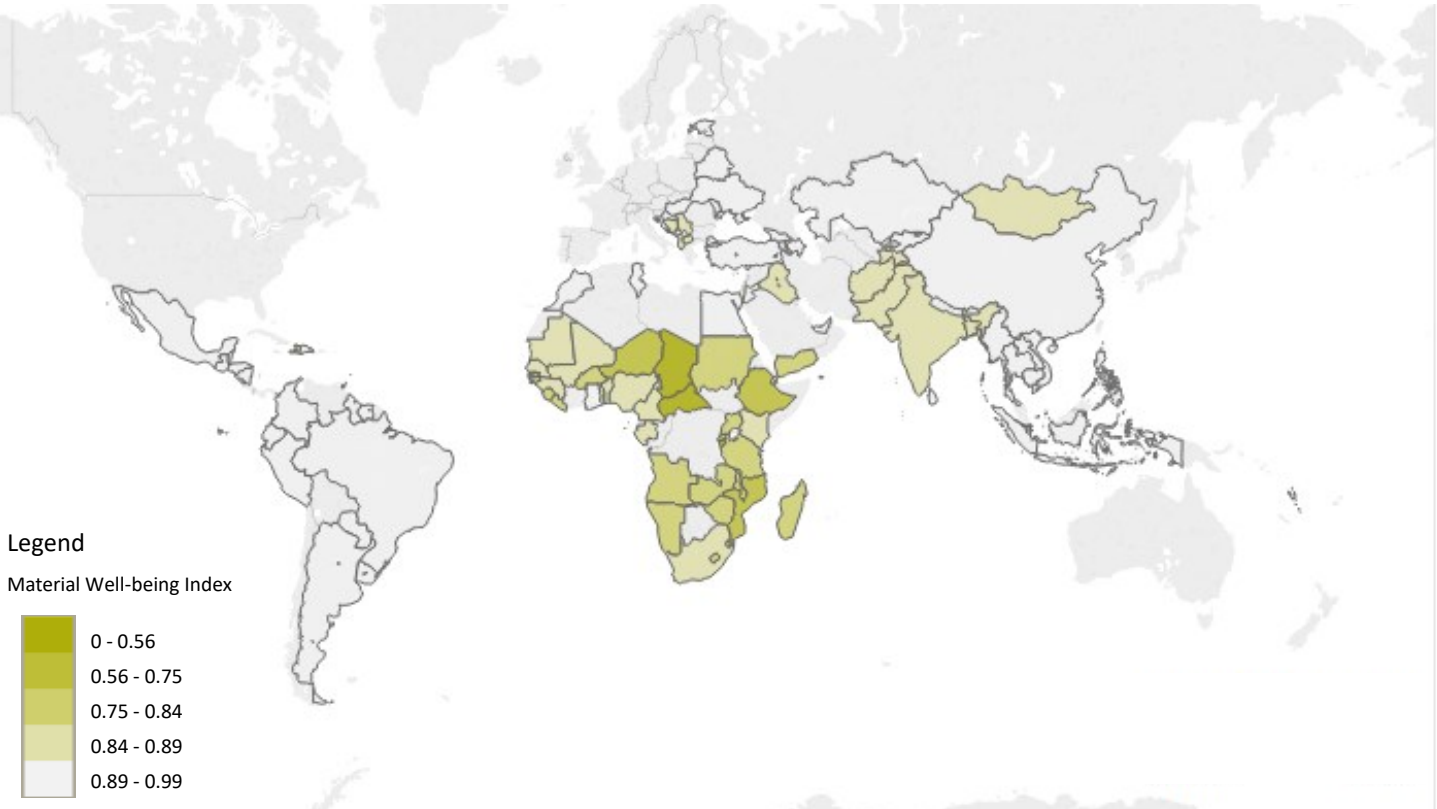
Spiritual Well-being Index

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 a significant positive statistical relationship between our Spiritual Well-being Index (SWI) and both economic well-being and the Human Development Index (HDI) (Table 11). The respective R^2 values of the regressions, however, imply that only 10% of the variation in the Spiritual Well-being Index is explained by either changes in economic well-being or changes 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.

The low R^2 of 24% indicates that Spiritual Well-being has a weak link to Economic Well-being. For example, Mali and Swaziland have similar levels of per capita GDP, but have very different scores on our Spiritual Well-being Index (SWI). Swaziland is an example of a country that does much better than countries with the same level of income, while Mali'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. The Spiritual Well-being Index (SWI) and the Human Development Index (HDI) also demonstrate a significant positive relationship, but again with HDI only explaining 30% 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. Malawi 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. Conversely, Singapore has a high HDI score, but is doing poorly in terms of its Spiritual Well-being Index (SWI) score. While Singapore is performing well in terms of per capita income and literacy, they are among those countries with limited religious freedom. The map in Figure 13 highlights the geographical distribution of Spiritual Well-being Index scores across our sample of 98 countries. Our mapping shows that low SWI scores are largely concentrated around Asia and Northern Africa and the Middle East.

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^2	
GDP per Capita Log form	0.08 (5.55)	0.24	A 1% increase in Per Capita GDP is associated with a 0.08% increase in the SWI
HDI	0.80 (6.48)	0.30	A .01 increase in HDI is associated with a 0.08 increase in SWI

Figure 11: Regression results of Spiritual Well-being Index (SWI) and the log of GDP per capita
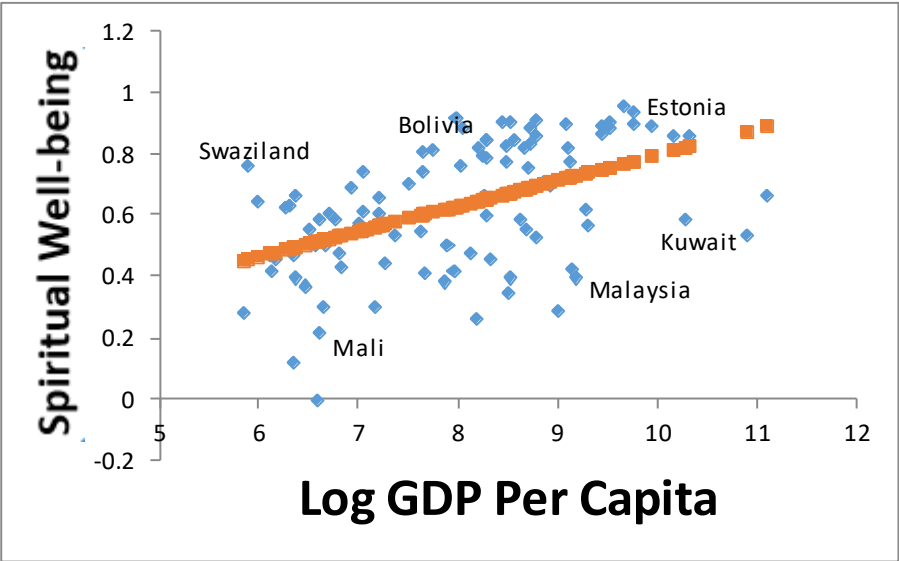
Figure 12: Regression results of Spiritual Well-being Index (SWI) and the Human Development Index
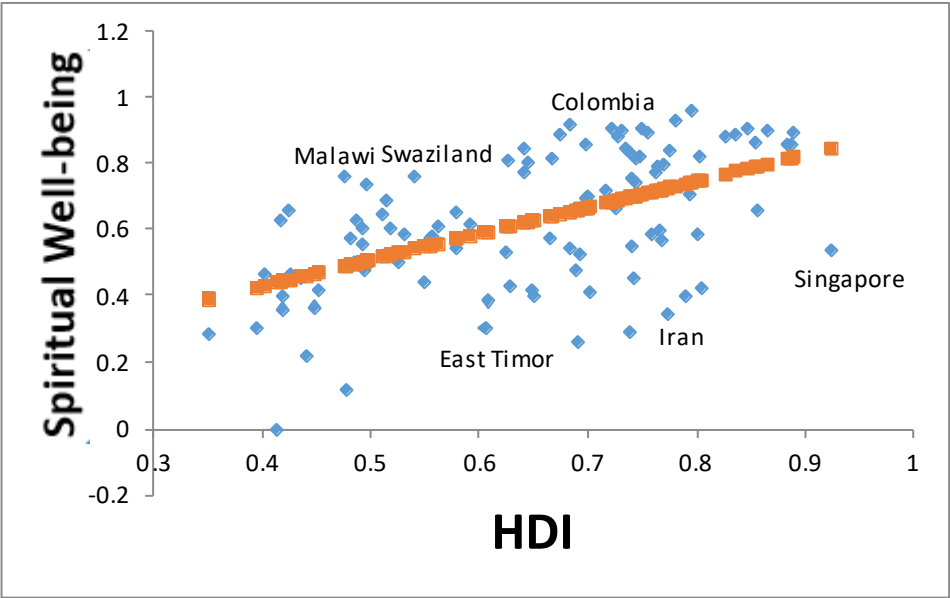
Figure 13: Map of Spiritual Well-being Index (2015)

Legend

Fordham Francis Index

- 0 - 0.46
- 0.47 - 0.58
- 0.58 - 0.71
- 0.72 - 0.85
- 0.85 - 0.96
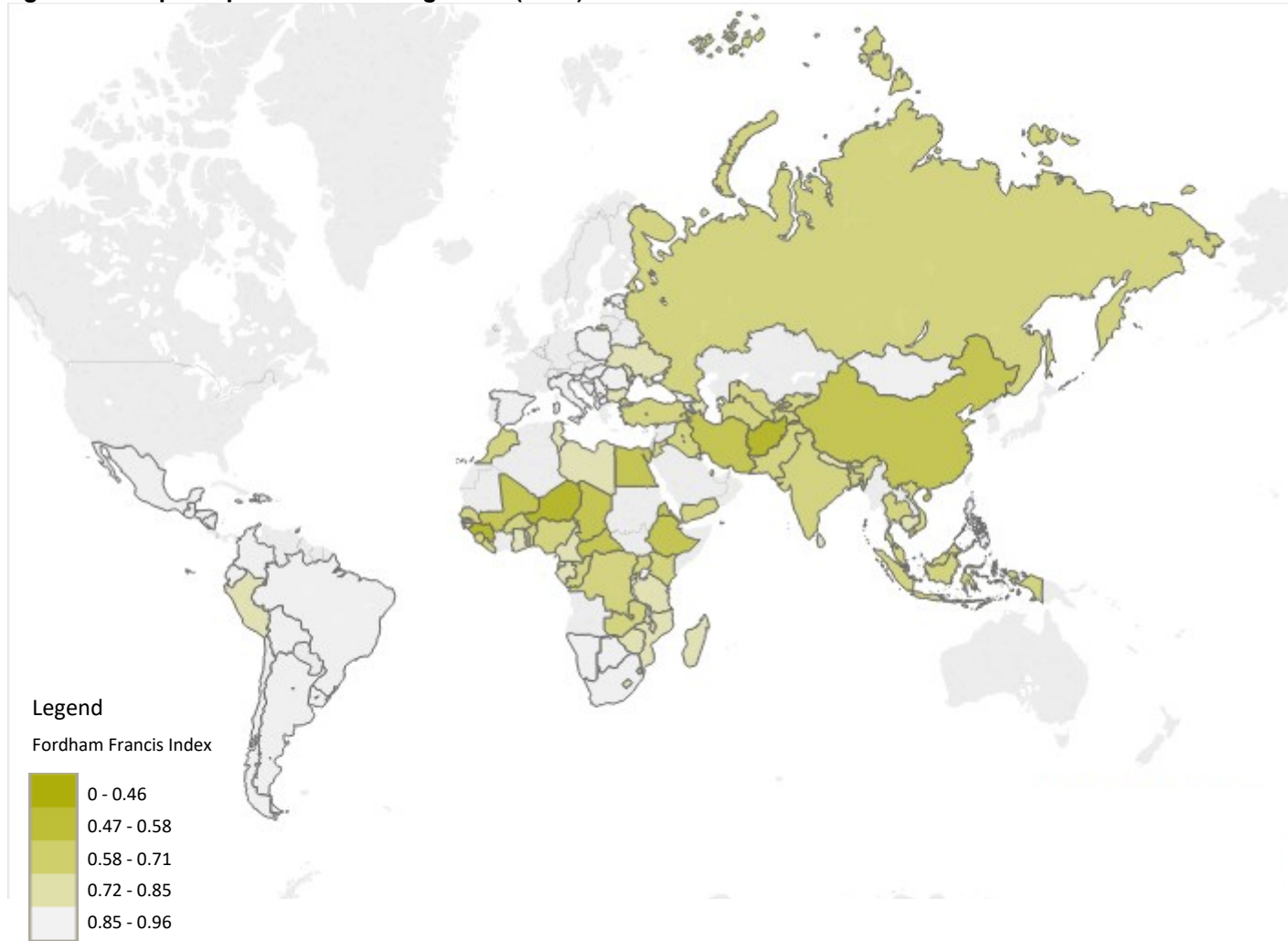
Fordham's Pope Francis Global Poverty Index

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

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

Variables	Fordham Francis Index Coefficient (t-stat)	R^2	Economic Interpretation
Economic Well-being	0.16 (9.73)	0.56	A 1% increase in the log GDP per capita is associated with a 0.16% increase in Fordham Francis Index
HDI	1.36 (11.77)	0.66	A .01 increase in HDI is associated with a .0136 increase in Fordham Francis Index

Human Development Index (HDI) (Table 13). Additionally, the R^2 values of the regressions imply

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

33
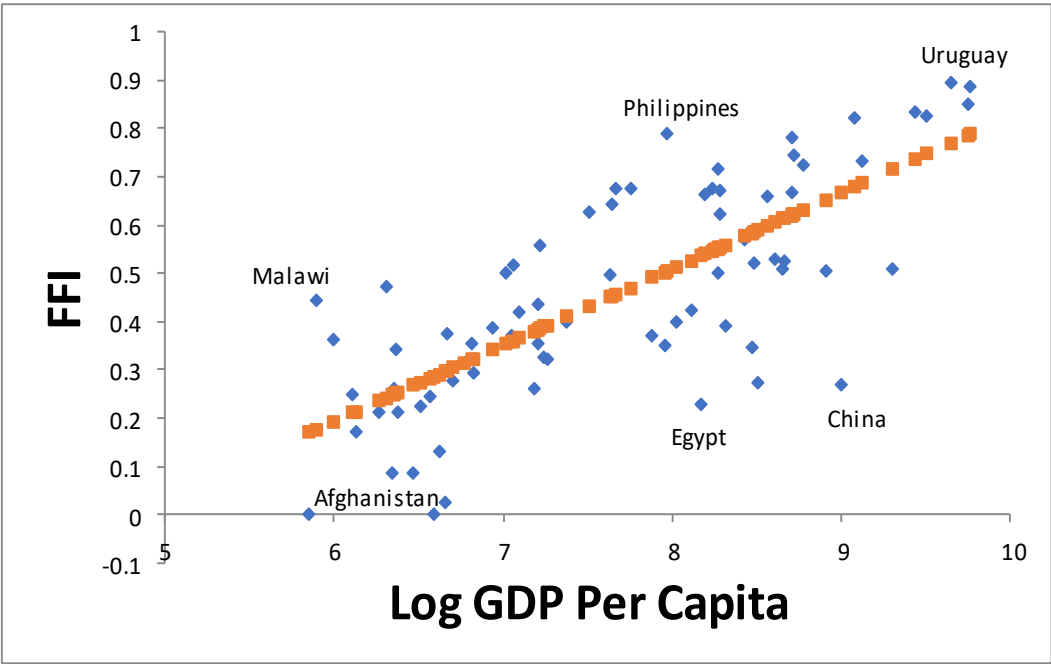
that 56% and 66% of the variation in values of the Fordham Francis Index (FFI) are explained by economic well-being and the Human Development Index (HDI), respectively. This result is due to the additional dimensions captured in the Fordham Francis Index (FFI). These additional dimensions represent its value added and are what make this new index innovative, namely its focus on basic human needs as well as its inclusion of basic spiritual needs and basic material 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, most notably religious freedom. Additionally, for countries at lower levels of economic well-being, there is also a divergence caused by differences in the material primary indicators of water and housing. 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).

The graph in Figure 15 represents the relationship between the Fordham Francis Index (FFI) and the Human Development Index (HDI). It reveals

Figure 15: Regression results of the Fordham Francis Index and Human Development Index
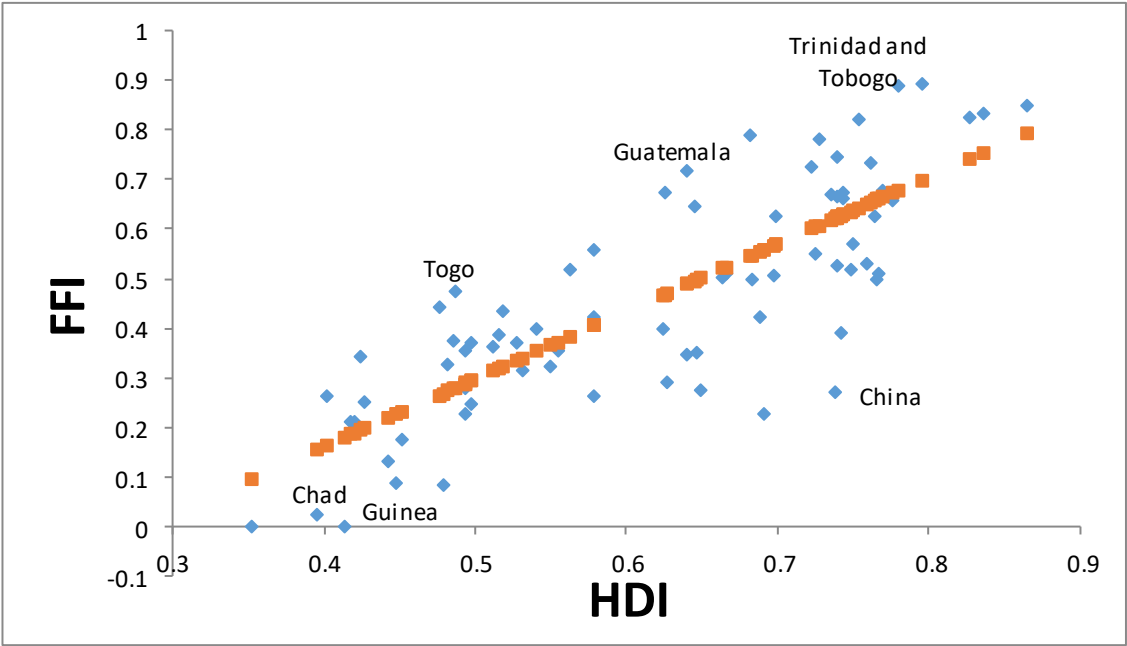
Figure 16: Map of the Fordham Francis Index (2015)

Legend

Fordham Francis Index

- 0 - 0.26
- 0.27 - 0.37
- 0.37 - 0.51
- 0.51 - 0.67
- 0.67 - 0.90
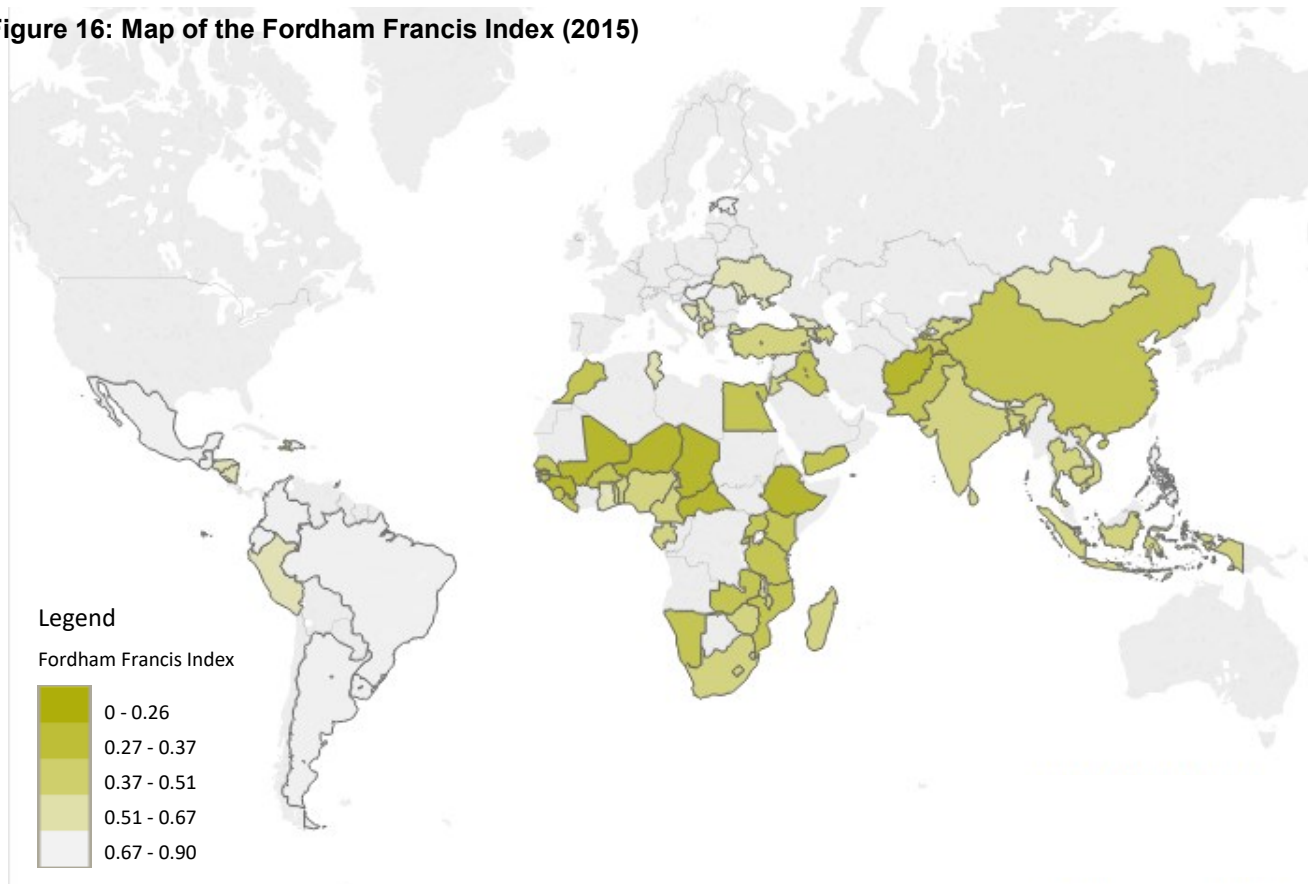
disparities between the two poverty measurements. There are countries, with almost equal scores on the Human Development Index (HDI) that have significantly different scores on the Fordham Francis Index (FFI). Looking closely at some of these interesting pairs, one can see that the variation in Fordham Francis Index (FFI) scores between countries stems from the divergence in spiritual well-being and most notably differences in religious freedom. But there are some countries at the lower levels of economic well-being 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 and housing.

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 76 countries and shows that low Fordham Francis Index scores are largely concentrated in both Africa and Asia.

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.

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

We are not satisfied, however, with our measurement of gender equity (*the percentage of women who agree that a husband/partner is justified in beating his wife/partner under* *certain circumstances)*. Our initial measure of gender equity (parity between literacy between girls and boys) in 2016 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 statistical measure of 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. So for our 2018 report, we chose a measure focused on domestic violence. We like this measure very much; but, unfortunately, it seems that this data may not be available on a regular basis. In our next report, we hope to explore the possibility of using another measure of violence against women that is more consistently available on a regular basis.

We are also not satisfied with our measure of employment (unemployment rate) for two reasons. First, we have found that so far it simply does not correlate well with other measures of the UN's

Do we favor the basic needs of the poor?

36

Sustainable Development Goals (SDGs). Second, we are concerned that it does not adequately reflect the perspective of Pope Francis. In his UN Address, he was not only concerned with the availably of jobs but also with the quality of employment. In next year's report we hope to explore the use of a measure of employment that is weighted by some factor that reflects the quality of employment. Simply put, we are not sure that the unemployment rate in say an European country is measuring the same social phenomenon as the unemployment rate in a Sub-Saharan African country.

For the first time in 2018 we estimated the extent of global poverty. Attempting to build on Pope Francis' perspective we used our selected measures of both material and spiritual poverty. In measuring material poverty, we found that 844 million people lack adequate water, 800 million are undernourished, 2 billion live in substandard housing and 400 million are unemployed. In measuring spiritual poverty, we found that 1.4 billion people can not read and write basic sentences, 1 billion women live in a climate of violence, and that 3 billion live under regimes that severely restrict their religious freedom. In future years we will track whether these measures improve over time.

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

Secondly, 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 the FFI indicators and various SDG targets. Water, Food, Housing, and Education are all highly correlated to reduced poverty levels, and improved health. Water, Housing, and Education are highly related to better sanitation. Gender Equity is related to improved health. Religious Freedom is closely associated with Press Freedom and reduced Income Inequality.

Thirdly, 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.

Do we enable the poor to become "dignified agents of their own destinies?"

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 destinies.

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 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
Level of Poverty	Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population): Poverty headcount ratio at $1.90 a day is the percentage of the population living on less than $1.90 a day at 2011 international prices. As a result of revisions in PPP exchange rates, poverty rates for individual countries cannot be compared with poverty rates reported in earlier editions. - World Bank - http://iresearch.worldbank.org/PovcalNet/index.htm
Maternal Mortality	Maternal mortality ratio is the number of women who die from pregnancy-related causes while pregnant or within 42 days of birth - World Bank - http://data.worldbank.org/indicator/SH.STA.MMRT
Infant Mortality	Infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year. - World Bank - https://data.worldbank.org/indicator/SP.DYN.IMRT.IN
Incidence of TB	Measured as the estimated incidence (all forms) per 100,000 population - WHO - http://www.who.int/tb/en/
Sanitation	Percentage of population who use an adequate/improved sanitation facility. A sanitation facility is considered adequate/improved if it hygienically separates human excreta from human contact. The types of technology that are likely to meet this criterion are: flush to piped sewer system ; flush to septic tank; flush/pour flush to pit; composting toilet; VIP latrine; pit latrine with a slab - WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation - https://washdata.org/data

Corruption	Measured by Transparency International to rank countries by their perceived levels of corruption, as determined by expert assessments and opinion surveys. Measured from 0 (highly corrupt) to 100 (very clean). - Transparency International - http://www.transparency.org/cpi2014/results
Press Freedom	Measured as 0 to 100, with 100 as worst/least free - Reporters Without Borders - https://rsf.org/en/detailed-methodology
Income Inequality	Inequality in income is a distribution based on data from household surveys estimated using the Atkinson inequality index. -UNDP Human Development Index - http://hdr.undp.org/en/indicators/101706
Water Indicator: **Percentage of population who drink improved drinking water.**	Basic access to drinking water services refers to drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing. Improved drinking water sources are those that have the potential to deliver safe water by nature of their design and construction, and include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water - WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation - https://washdata.org/data
Food Indicator: **Prevalence of Undernourishment**	The percentage of the population that is continuously unable to consume enough food to meet dietary energy requirements - Food and Agriculture Organization (FAO) - http://faostat.fao.org/beta/en/#data/FS
Housing Indicator: **Flooring**	When using flooring as the indicator, the quality of housing is determined based on the make-up of the floor. If the flooring is made up of dirt, dung, or sand, the household is considered to be deprived by this measure. - Oxford Poverty & Human Development Initiative - http://www.ophi.org.uk/multidimensional-poverty-index/mpi-resources/#2015resources

Employment Indicator: **Unemployment**	Unemployment refers to the share of labor force that is without work but available for and seeking employment. - World Bank - http://data.worldbank.org/indicator/SL.UEM.TOTL.ZS
Education Indicator: **Adult Literacy Rate**	The proportion of the adult population aged 15 years and over that is literate. This unit of measurement is expressed as a rate (%). 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. - UNESCO/World Bank - http://databank.worldbank.org/data/reports.aspx?source=2&series=SE.ADT.LITR.ZS&country=#
Gender Indicator: **Women in Parliaments**	The percentage of women who agree that a husband/partner is justified in beating his wife/partner under certain circumstances - OECD - https://data.oecd.org/inequality/violence-against-women.htm
Religious Freedom Indicator: **Government Restrictions Index**	The Government Restrictions Index (GRI) measures on a 10-point scale government laws, policies and actions that restrict religious beliefs or practices. The GRI is comprised of 20 measures of restrictions, including efforts by governments to ban particular faiths, prohibit conversions, limit preaching or give preferential treatment to one or more religious groups. - Pew Research Center - http://www.pewforum.org/2016/06/23/trends-in-global-restrictions-on-religion/

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
SDG 1: No Poverty							
Percent of Population below the Poverty line	-0.78	-0.67	-0.70	0.02	-0.69	-0.51	0.22
SDG 3: Good Health							
Maternal Mortality	-0.78	-0.59	-0.78	0.04	-0.78	-0.64	0.13
Infant Mortality	-0.81	-0.62	-0.76	0.003	-0.78	-0.69	0.05
Incidence of TB	-0.55	-0.49	-0.31	-0.12	-0.32	-0.38	0.14
SDG 6: Clean Water and Sanitation							
Access to Sanitation	0.83	0.54	0.73	-0.09	0.79	0.48	-0.24
SDG 15: Peace, Justice, and Strong Institutions							
Corruption Index (0-100, 100 very clean)	0.54	0.50	0.33	0.07	0.38	0.46	0.24
Press Freedom (0-100, 100 less free)	-0.25	-0.24	-0.01	0.09	0.03	-0.01	-0.64
SDG 10: Reduced Inequalities							
Income Inequality	-0.23	-0.37	-0.08	-0.27	-0.03	-0.42	-0.64

APPENDIX C: TEN LOWEST RANKED COUNTRIES: MWI AND SWI

Country	Material Index	Water	Housing	Food	Employment
Central African Republic	0.00	0.47	0.18	0.00	0.79
Chad	0.08	0.34	0.00	0.47	0.82
Ethiopia	0.24	0.30	0.02	0.53	0.84
Mozambique	0.34	0.39	0.27	0.57	0.22
Niger	0.36	0.38	0.06	0.84	0.92
Uganda	0.41	0.30	0.28	0.35	0.94
Gambia	0.42	0.77	0.78	0.85	0.06
Namibia	0.45	0.76	0.71	0.53	0.14
Haiti	0.46	0.59	0.64	0.21	0.57
Zambia	0.46	0.55	0.48	0.23	0.76

Country	Spiritual index	Religious Freedom	Education	Gender
Guinea	0.00	0.68	0.12	0.00
Niger	0.00	0.60	0.00	0.36
Afghanistan	0.12	0.40	0.19	0.02
Mali	0.22	0.90	0.21	0.06
Egypt	0.26	0.04	0.71	0.60
Central African Republic	0.29	0.68	0.25	0.13
China	0.29	0.05	0.94	0.48
Chad	0.30	0.67	0.12	0.34
East Timor	0.30	0.82	0.51	0.07
Iran	0.35	0.07	0.82	0.80

APPENDIX D: FORDHAM FRANCIS INDEX COUNTRY RANKINGS

Rank	Country	FFI	Material Index	Water	Housing	Food	Employment	Spiritual Index	Religious Freedom	Education	Gender
1	Uruguay	0.90	0.94	0.99	1.00	1.00	0.77	0.96	0.96	0.98	0.93
2	Trinidad and Tobago	0.89	0.95	0.96	1.00	0.96	0.90	0.93	0.89	0.99	0.92
3	Estonia	0.85	0.95	1.00	1.00	1.00	0.81	0.90	0.87	1.00	0.83
4	Hungary	0.83	0.94	1.00	0.99	1.00	0.79	0.89	0.76	0.99	0.93
5	Argentina	0.83	0.93	1.00	0.98	0.98	0.79	0.88	0.71	0.98	0.99
6	Brazil	0.82	0.92	0.97	1.00	1.00	0.73	0.90	0.92	0.90	0.87
7	Philippines	0.79	0.86	0.89	0.98	0.80	0.80	0.91	0.91	0.96	0.88
8	Colombia	0.78	0.89	0.96	0.97	0.92	0.72	0.88	0.81	0.93	0.91
9	Ecuador	0.75	0.89	0.91	0.99	0.83	0.85	0.83	0.82	0.93	0.75
10	Mexico	0.73	0.95	0.98	0.99	0.97	0.87	0.77	0.57	0.94	0.85
11	Dominican Republic	0.72	0.80	0.94	0.99	0.80	0.54	0.91	0.84	0.91	0.99
12	Guatemala	0.72	0.85	0.93	0.79	0.77	0.93	0.85	0.81	0.78	0.96
13	Georgia	0.68	0.85	0.92	1.00	0.92	0.62	0.79	0.54	1.00	0.93
14	Ukraine	0.68	0.91	0.97	1.00	1.00	0.71	0.74	0.52	1.00	0.79
15	Honduras	0.67	0.83	0.91	0.88	0.78	0.77	0.81	0.73	0.86	0.85
16	Mongolia	0.67	0.79	0.81	0.91	0.70	0.77	0.85	0.67	0.98	0.92
17	Peru	0.67	0.89	0.88	0.89	0.90	0.86	0.75	0.70	0.93	0.65
18	Armenia	0.66	0.81	0.99	1.00	0.97	0.46	0.81	0.58	1.00	0.93
19	Republic of Serbia	0.66	0.78	0.90	1.00	0.94	0.44	0.84	0.67	0.98	0.91
20	Nicaragua	0.64	0.80	0.80	0.85	0.74	0.83	0.80	0.80	0.74	0.88
21	Moldova	0.63	0.89	0.85	0.99	0.89	0.85	0.70	0.44	0.99	0.79
22	Albania	0.62	0.79	0.90	1.00	0.96	0.46	0.79	0.73	0.97	0.70
23	Bosnia and Herzegovina	0.57	0.63	0.97	1.00	1.00	0.16	0.90	0.77	0.98	0.98
24	Ghana	0.56	0.85	0.74	0.94	0.91	0.83	0.65	0.78	0.66	0.54
25	Tunisia	0.55	0.83	0.93	1.00	0.96	0.52	0.66	0.55	0.77	0.70
26	Azerbaijan	0.53	0.91	0.82	0.99	1.00	0.85	0.58	0.25	1.00	0.79
27	Thailand	0.53	0.96	0.98	1.00	0.88	0.99	0.55	0.52	0.92	0.35

APPENDIX D: FORDHAM FRANCIS INDEX COUNTRY RANKINGS

Rank	Country	FFI	Material Index	Water	Housing	Food	Employment	Spiritual Index	Religious Freedom	Education	Gender
28	Macedonia	0.52	0.63	0.96	0.99	0.98	0.17	0.82	0.66	0.97	0.87
29	Cambodia	0.52	0.85	0.71	0.96	0.77	1.00	0.61	0.63	0.69	0.52
30	South Africa	0.51	0.63	0.82	0.97	0.96	0.20	0.82	0.89	0.93	0.65
31	Turkey	0.51	0.90	0.99	0.98	1.00	0.68	0.57	0.25	0.95	0.75
32	Gabon	0.50	0.73	0.86	0.91	0.92	0.39	0.69	0.89	0.79	0.47
33	Kyrgyzstan	0.50	0.88	0.85	1.00	0.93	0.76	0.57	0.30	0.99	0.63
34	Sri Lanka	0.50	0.84	0.91	0.97	0.65	0.86	0.60	0.54	0.90	0.44
35	Vietnam	0.50	0.92	0.90	0.98	0.85	0.94	0.54	0.27	0.92	0.63
36	Togo	0.47	0.76	0.57	0.87	0.84	0.79	0.63	0.78	0.57	0.55
37	Malawi	0.44	0.59	0.62	0.41	0.58	0.79	0.76	0.89	0.55	0.89
38	Cameroon	0.44	0.73	0.60	0.59	0.90	0.87	0.60	0.65	0.66	0.51
39	Indonesia	0.42	0.89	0.88	0.97	0.90	0.81	0.47	0.16	0.94	0.69
40	Bangladesh	0.42	0.78	0.97	0.55	0.78	0.87	0.54	0.45	0.53	0.66
41	India	0.40	0.75	0.86	0.53	0.79	0.89	0.53	0.44	0.64	0.53
42	Swaziland	0.40	0.52	0.63	0.96	0.70	0.18	0.76	0.76	0.80	0.72
43	Jordan	0.39	0.86	0.98	1.00	0.97	0.59	0.45	0.38	0.98	0.25
44	Zimbabwe	0.39	0.56	0.61	0.78	0.25	0.84	0.69	0.69	0.81	0.58
45	Benin	0.37	0.75	0.62	0.61	0.86	0.97	0.50	0.92	0.16	0.85
46	Nigeria	0.37	0.74	0.62	0.61	0.90	0.87	0.50	0.54	0.42	0.55
47	Lesotho	0.37	0.50	0.67	0.75	0.79	0.16	0.74	0.91	0.71	0.62
48	Madagascar	0.36	0.56	0.43	0.84	0.29	0.95	0.64	0.68	0.58	0.67
49	Senegal	0.35	0.75	0.71	0.76	0.84	0.69	0.47	0.91	0.32	0.36
50	Kenya	0.35	0.62	0.52	0.61	0.70	0.64	0.57	0.64	0.67	0.44
51	Morocco	0.35	0.84	0.80	0.90	0.98	0.70	0.42	0.18	0.61	0.67
52	Namibia	0.35	0.45	0.76	0.71	0.53	0.14	0.77	0.82	0.87	0.64
53	Guinea Bissau	0.34	0.52	0.65	0.26	0.54	0.80	0.66	0.96	0.51	0.58
54	Yemen	0.33	0.57	0.66	0.71	0.53	0.43	0.57	0.48	0.63	0.61
55	Pakistan	0.32	0.74	0.87	0.61	0.69	0.82	0.44	0.32	0.47	0.55
56	United Republic of Tanzania	0.32	0.54	0.43	0.46	0.47	0.93	0.58	0.63	0.74	0.43

APPENDIX D: FORDHAM FRANCIS INDEX COUNTRY RANKINGS

Rank	Country	FFI	Material Index	Water	Housing	Food	Employment	Spiritual Index	Religious Freedom	Education	Gender
57	Tajikistan	0.29	0.68	0.70	0.91	0.51	0.66	0.43	0.22	1.00	0.36
58	Haiti	0.28	0.46	0.59	0.64	0.21	0.57	0.60	0.79	0.39	0.71
59	Iraq	0.27	0.69	0.84	0.97	0.55	0.51	0.40	0.20	0.76	0.42
60	China	0.27	0.92	0.95	1.00	0.87	0.86	0.29	0.05	0.94	0.48
61	Burkina Faso	0.26	0.56	0.47	0.35	0.68	0.91	0.46	0.82	0.23	0.54
62	Zambia	0.26	0.46	0.55	0.48	0.23	0.76	0.57	0.67	0.80	0.34
63	Liberia	0.25	0.54	0.65	0.52	0.28	0.88	0.46	0.82	0.32	0.37
64	Rwanda	0.25	0.49	0.50	0.42	0.31	0.92	0.50	0.48	0.62	0.40
65	Egypt	0.23	0.86	0.98	0.99	0.96	0.59	0.26	0.04	0.71	0.60
66	Uganda	0.22	0.41	0.30	0.28	0.35	0.94	0.55	0.68	0.65	0.38
67	Mozambique	0.21	0.34	0.39	0.27	0.57	0.22	0.62	0.93	0.42	0.63
68	Sierra Leone	0.21	0.53	0.52	0.35	0.49	0.91	0.39	0.77	0.38	0.21
69	Gambia	0.17	0.42	0.77	0.78	0.85	0.06	0.42	0.81	0.46	0.19
70	Mali	0.13	0.60	0.70	0.25	0.97	0.75	0.22	0.90	0.21	0.06
71	Ethiopia	0.09	0.24	0.30	0.02	0.53	0.84	0.37	0.66	0.28	0.27
72	Afghanistan	0.08	0.70	0.57	0.92	0.63	0.73	0.12	0.40	0.19	0.02
73	Chad	0.02	0.08	0.34	0.00	0.47	0.82	0.30	0.67	0.12	0.34
74	Central African Republic	0.00	0.00	0.47	0.18	0.00	0.79	0.29	0.68	0.25	0.13
75	Guinea	0.00	0.64	0.62	0.48	0.73	0.79	0.00	0.68	0.12	0.00
76	Niger	0.00	0.36	0.38	0.06	0.84	0.92	0.00	0.60	0.00	0.36

APPENDIX E: PARAMETERS FOR THE INDICATORS

	Food	Education	Water	Employment	Religious Freedom	Gender	Housing
Year/Country of the Minimum	2015 Central African Republic	2012 Niger	1990 Ethiopia	2015 Solomon Islands	2013 China	2014 Guinea	2015 Chad
Year/Country of the Maximum	Multiple years Multiple countries	Multiple years Multiple countries	Multiple years Multiple countries	Multiple years Multiple countries	2014 New Zealand	2014 Jamaica	Multiple years Multiple countries

Appendix F: Photo Credits & Quote Sources

PHOTO CREDITS

- UNICEF
- USAID
- UN News (news.un.org)
- Mr. Armand Aquino, IPED 2017
- Pixabay.com

SOURCES FOR QUOTATIONS FROM POPE FRANCIS:

Component	Source
Water	Carta Enciclica Laudato Si', June 28, 2015.
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 TEAM

Professor Henry Schwalbenberg, *Research Director*
Donna Mae Odra, *Research Manager*
Kelly Cannon, Research Associate

Composite Team:
Eleanor Reserva and Greg Fischer

Water Team:
Donovan Hotz, Israel Munoz, Brian Harper and Mohammed Masudur Rahman

Food Team:
Dia Sharaf, Stephanie Swinehart, Amr Ali, Clare Pressimone

Housing Team:
Anthony Cotaj, Sydney Kornegay, Tegshzaya Demid

Employment Team:
Cullen Steffan, Daniel Mutale, Ean Tierney, and Eleanor Reserva

Education Team:
Ben Boltz, Cody Harder, and Viktoriia Brezheniuk

Religious Freedom Team:
Erika Cox, Gus Arndt and Luther Flagstad

Gender Team:
Mariam Tabatadze, Blanca Amigot, and Zohna Jones

FFI Student Research Team , Fall 2017

FFI Student Research Team , Spring 2018

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
Tel: 718.817.4064
Fax: 718.817.4565
iped.fordham.edu