Democracy and Human Security in Developing Countries

By Ted Piccone[1]

1 Introduction

In preparation for the Community of Democracies' Democracy and Security Dialogue, Brookings Institution researchers studied how the quality of democracy in developing countries related to levels of human security from 1990 to 2015.[2] Human security diverges from traditional notions of national security by placing the primary focus on the individual rather than the state, and expanding security to encompass both an individual's freedom from want and freedom from fear.[3] As such, it provides a different perspective on the democratic peace thesis, which has privileged traditional notions of national security. Without controlling for other variables, we found a weak negative correlation between our measurement of human security (also referred to as human insecurity) and democracy. Across regime types, there is a statistically significant difference between strong democracies—which possess less human insecurity—and strong autocracies. There is, however, no correlation between democracy and human insecurity for weak autocracies and weak democracies.

This working paper has three main sections. First, we discuss the two variables of interest: human insecurity and democracy. Second, to analyze and identify patterns within the country-year data, we perform a simple mean analysis, regression, and data inspection. Finally, we discuss our results.

---

[1] This working paper was prepared with major research contributions by Anton Wideroth, and research support by Hannah Bagdasar, Carlos Castillo, Bridget Bruggeman, and Matthew Koo.

[2] The study is limited to developing countries because of data availability and the relatively low levels of human insecurity, as measured here, in the developed world. See the discussion on page 4 for a more detailed explanation of the study's temporal and geographical limitations.

[3] United Nations Development Program, "Human Development Report 1994," (New York: Oxford University Press, 1994).

2   Variables of Interest

2.1   Human Insecurity

In 2012, the United Nations General Assembly agreed on a common definition for human security, as "an approach to assist Member States in identifying and addressing widespread and cross-cutting challenges to the survival, livelihood and dignity of their people."[4] In other words, human security was defined as a state of being in which a person's survival, livelihood, and/or dignity is not violated or threatened. Such a broad definition, although helpful in framing the discussion, provides little guidance for measuring the concept. In order to reach a more workable definition, this paper uses a conventional conceptualization that focuses on the negation of the state of human security—human insecurity[5]—defined as *a state of being in which a person's survival, livelihood, and/or dignity is violated*. There are many components to such a state of insecurity, including political security (freedom from political persecution and violence) and citizen security (freedom from violent crime)—encompassing freedom from fear. Another factor that concerns survival and livelihood is a general state of well-being in which an individual's basic material needs are met—that is, the freedom from want. This paper focuses on the latter component of human security and its absence.

No established method for measuring human security or insecurity as a whole, or human insecurity as it pertains to basic needs, currently exists.[6] As such, we apply a new methodology using established datasets and statistical methods to measure this variable. Our methodology and choice of indicators are influenced by the *Human Development Index* (HDI), prepared annually by the U.N. Development Program, and the *Social and Economic Rights Fulfillment* (SERF) index, and informed by the academic literature referenced above. HDI measures a state of development using a clear methodology that has, for the most part, stood the test of time. SERF, on the other hand, measures the basic fulfillment of human needs, but uses a more experimental methodology. By combining HDI's methodology and SERF's indicators (with slight modifications), we have constructed a workable framework for measuring the basic fulfillment of human needs. Our framework adopts SERF's five human security needs: the need for food, health, education, housing, and work. Within each category, one or two data sets, representing the percentage of a population who do not meet each need's minimum standard, have been chosen for measurement. The needs and indicators are as follows:

---

[4] UN General Assembly (66th Session), "Follow-up to Paragraph 143 on Human Security of the 2005 World Summit Outcome," (A/RES/66/290), October 25, 2012.

[5] Gary King and Christopher JL Murray, "Rethinking Human Security," *Political S Quarterly* 116, no. 4 (2001): 585-610; Taylor Owen, "Challenges and Opportunities for Defining and Measuring Human Security," *Disarmament Forum: Human rights, Human Security and Disarmament 3*, (July 2004); David Roberts, "Human Security or Human Insecurity? Moving the Debate Forward," *Security Dialogue*, 37:2 (2006): 249–261.

[6] The closest established measurements are the *Economic Vulnerability Index*, the *Basic Capabilities Index*, the *Human Poverty Index*, and the *Least Secure Countries Index*. There are also a few more experimental indices that aim to measure certain parts and interpretations of human security, these include: *The Global Environmental Change and Human Security Project's Index of Human Security,* and the *Social and Economic Rights Fulfillment Index*.

Index	Indicator	Sub-indicator	Data Set	Source
Human Insecurity Index 1990-2015	Food	Undernourishment	Prevalence of undernourishment (% of population)	Food and Agriculture Organization of the United Nations
	Housing	No access to improved sanitation facilities	Improved sanitation facilities (% of population with access)	WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation
		No access to improved water sources	Improved water source (% of population with access)	
	Health	Under 5 mortality	Mortality rate, under-5 (per 1,000 live births)	U.N. Inter-agency Group for Child Mortality Estimation
		Premature death	Survival to age 65, female (% of cohort) Survival to age 65, male (% of cohort)	United Nations Population Division
	Education	Lack of formal education	No formal education (% of population age 15 and over)	Barro-Lee data set[7]
	Work	Life under poverty level	Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)	World Bank, Development Research Group

The data is normalized and aggregated using HDI's methodology, according to the following formula:

$$I_{x(t)} = \left[\left(I_{it} - I_{\min(t)} \right) \div \left(I_{\max(t)} - I_{\min(t)} \right) \right] * 100$$

Where $I_{x(t)}$ represents the sub-indicator for any specified need for country x in period t, $I_{i(t)}$ is the average value of country x's data points in period t, and $I_{\max(t)}$ and $I_{\min(t)}$ are the largest and smallest country values within period t. Note that if more than one index is used for a need, the composite score is simply the average of the two indices. Finally, to calculate a country's final score, the average of all five needs is calculated.

---

[7] The Barro-Lee data set is an established estimation set, providing data in regards to educational attainment. See, Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010." *Journal of Development Economics*, vol. 104 (2013): 184-198.

The resulting index—the Human Insecurity Index (HI)—has a few important limitations. First, due to limited data collection coverage, it includes a rather limited number of countries—74. Second, it covers exclusively developing countries due to the unavailability of poverty and undernourishment data for developed countries. As such, Europe and North America are almost completely unrepresented and the dataset does not include many strong democracies. One can expect this to decrease the democratic quality and human security correlation seen in this data since developed countries are mostly strong democracies and would likely score very high on our human insecurity index. It does, however, provide a limited control for development level. Some countries represented in the final index, furthermore, do not have complete temporal data over the whole 1990-2015 period. There is, as such, a chance that these countries' average scores are slightly misrepresented depending on where the gaps are located in the time series. A country which, for example, is over-represented by later years (usually characterized by lower human insecurity scores) would have a higher average score than its true average for the entire time period.

2.2   Democracy

Democratic quality is the independent variable of this study. We use three different measurements of democratic quality to capture a broad understanding of the concept. The databases used are Varieties of Democracy (V-Dem) Project, Freedom House, and Polity IV. V-Dem evaluates the quality of a government's system of checks and balances as well as the degree to which basic individual rights are respected. As such, it is constructed from three sub-indices—judicial constraints on the executive, equality before the law and individual liberty, and legislative constraints on the executive—each measured by a series of individual variables (quantitative and qualitative variables assessed by country experts). The final index is an interval scale between 0 and 1; in 2009, for example, Eritrea was the least liberal democratic out of the countries surveyed (0.01), whereas Norway was the most liberal democratic (0.90). Freedom House's index (FreedomHouse) assesses the state of civil and political rights. A country is given one civil liberties and one political liberties score by external analysts according to a seven-point ordinal scale, using a combination of field and desk research. The final score, ranging from 1 (freest) to 7 (least free), is the average of each country's civil and political liberties score. Note that we have inverted the Freedom House scale to correspond with the ordinal direction of the other two measurements. A country with a score of 7 in the original scale will, as such, have a score of 1 on our scale. Finally, Polity's index (*Polity2*) is a measurement of a country's institutionalized democracy—conceived as the presence of institutions and procedures that allow citizens to express opposition, and the existence of institutionalized constraints on the executive. The index is composed of one democracy indicator (an additive ordinal score from 0-10) and one autocracy scale (an additive ordinal score from -10-0) The final polity score is constructed by adding the democracy score to the autocracy score, creating an ordinal scale from +10 (strongly democratic) to -10 (strongly autocratic).

Variable Name	Range	Type	Source
V-Dem	0 (least democratic) to 1 (most democratic)	Interval	V-Dem Project
FreedomHouse	1 (least free) to 7 (freest)	Ordinal	Freedom House
Polity2	-10 (strongly autocratic) to +10 (strongly democratic)	Ordinal	Polity IV

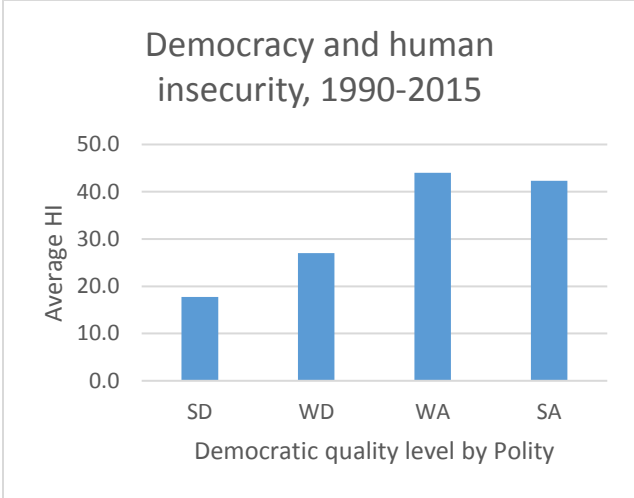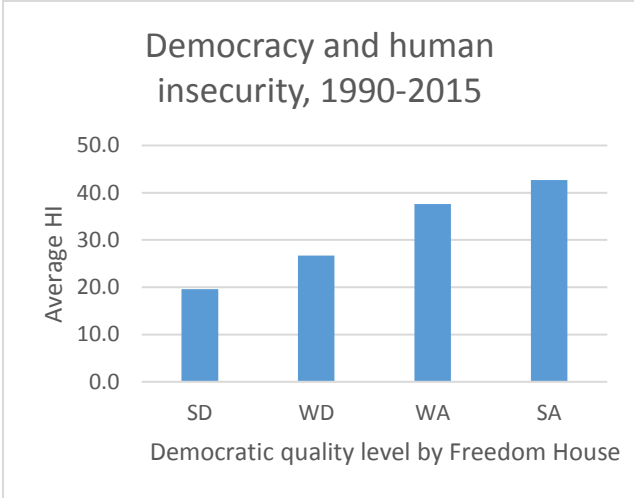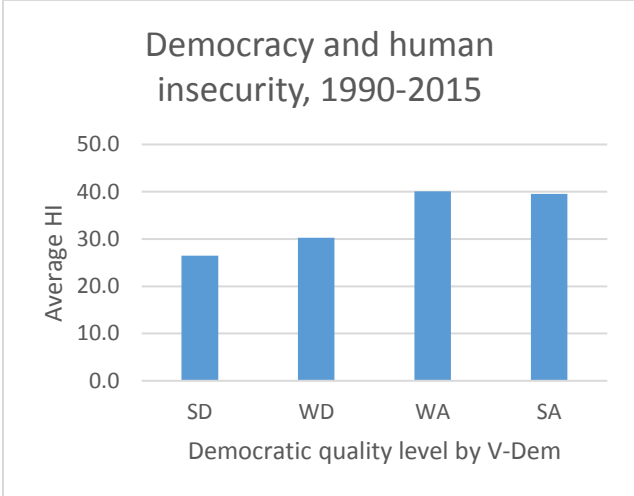# 3. Empirical Strategy

3.1 Mean Analysis[8]

The first step in the mean analysis is to place the data in distinct groups. We create four groups—each representing one of four levels of democratic quality: strong democracy (SD), weak democracy (WD), weak autocracy (WA), and strong autocracy (SA). The groups are created through two steps. First each dataset is divided up into a group of democracies and a group of autocracies. The cutoff points we have chosen are the following: 0.4 for V-Dem, 5 for Freedom House, and 6 for Polity.[9] Second, the groups of democracies and autocracies are divided into roughly equal parts while keeping countries with the same scores in the same group. Each group's average insecurity score is then calculated.[10] It bears mention that the second cutoff point generated here through this method is different from the other working papers within the series since fewer countries with strong democratic qualities are included. Human insecurity averages are then compared across the democratic quality scale to identify potential patterns.

The graphs below reveal a few interesting patterns. First, there is a general negative correlation between human insecurity and democratic quality across all measurements, with more notable change observed between weak democracies and weak autocracies. Second, both V-Dem and Polity show a slight decrease in human insecurity between weak and strong autocracies.

---

[8] Note that the abbreviations in the graphs correspond to strong democracy (SD), weak democracy (WD), weak autocracy (WA), and strong autocracy (SA).

[9] Cutoff points were decided based on language used by the creators of each index, and are inclusive upwards, so that, for example, all countries with a Freedom House score of 5 or higher are regarded as democracies.

[10] Exact cutoff points between the four groups are subjective decisions. Countries on either side and in close proximity to the cutoff cannot be considered fundamentally different.

Democracy and human insecurity, 1990-2015

Average HI — Democratic quality level by V-Dem

SD	WD	WA	SA
26.5	30.2	40.0	39.3

Democracy and human insecurity, 1990-2015

Average HI — Democratic quality level by Freedom House

SD	WD	WA	SA
19.5	26.6	37.6	42.8

Democracy and human insecurity, 1990-2015

Average HI — Democratic quality level by Polity

SD	WD	WA	SA
17.8	27.0	43.8	42.2

Examining the individual countries and range of each group, it is clear that there are real limitations to this method. As seen below, each group has a lot of variance. For example, the countries of the WA Polity category range from Malaysia (6.70 human insecurity score) to Mozambique (83.8 human insecurity score). This large observed range makes it clear that

although there is a general correlation between our two variables, it is very weak at the individual country level.

LibDem	Average HI	Range
SD	26.5	55.3
WD	30.2	35.7
WA	40.1	73.4
SA	39.5	71.2

FreedomHouse	Average HI	Range
SD	19.6	55.3
WD	26.7	35.7
WA	37.6	77.1
SA	42.7	67.8

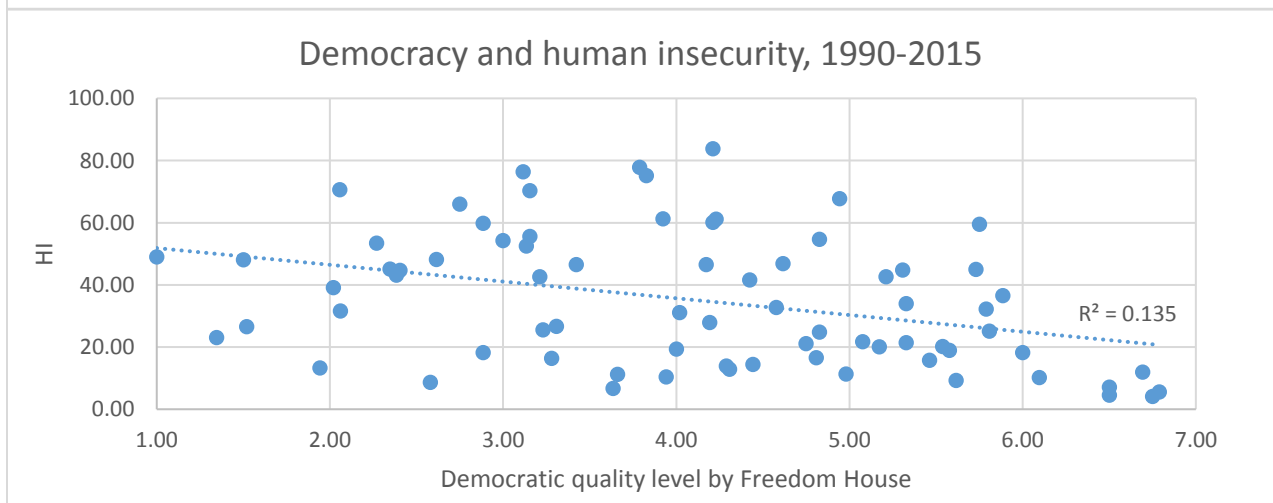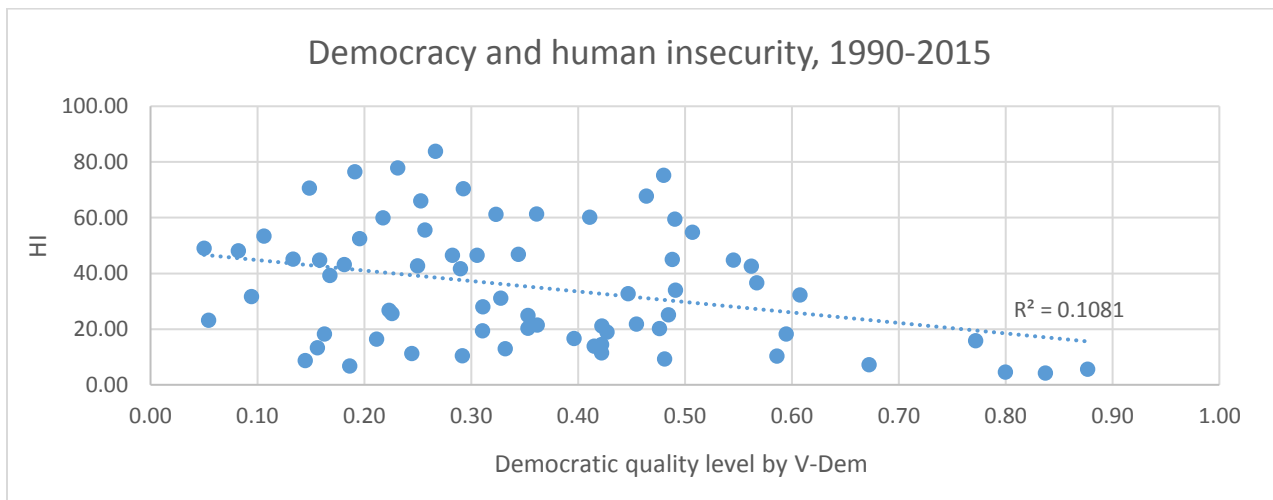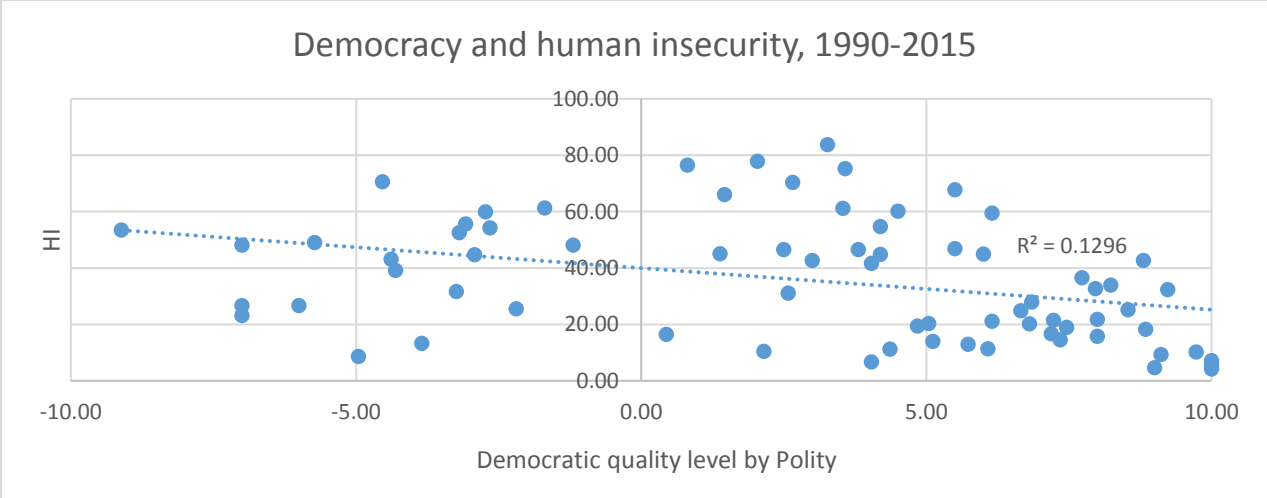| Polity	Average HI	Range
SD	17.8	38.5
WD	27.0	48.1
WA	44.0	77.1
SA	42.3	67.8

3.2   Bivariate Regression Analysis

For the bivariate regression analysis, we seek three important statistics—the correlation coefficient (*Multiple R*), the *R Squared* value, and the *Significance F*. The correlation coefficient, a value between 0 and 1, is a measure of the extent to which two variables vary together, where 1 is perfect correlation and 0 is no correlation. In general, a correlation coefficient between 1 and 0.9 is considered a very high correlation, between 0.7 and 0.9 high correlation, 0.5 and 0.7 moderate correlation, 0.3 to 0.5 low correlation, and below 0.3 negligible correlation. R Squared is a measure of correlational strength, specifically the percentage of variance in variable x that can be explained by the variance in y. Finally, Significance F is a measure of the probability that the calculated regression could have been obtained by chance. As a rule of thumb, a regression needs to have a Significance F score below 0.05 in order to be considered statistically significant. Regression analysis will further allow us to present our country-average data for each democracy indicator on a scatter plot with a regression line of best fit.

The results of the regression analysis strengthens our confidence in the findings above. Across all democracy measurements the correlation variable (multiple R) is only slightly above 0.3— what is generally considered the difference between a weak and a negligible correlation.

LibDem		FreedomHouse		Polity	
Regression Statistics		Regression Statistics		Regression Statistics	
Multiple R	0.328761	Multiple R	0.367481	Multiple R	0.359984
R Square	0.108084	R Square	0.135042	R Square	0.129589
Significance F	0.005456	Significance F	0.001278	Significance F	0.001897
Observations	70	Observations	74	Observations	72

The three graphs below share an interesting pattern—a narrowing human insecurity score range at both extremes. The countries at the strong democratic extreme—observed in the V-Dem and Freedom House graphs—are clustered at lower levels of human insecurity. The large variance between countries first appears at around the 0.6 V-Dem and 1.9 Freedom House marks. Among countries with a non-extreme democracy score there is clearly no correlation whatsoever between the two variables. At very low democratic quality scores, there is a slight narrowing once more, albeit in the medium human insecurity range. This observed pattern strengthens the plausibility of our claim that highly democratic states see less human insecurity than highly autocratic ones, whereas weak autocracies and weak democracies see no correlation between the quality of democracy and human insecurity.

Democracy and human insecurity, 1990-2015

$R^2 = 0.1081$

Democratic quality level by V-Dem

Democracy and human insecurity, 1990-2015

$R^2 = 0.135$

Democratic quality level by Freedom House

Democracy and human insecurity, 1990-2015

$R^2 = 0.1296$

HI (vertical axis)

Democratic quality level by Polity (horizontal axis)

3.2.1 Extreme Value Analysis

To investigate further the pattern described above, we perform an analysis using only the countries with extreme democracy values. Using Freedom House, we isolate the 16 countries that are considered "free" (5.5-7)[11] and the 11 "not free" (1-2.5) countries.[12] Using the same methodology described above, it is clear that there is a much stronger correlation between democracy and human insecurity when the Freedom House data are used. The correlation below is higher (moderate, instead of low to negligible correlation) than the one observed using the full dataset. This suggests that there is a correlation at extreme but not middle levels of democracy.

---

[11] Countries included are: Costa Rica, Uruguay, Belize, Chile, Mauritius, Trinidad and Tobago, Panama, Botswana, South Africa, Mongolia, Benin, Namibia, Jamaica, Dominican Republic, Guyana and Brazil.

[12] Countries included are: Zimbabwe, Mauritania, Cambodia, Swaziland, Tajikistan, Cameroon, Iran, Vietnam, Laos, China and Sudan.

Extreme value analysis
Democracy and human insecurity,
1990-2015
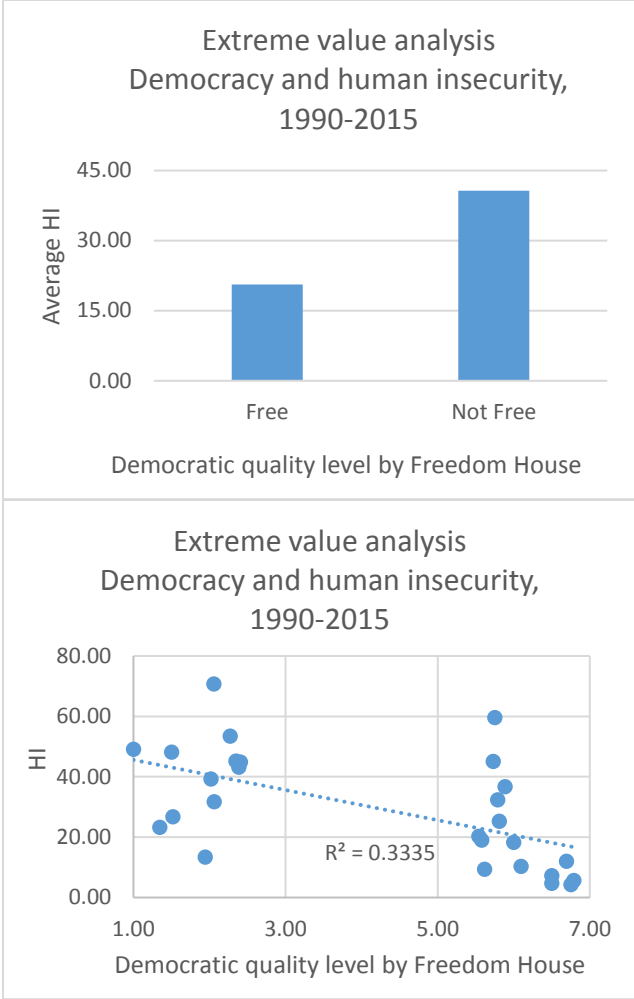
Regression Statistics	
Multiple R	0.57749
R Square	0.333495
Significance F	0.00161
Observations	27

3.3   Data Inspection

Using residuals, which measure the difference between a data point's predicted regression score and its actual score, it is possible to isolate the countries that deviate the most from the general trend. A large residual indicates that the country shows a much higher or lower human insecurity score than what the linear trend line would predict using that country's democratic quality score. The countries with the largest residuals, presented below, have a few interesting patterns. First,

only two of the countries with the largest residuals are, according to Freedom House, "not free" (Iran and China) and no country is "free." This, once again, confirms our observation that countries showing the strongest or weakest democratic qualities are much less likely to deviate from the overall negative correlation than countries with mixed democratic qualities. Second, there are strong geographical patterns. Almost all countries with large positive residuals (i.e., more human insecurity) are from the African continent. Countries with large negative residuals, on the other hand, are either small, island states or based in Asia.

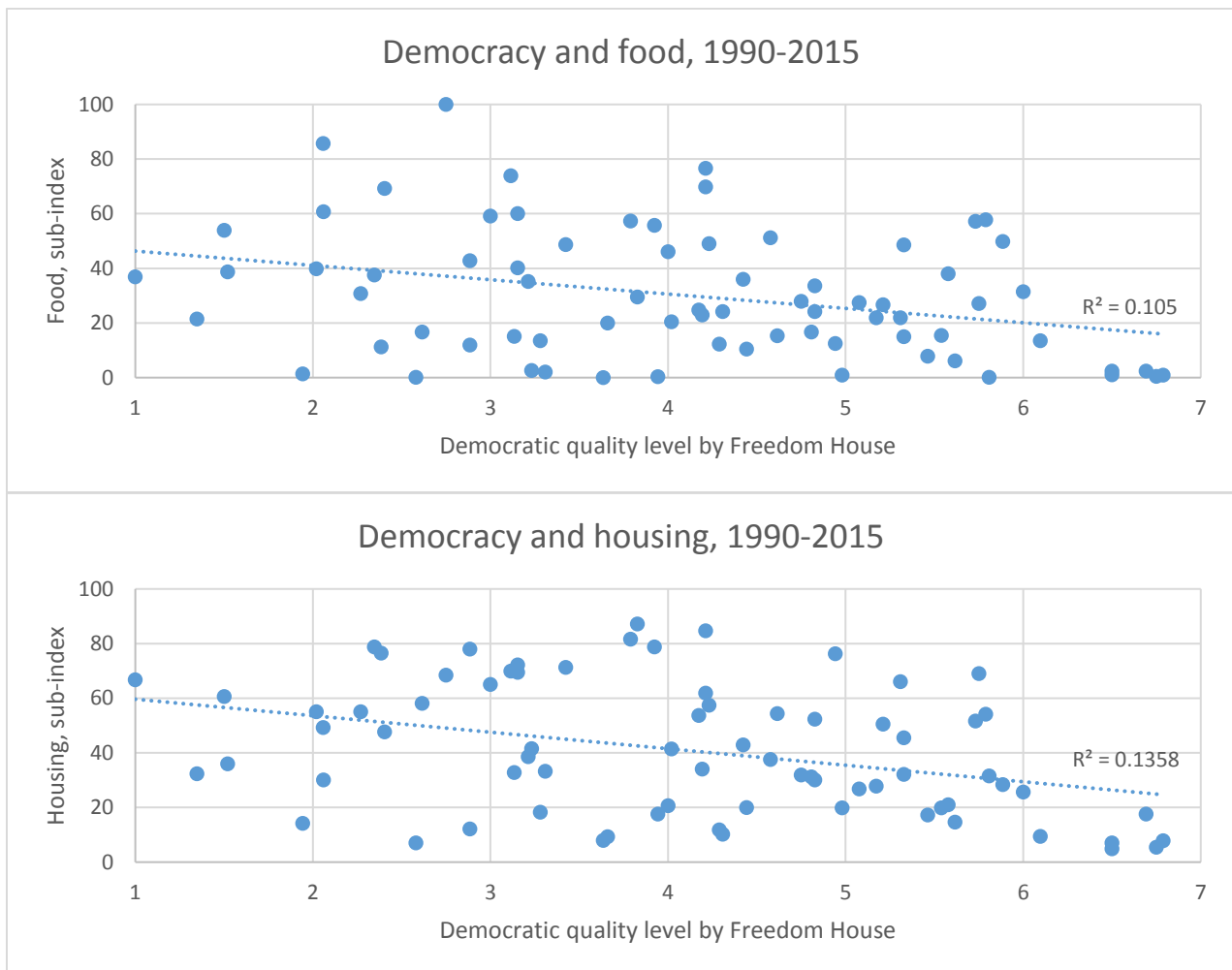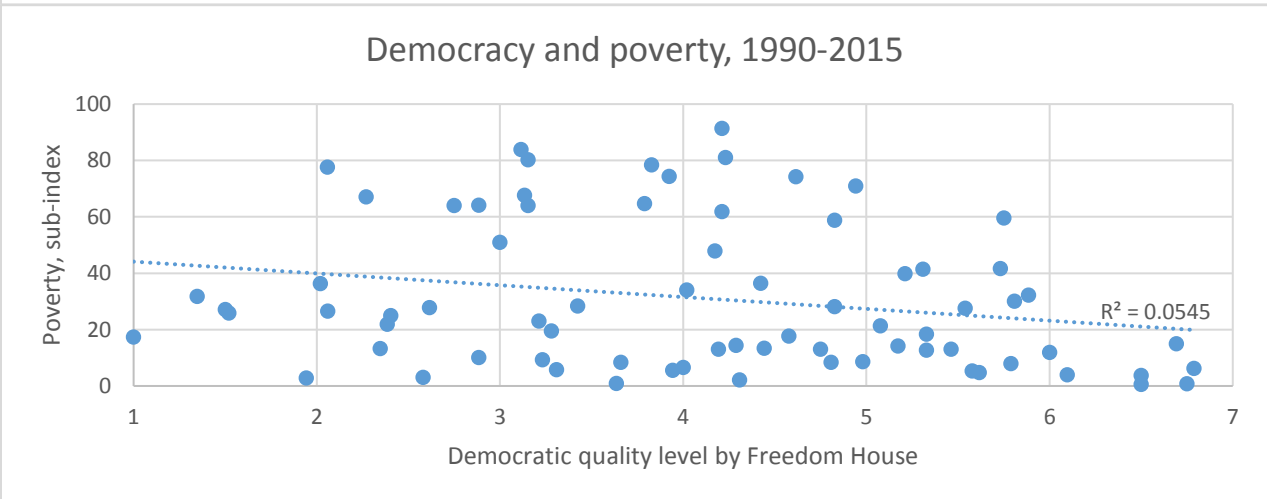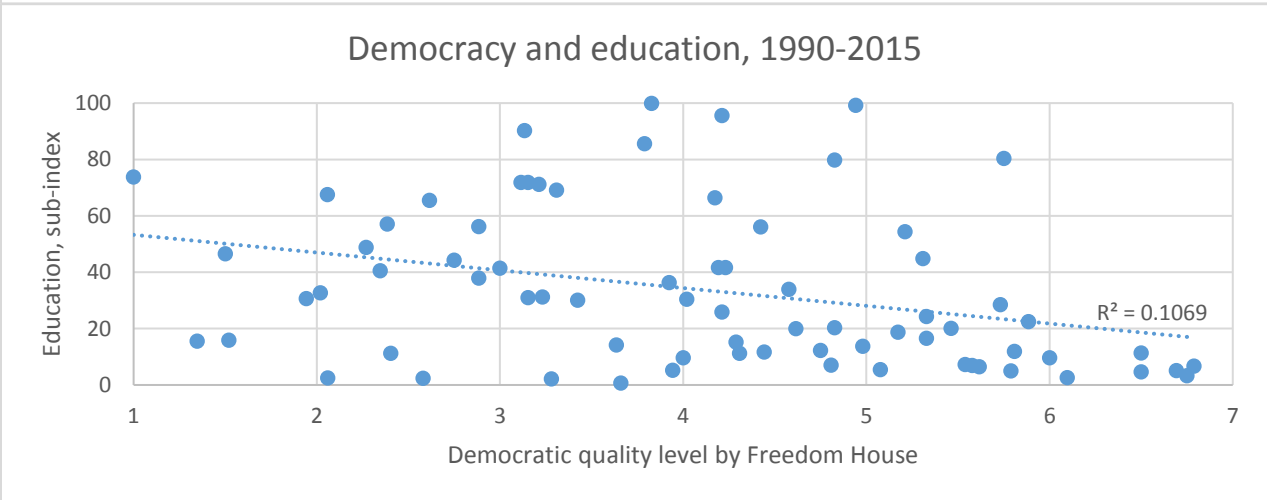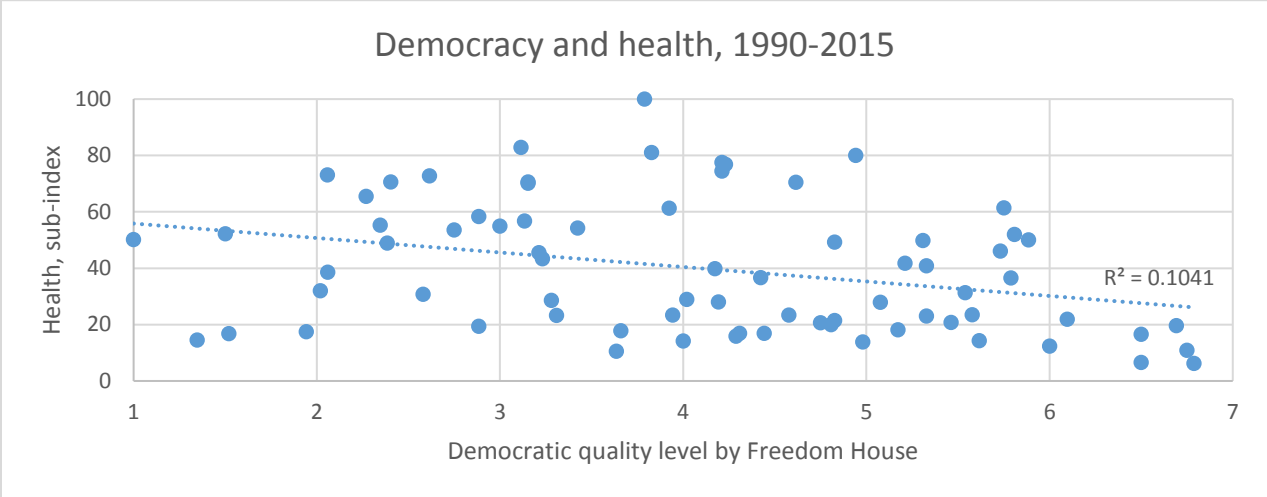| LibDem		FreedomHouse		Polity	
Observation	Residuals	Observation	Residuals	Observation	Residuals
Malaysia	-34.84	Kazakhstan	-34.68	Kazakhstan	-38.66
Kazakhstan	-34.45	Iran	-33.48	Iran	-32.37
Iran	-29.38	Malaysia	-30.96	Malaysia	-27.32
Armenia	-28.11	China	-26.84	China	-27.18
Fiji	-27.16	Armenia	-26.28	Fiji	-26.39
Kyrgyzstan	-24.19	Fiji	-25.59	Rwanda	23.96
Maldives	-24.16	Rwanda	24.50	Malawi	26.45
Malawi	24.81	Tanzania	25.19	Zambia	26.80
Senegal	25.27	Zambia	25.58	Haiti	28.22
Tanzania	26.33	Malawi	26.76	Benin	28.62
Haiti	27.00	Liberia	30.10	Liberia	34.29
Zambia	27.05	Benin	33.24	Mali	35.92
Rwanda	27.68	Central African Republic	36.01	Central African Republic	37.67
Benin	29.42	Mali	37.16	Niger	40.52
Liberia	32.81	Niger	38.60	Sierra Leone	40.89
Central African Republic	35.11	Sierra Leone	41.03	Mozambique	48.65
Mali	36.69	Mozambique	49.24		
Sierra Leone	38.01				
Niger	44.73				
Mozambique	45.28				

4   Conclusion

Our findings indicate that democratic quality in developing countries is only weakly correlated with human insecurity, with great human insecurity variance across all levels of democracy. On average, however, more democratic developing countries have less variability in human insecurity scores—with most democratic countries in the dataset scoring relatively low. There is also some evidence that there is less variability among highly autocratic countries, which tend to cluster toward middle to higher levels of human insecurity. There is, as such, some evidence that democracy and human insecurity form a weak, negative pattern with little to no correlation in the middle, and moderate correlations at either end.

5   Supplement

5.1   Index Breakdown

The following graphs show weak to negligible correlations between various sub-indices of human security (i.e., food, housing, education, health, and poverty) and democratic quality. The correlation between democratic quality and poverty is particularly weak, while the one between democratic quality and housing is particularly strong. Although the differences are too small to draw any clear conclusions, it is important to note that poverty, the sub-index which depends most directly upon monetary resources, has the weakest correlation, whereas housing (measured by access to improved water and sanitation), which depends most directly upon provided social services, has the strongest correlation. These findings suggest that the quality of democracy is more strongly correlated with basic needs that are met by governments' provision of public goods, compared to needs that depend more directly on the individual and the general economic situation in a country.

Democracy and food, 1990-2015

$R^2 = 0.105$

Democracy and housing, 1990-2015

$R^2 = 0.1358$

Democracy and health, 1990-2015

R² = 0.1041

Health, sub-index

Democratic quality level by Freedom House

Democracy and education, 1990-2015

R² = 0.1069

Education, sub-index

Democratic quality level by Freedom House

Democracy and poverty, 1990-2015

R² = 0.0545

Poverty, sub-index

Democratic quality level by Freedom House

5.2 Geographical Coverage

Swaziland	Cote d'Ivoire	Armenia	Dominican Republic
Vietnam	Kyrgyzstan	Zambia	Botswana
Laos	Central African Republic	Sri Lanka	Nicaragua
China	Cambodia	Guyana	Brazil
Morocco	Haiti	Venezuela	Philippines
Sudan	Sierra Leone	Mali	Bolivia
Kazakhstan	Fiji	Lesotho	South Africa
Rwanda	Kenya	Thailand	India
Mauritania	Indonesia	Namibia	Panama
Cameroon	Liberia	Mexico	Chile
Iran	Pakistan	Benin	Jamaica
Tajikistan	Mozambique	Peru	Mongolia
Gambia	Malawi	Honduras	Trinidad and Tobago
Uganda	Niger	Ecuador	Costa Rica
Zimbabwe	Nepal	Guatemala	Uruguay
Togo	Bangladesh	Paraguay	Mauritius
Congo, Rep.	Malaysia	El Salvador	Belize
Gabon	Ghana	Colombia	Maldives
Tanzania	Senegal		