Alex Miller
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Quantitative Methods I

GOVERNANCE, REFUGEES, AND INTERNAL DISPLACEMENT

On December 11, 2012, the United Nations Refugee Agency announced that over half a million Syrian refugees had registered in the surrounding area due to the uprising that started in early 2011.[i] When conflicts arise, the displacement of large numbers of people seems to be an almost inevitable outcome, but could this phenomenon be linked to factors beyond individual instances of conflict? Since the U.S. Committee for Refugees and Immigrants started their global survey in 1964, the numbers of refugees and internally displaced persons (IDPs) have spiked where conflict is the greatest, and yet the data also shows a general trend upwards.(*See Figure A*)

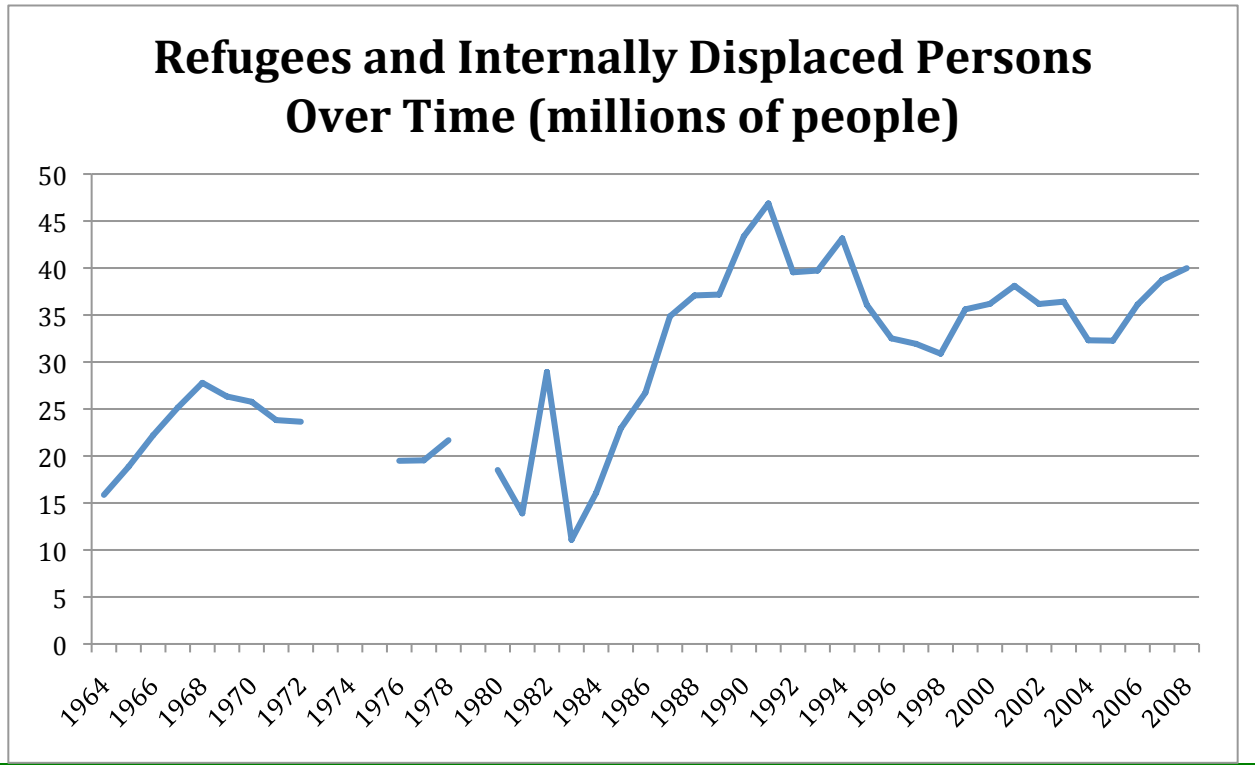

Figure A.

Presumably, individuals are forced from their homes more frequently in nations that have poor civil liberties. Where the rule of law cannot protect citizens from violence instigated by their own governments, many people will have no choice but to leave. But this relationship is too intuitive to serve any useful purpose. Instead, this paper will seek to identify whether the displacement of people is just indigenous to certain areas of the world or whether some

substantive change regarding other governance indicators can possibly reduce the number of people forced from their homes each year.

The primary unit of analysis will be the combined number of refugees and internally displaced persons from the U.S. Committee for Refugees and Immigrants' annual global survey. Since 1964, the USCRI has conducted site visits to over 150 countries, interviewed local human rights NGOs, officials, and the refugees themselves in order to collect data on not only the raw number of refugees and internally displaced people, but also their well-being.[ii] For this paper, just those raw numbers in the year 2000 will be used. Instead of focusing on refugees and people forced to move within their own countries separately, however, the two will be considered together as the total number of displaced people from a given country. For the set of countries we have data on, the average nation displaced about 200,000 people in 2000, while the median country displaced none. (*See Table 1*)

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Political rights	188	3.43	2.25	1	7
Corruption index	87	4.76	2.39	1.2	10
Region	156	4.49	2.10	1	8
Refugees	156	63602.56	303003.10	0	3600000
Internally displaced persons	155	139664.50	459914.90	0	4000000
Hosted refugees	155	80451.61	267339.40	0	2019000
Total displaced persons	155	202903.20	609128.50	0	4450000
Displaced person dummy	188	0.48	0.50	0	1
Asia region dummy	188	0.15	0.42	0	1
Sub-Saharan dummy	188	0.22	0.42	0	1

Table 1. Summaries

The factors to be tested against the total number of displaced people in each country are the geographical region according to the USCRI, Transparency International's corruption perception index, and Freedom House's political rights ranking scale.

The region for each country is loosely based on continent, with the primary exception being Europe. For this paper, the regional categories are Europe, Eastern Europe, Asia, Oceania, the Middle East & Northern Africa, Sub-Saharan Africa, South America, and North America. Based on the regions that display the greatest number of nations that displace people, tests will be conducted to see whether that one region in particular is significantly prone to forcibly displacing citizens compared to the rest of the world.

The Transparency International corruption perception index is a composite index consisting of data from Nations in Transit, the Economist Intelligence Unit, the International Crime Victim Survey, the World Economic Forum, and 12 other data sources.[iii] The goal of the index is to measure the consistent perception of corruption in the target country, and so it uses three year rolling averages in order to smooth any rapid changes that may have occurred to do large political scandals.[iv] For example, the TI corruption perception index for the year 2000 involves the rolling average from 1998, 1999, and 2000. The index ranges from 1 to 10—with higher numbers associated with higher corruption—and increases by 0.1-point increments. The average country in 2000 had a corruption perception index score of 4.8. (*See Table 1*)

Lastly, the Freedom House political rights ranking scale is based on an international survey that quantitatively measures political participation, including free elections and the right to join and form political parties.[v] The ranking scale assigns points from 1 to 7, where those countries with the worst political rights are ranked as a 7 and those with the best political rights are ranked as a 1. In 2000, the average country had a political rights ranking of 3.4. (*See Table 1*)

First, to ascertain whether certain regions are just prone to the creation of refugees and internally displaced persons, a simple table was created to see which regions are particularly bad. (*See Table 2*)

	W. Europe	**E. Europe**	**Asia**	**World minus Asia**	**Middle East**	**Oceania**	**SS Africa**	**World minus SS Africa**	**North Amer.**	**South Amer.**
Nations with displaced persons	0	5	15	44	11	0	20	39	3	5
Nations without displaced persons	16	14	13	84	12	3	22	75	5	12
Mean displaced persons			306629.6	181023.4			345809.5	149787.6		
Difference of means			-125606.2 (-0.974)				-196021.9† (-1.794)			

Note: †p<0.10; Method is difference of means t-test. T-score is noted in parenthesis.

Table 2. Differences across regions

If a country had zero refugees and IDPs, they were placed in the "without displaced persons" category; otherwise, the country was placed in the "with displaced persons category" regardless of how many. Europe and Oceania were the only two regions that did not displace people, while the Asia region had the highest ratio of countries with refugees to countries without and Sub-Saharan Africa had the highest nominal number of countries that displaced people.

Based on these results, two tests were conducted to determine whether Asian or Sub-Saharan African nations displaced more or fewer people than the rest of the world. On average, Asian nations displaced about 305,000 individuals, compared to an average of about 180,000

individuals for the rest of the world excluding Asia. Although a difference of about 125,000 people seems quite substantial, that number is less than one standard error away from a difference of zero. In other words, the differences between individual countries are great enough for a difference of 125,000 on average to not be very significant. In fact, the associated p-value for this test for both tails is 0.33. This means that the odds are 0.33 out of 1 that an observation 125,000 away from an average difference of zero in either the positive or negative direction is really measuring an actual difference of zero. A large part of this large p-value is probably due to the relatively small percent that Asian countries represent in the dataset, which makes it more difficult to have a certain answer.

For the next test, we need to set a baseline probability. Reaching a probability less likely than this baseline will then be required to reject the chance that a large difference is actually zero. In this test and the ones that follow, we will work with an alpha-level of 0.05, meaning that we will reject the idea that there is no difference unless it has less than a one in twenty chance of occurring.

Sub-Saharan nations displaced an average of about 346,000 people in 2000 compared to about 150,000 people for the rest of the world excluding Sub-Saharan Africa. An average difference of about 196,000 people is just under two standard errors away from a difference of zero. This means that it is quite a bit more likely that there is a difference compared to Asian nations, but it is not yet significant enough for the baseline we set earlier. The p-value associated with an average difference about 1.7 standard errors away from zero in either direction is 0.07. In other words, the likelihood of observing a difference in the averages as large as 196,000 if there was no difference in actuality is about 0.07 out of 1. The p-value is very close to the alpha-level

we set earlier, but for the purposes of this paper we will continue under the assumption that there is, in fact, no difference.

Moving beyond just regional variables, the next two models we will examine are OLS regressions that seek to explain variation in the number of displaced people with two different indicators of governance. Regression analysis is an attempt to find how strong and in what direction a relationship is between two measures. For example, the regression here is attempting to measure whether changes in corruption and political rights have a positive, negative, strong, or weak effect on how many people that country displaces. OLS, which stands for ordinary least squares, means that this particular regression operates by finding a straight path that deviates the least from how the two variables interact with each other.

In the first model, we are examining the relationship between a country's corruption perception index and the number of people that they displaced in 2000. (*See Table 3*)

Independent variable	**Model 1**	**Model 2**
Corruption index, 2000	-48068.08* (-2.60)	
Political rights, 2000		81448.21** (3.86)
Model constant	350479.6** (3.64)	-102396.2 (-1.11)
Adjusted R^2	0.06	0.08
Observations	85	155

Note: *p<0.05; **p<0.01. Method is OLS. The dependent variable is the total number of refugees and internally displaced persons within target country in 2000. T-scores are noted in parenthesis.

Table 3. The relationship between governance and the displacement of people

This variable was chosen because it avoids an endogeneity problem with the number of displaced people; more corrupt governments might displace more people, but the actual number of displaced people would not logically affect the level of corruption in return. Given the results

from this regression, we can estimate the number of people displaced with the following equation:

Estimated displaced persons = 350479.6 - 46068.08*(Corruption Index)

Put another way, we can estimate that for every 1-point increase in the country's corruption index, we would expect a 46,000-person decrease in the number of people displaced in 2000. Since the corruption index is recorded such that higher numbers indicate lower levels of corruption, we can infer that this means that there is a positive correlation between corruption and the displacement of citizens. For example, we can estimate that Nigeria, with a very corrupt government and a score of 1.2 would displace about 295,000 people. Germany, on the other hand, with a much less corrupt government and a score of 7.6 would displace about 360 people.

Additionally, based on the baseline we set earlier for accepting results, the slope of this relationship is very likely not indicative of an actual slope of zero. The p-value for this slope that is 2.6 standard errors away from a relationship of zero in either direction is 0.011; there is just over a 1 percent chance that this regression is measuring a relationship that is actually zero. The adjusted R^2 for this model is 0.06. The R^2 measures the percent of the change in the number of displaced people that can be explained by variation in the corruption index. Although the slope of the corruption index is statistically significant, the corruption index is only a small part of the factors that determine how many people are displaced from certain countries.

In the second model, we examine the relationship between a country's political rights scale and the number of people they displaced. (*See Table 3*) Instead of using the composite Freedom House ranking, the political rights scale was chosen to avoid also testing civil liberties, which could be directly influenced by the number of people displaced in that country. Given the results from this regression, we can estimate the number of people displaced with this equation:

Estimated displaced persons = -102396.2 + 81448.21*(Political Rights Scale)

We can estimate that for every 1-point increase in the country's political rights scale, we can expect about an 81,000-person increase in displacements. The Freedom House political rights scale associates low levels of rights with higher numbers, so from this we can infer that there is a negative relationship between political rights and the displacement of people. Based on this equation, a country like Libya with a political rights score of 7 would be expected to displace about 467,000 people, while a country like South Korea with a political rights score of 2 would be expected to displace about 60,000 people. For a visual representation of this relationship, the average number of displaced people for every level of political rights scale has been tallied in figure below: (*See Figure B*)

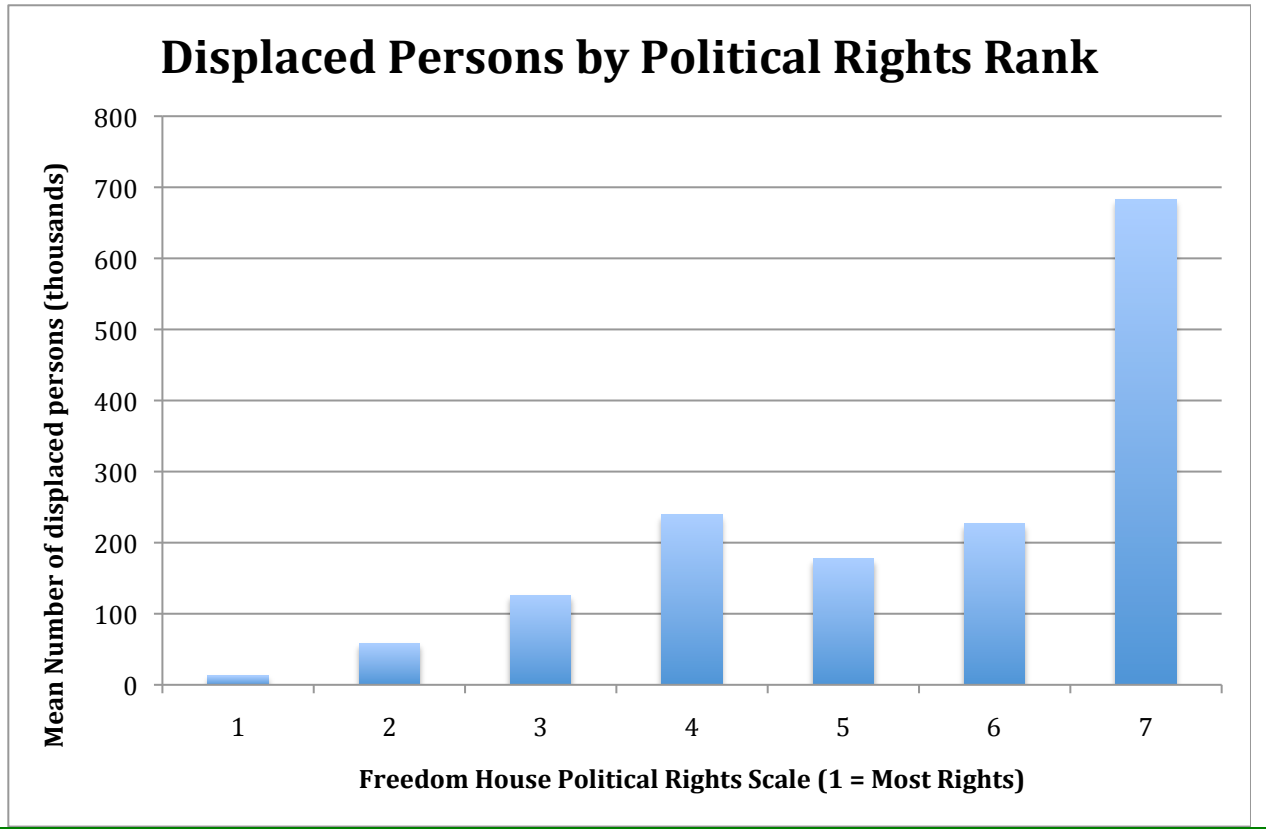

Figure B.

This relationship is even more significant than the slope between corruption and the number of displaced people. At nearly four standard errors away from no relationship, the p-value associated with this slope is so small that it rounds to zero. This means that there is only a miniscule chance that this slope is actually measuring a relationship that it zero, and it is more likely than not that there is some real relationship between these two factors. The adjusted R^2 for this model is slightly higher than the previous at 0.08, but it still represents a relatively small portion of the change we see in the number of people being displaced by countries.

Before any conclusions can be drawn from these results, attention must be drawn to the nature of the data. If we had taken a random sample of countries, results could be applied to the entire set of countries. The data we have just worked with, however, does not represent a random sample. Rather, the data we have is limited just to the countries that were willing to be surveyed and that Transparency International, Freedom House, and USCRI were able to survey. For example, the TI corruption index is limited to only 87 countries out of a total 188 in the dataset. This methodology results in a sample that is biased towards countries that are easiest to conduct surveys in. These countries might also be ones that also exhibit some characteristic that would skew the relationship between the displacement of people and several governance indicators.

That being said, for the countries we have been able to collect data on, there are certainly some substantive conclusions to draw from these results. The first conclusion that our analysis suggests is that explaining the number of refugees in certain countries as an inevitable result of their geographic location is incorrect. Not only is this notion exceedingly pessimistic, but the data also does not support it. While there are substantial variations in the average number of displaced people in certain regions, the pattern is not universal enough to warrant abandoning

any further exploration. In fact, there are several countries that displace people on every habitable continent on the globe with the sole exception being Oceania.

The second conclusion supported by this analysis is that governance matters beyond directly influential factors like the rule of law and personal autonomy; factors like corruption and the right to free elections seem to weigh heavily on the likelihood of a country forcing people from their homes. This would suggest that in order to reduce the number of refugees and internally displaced people in conflict prone states, one must focus on improving government accountability in financial and political terms in addition to a focus on improving the rule of law in countries prone to conflicts. One viable avenue though which to pursue this policy goal would be through encouraging semi-autonomous oversight entities, such as with ombudsmen. Additionally, election monitoring could help guarantee free and fair elections and encourage accountability. This accountability would not only potentially reduce the number of people forced to flee in times of conflict, but would also help set the stage for a stable and benevolent government.

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[i] United Nations Refugee Agency, "Number of Syrian refugees registered in region passes half a million," http://www.unhcr.org/50c7161a9.html (accessed December 13, 2012).

[ii] U.S. Committee for Refugees and Immigrants, "Archived World Refugee Surveys," http://www.refugees.org/resources/refugee-warehousing/archived-world-refugee-surveys/ (accessed December 14, 2012).

[iii] Johann Graf Lambsdorff, "Background Paper to the 2000 Corruption Perceptions Index," (Göttingen, Germany: Transparency International and Göttingen University, 2000) http://archive.transparency.org/content/download/1942/11462/file/methodology.pdf (accessed December 14, 2012).

[iv] Johann Lambsdorff, "Corruption Perceptions Index," 3.

[v] Freedom House, "Methodology," http://www.freedomhouse.org/report/freedom-world-2012/methodology (accessed December 14, 2012).