

# Does U.S. Aid Improve Human Rights Conditions of Aid-Recipient Countries?

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## ABSTRACT

This paper examines whether U.S. aid improves the human rights conditions in aid-recipient countries. Using the cross-sectional time series data for more than 100 countries from 2007 to 2018, the multivariate regression model shows a significant positive relationship between U.S. aid receipts and human rights improvement. When the U.S. increases its foreign aid amount over the recipient country's GDP by 1% point, the level of human rights conditions in aid-recipient countries subsequently improves by 0.5%. This paper contributes to the literature in three dimensions. First, it compares the annual change in U.S. aid and the subsequent annual change in human rights instead of the absolute amount of U.S. aid and the absolute level of human rights that are used in the literature. Second, it uses the Fragile States Index as a measure of human rights which reflects the human rights conditions more comprehensively than the measures used in the literature. Third, it uses the actual disbursement amount of U.S. aid rather than the obligation amount used by the literature. This paper provides evidence that U.S. foreign aid enhances human rights conditions in aid-recipient countries which is the desired outcome.

## Introduction

Historically, the U.S. seeks to advance three categories of human rights: "the right to be free from governmental violation of the integrity of the person, the right to the fulfillment of basic needs, and the right to civil and political liberties, regardless of race, sex, language, or religion." To introduce such a philosophy of human rights to US foreign policy, Congress passed the Foreign Assistance Act in 1961, which created the U.S. Agency for International Development (USAID). Specifically, Section 502B of the Foreign Assistance Act states, "A principal goal of the United States foreign policy is to promote the increased observance of internationally recognized human rights by all countries." In 2021 alone, the U.S. committed more than \$38 billion for foreign aid.

However, there are two competing theories regarding how recipient countries are affected by the allocation of foreign assistance. One suggests that foreign assistance benefits developing nations, particularly in the areas of education and health, and helps increase the quality of life and economic development, which eventually contribute to improvements in human rights conditions (e.g., Spero and Hart, 1997). The other contends that foreign aid lands primarily in the hands of elites in developing countries, the military in particular, who simply perpetuate the status quo (e.g., Meyer, 1998). In addition, reliance on foreign capital hampers the internal development of recipient countries due to the restrictions and conditions placed on aid and eventually inhibits the economic growth necessary for the improvements in human rights conditions (Santos, 1970). Under these competing arguments, previous papers investigate the consequences of U.S. foreign aid allocation in human rights of recipient countries, but empirical results to this question are mixed and inconclusive. Finkel, Perez-Linan and Seligson (2007) find that U.S. foreign aid expenditure exerted a positive, albeit modest, impact on democratic outcomes. In contrast, Callaway and Matthews (2008) and Lee (2011) find that U.S. foreign aid has a harmful effect on human rights.

This study aims to answer the above question on which academia is still in debate. This paper uses a multivariate linear regression model with cross-national time series data covering over 100 countries from 2007 to 2018.

This study finds three main results. First, U.S. foreign aid results in a measurable impact on the extent of human rights changes in recipient countries. When the U.S. increases its foreign aid amount over the recipient country's GDP by 1% point, the level of human rights conditions in aid-recipient countries subsequently improves by 0.51%. Second, the improvement in press freedom conditions in aid-recipient countries positively affects the relationship between U.S. aid and human rights conditions. Third, the improvement in press freedom conditions independently has a positive effect on human rights. In sum, if the U.S. increases its foreign aid amount over the recipient country's GDP by 1% point and at the same time, the press freedom condition in the aid-recipient country improves by 1%, then the level of human rights conditions in aid-recipient countries subsequently improves by total 0.67%. The results are statistically significant with a p-value less than 0.01 after controlling for the country's fixed effect.

This paper contributes to the literature in three dimensions. First, it compares the annual change in U.S. aid and the annual change in human rights instead of the absolute amount of U.S. aid and the absolute level of human rights that are used in the literature (Finkel et al., 2007; Callaway and Matthews, 2008; Lee, 2011). To my knowledge, this is the first paper to compare the annual change in U.S. aid amount with the annual change in human rights conditions in recipient countries. Second, this paper uses the Fragile States Index as a measure of human rights which reflects human rights conditions more comprehensively than previous measures such as the Polity Index (Finkel et al., 2007) and Political Terror Scale (Callaway and Matthews, 2008; Lee, 2011). Third, this paper uses the actual disbursement amount of U.S. aid rather than the obligation amount used by the literature (Finkel et al., 2007). My results support the positive influence of U.S. foreign aid on developing countries as it enhances human rights conditions in aid-recipient countries, which is the objective of foreign aid in the Foreign Assistance Act.

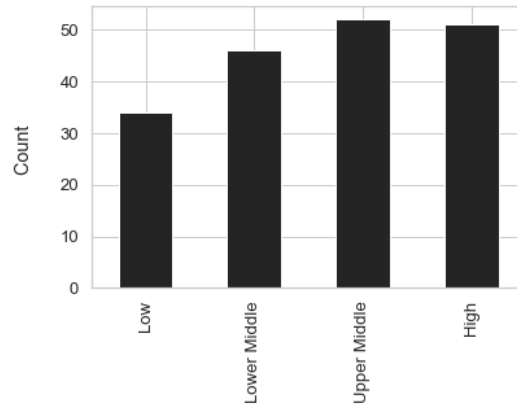
## Data

For this research, I collect data from 1992 (post-cold war) onwards as seen in Table 1. Next, I manually match the different country names across the data. For example, some data sources use the country name “North Korea” while others use the name “Democratic People’s Republic of Korea” to represent the same country. I adjust for these discrepancies and match the names so that I have a complete panel data. Table 1 summarizes the data collected for my analysis.

**Table 1.** Raw data collected for the research

Name	Unit	Number of Countries	Start Year	End Year	Source
Political Terror Score (PTS)	Index	194	1992	2020	Political Terror Scale Organization
Fragile States Index (FSI)	Index	182	2006	2021	Fund for Peace
U.S. Foreign Aid	US\$ million (Constant 2020)	200	2001	2022	U.S. Department of State
Press Freedom Index	Index	176	2002	2022	Reporters Without Borders
GDP	US\$ million (Constant 2017)	180	1992	2019	Penn World Table version 10.0
FDI	US\$ millions	200	1992	2020	UNCTAD
Population	Millions	215	1992	2020	World Bank
Polity	Index	166	1992	2018	Center for Systemic Peace
Income Group	Category	199	1992	2022	World Bank

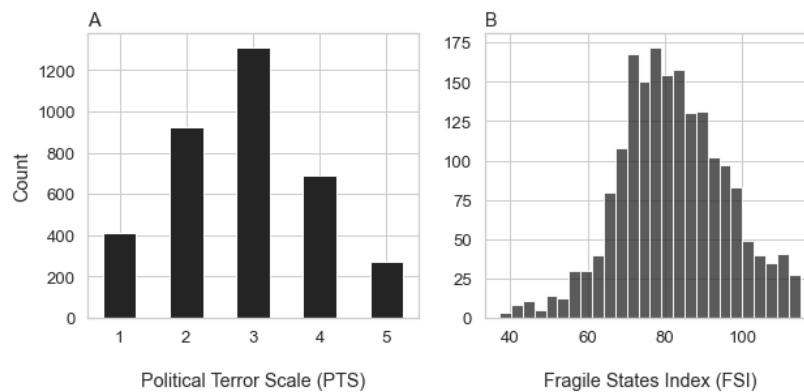
Following Lee (2011), I investigate human rights conditions only in developing countries. For the definition of developing countries, I use the World Bank data which classifies countries into four income groups (High, Upper Middle, Lower Middle, Low) and adopt countries under low three classifications (Upper Middle, Lower Middle, Low) as developing countries. In my raw data, there is a total of 226 unique countries, out of which 135 unique countries are classified as developing countries. In the case of year 2020 as an example, 132 out of 183 countries are classified as developing countries as seen in Figure 1.



**Figure 1.** Number of countries in each income group classified by World Bank in 2020

### Human Rights (Dependent Variable) and U.S. Foreign Aid (Primary Explanatory Variable)

Lee (2011) proposes the main hypothesis that U.S. foreign aid has a positive impact on human rights in recipient countries. The author uses Political Terror Score (PTS) as a dependent variable to measure human rights and U.S. foreign aid per capita as the explanatory variable in 112 developing countries. The PTS is a five-category scale designed to measure physical integrity rights, where higher PTS values indicate worse human rights practices. The author lags the aid variables for one year in order to eliminate the potential impact of reverse causality in the designed model. Figure 2A shows the aggregate count of the Political Terror Scale (PTS) for 3,605 country-year observations for 132 developing countries from 1992 to 2020.



**Figure 2.** Distribution of Political Terror Scale (PTS, Panel A) and Fragile State Index (FSI, Panel B)

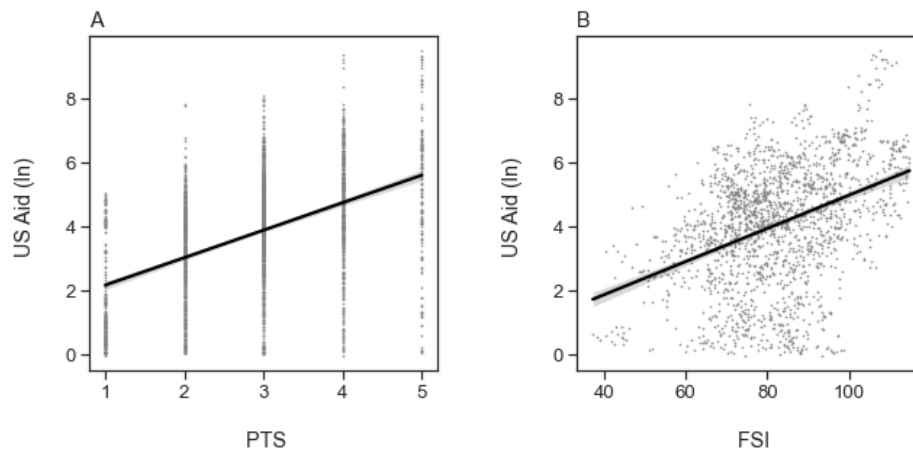
Lee (2011) uses the below multiple linear regression model to test the hypothesis:

$$PTS_{it} = \alpha + \beta U.S. Foreign Aid per Capita_{i(t-1)} + \sum_n \beta_n CV_n + e_{it}$$

$i = \text{country}$   
 $t = \text{year}$   
 $CV = \text{Control Variable}$

Lee (2011) shows that the coefficient of U.S. foreign aid from the regression model is positive ( $p < 0.05$ ), which implies that U.S. aid has a negative effect on the human rights in aid-recipient countries, contradictory to her paper's hypothesis that states the otherwise.

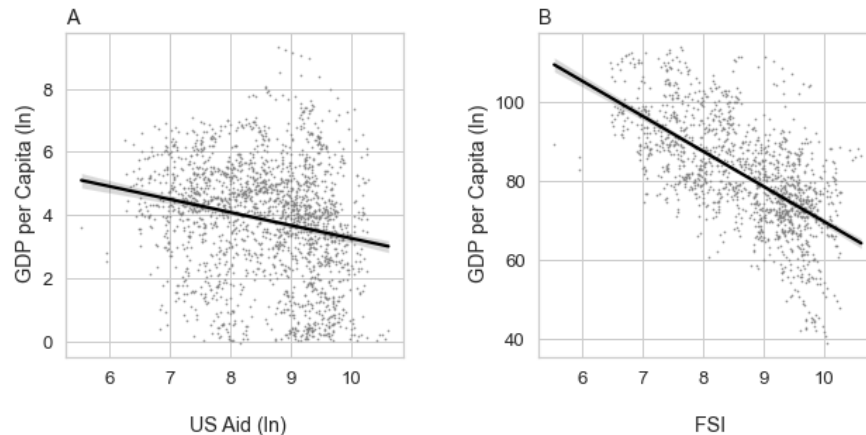
I first review Lee (2011) using the updated data listed in Table 1. In Figure 3, each gray dot represents a country-year observation in my panel data. The black line represents the fitted line from the simple linear regression model using only two variables. Consistent with Lee (2011), the correlation between PTS and U.S. aid (in natural logarithm) is positive, implying that higher U.S. aid negatively correlates with better human rights conditions.



**Figure 3.** Correlation between PTS and U.S. aid (Panel A) and correlation between FSI and U.S. aid (Panel B).

Next, I again draw the correlation between U.S. aid and human rights conditions. However, this time, I use the Fragile States Index (FSI) as a measure of human rights. The FSI, produced by The Fund for Peace (FFP) through a multifaceted and sophisticated evaluation process, has a wider index range (0 to 120) which captures the differences across countries in a more detailed manner than the PTS measurement, which considers only one aspect of human rights – the physical integrity rights. I think the FSI is a more appropriate measure of human rights for this study as I want to investigate the effect of U.S. foreign aid on the broad spectrum of human rights conditions in aid-recipient countries. Higher values of the FSI measure indicate worse human rights similar to the PTS. Figure 2B shows the distribution of the FSI in my panel data, which has 1,878 country-year observations for 122 developing countries from 2006 to 2021. The correlation between FSI and the U.S. aid (ln) in Figure 3B is similar to that between PTS and the U.S. Aid (ln) in Figure 3A. Higher amounts of U.S. aid are positively correlated with worse human rights conditions.

However, it should be noted that historically, (1) the U.S. provides more aid to poorer countries even within developing countries, as seen in Panel A of Figure 4, and (2) poorer countries tend to have lower human rights protections as seen in Panel B of Figure 4.



**Figure 4.** Correlation between U.S. Aid (ln) and GDP per Capita (ln) in Panel A and correlation between FSI and GDP per Capita (ln) in Panel B.

Therefore, it is natural to find a positive correlation between U.S. aid and worse human rights measures seen in Figures 3A and 3B when the aid size correlates with the recipient’s GDP per capita. However, it is not correct to conclude from this observation that U.S. aid has a negative effect on improving human rights practices in aid-recipient countries.

To correctly determine the impact of U.S. aid on the human rights conditions in recipient countries, I use (1) annual change in the amount of U.S. foreign aid as an independent variable and (2) annual change in the human rights index as a dependent variable, instead of using the absolute amount of U.S. aid with the absolute level of human rights variable which is the method adopted by Callaway and Matthews (2008) and Lee (2011). To standardize the amount of U.S. aid across different countries, I divide the U.S. aid by GDP, considering that the effect of \$1 million aid on a country with \$100 million GDP size must be much larger than the effect on a country with \$1 billion GDP size.

**Dependent Variable:** Annual change in FSI (by scores):

$$\Delta FSI_{it} = FSI_{it} - FSI_{i(t-1)}$$

**Independent Variable 1:** Annual change in US Aid over GDP (by percentage points)

$$\Delta \left( \frac{US\ Aid}{GDP} \right)_{it} = \left( \frac{US\ Aid}{GDP} \right)_{it} - \left( \frac{US\ Aid}{GDP} \right)_{i(t-1)}$$

### Press Freedom (Secondary Explanatory Variable)

In my previous research, I find a statistically significant positive impact of press freedom on the tampon tax cut policy (Choi, 2022). Given that the tampon tax cut policy can be considered one of the human rights indicators, I hypothesize that the improvement of press freedom positively affects the improvement of human rights in the country. As a measure of press freedom, I use the Press Freedom Index (PFI), annually updated and published by Reporters Without Borders (RSF). Countries are given scores ranging from 0 to 100, with 0 being the worst possible score and 100 the best, indicating journalists have more freedom to produce news for the country’s public. However, the PFI data was released only from 2013 onwards. Prior to 2013, the RSF released Press Control Index (PCI) as their measurement of press freedom, where higher PCI indicates worse press freedom conditions. Following Finkel et al. (2007), I first standardize the two indices to range between 0 and 100; then, I convert the standardized PCI to the standardized PFI

(Standardized PFI = 100 – Standardized PCI). As a result, I calculate the standardized PFI data for 176 countries from 2002 to 2022. Lastly, I calculate the annual change in PFI in terms of how many index measures increased or decreased year over year in each country.

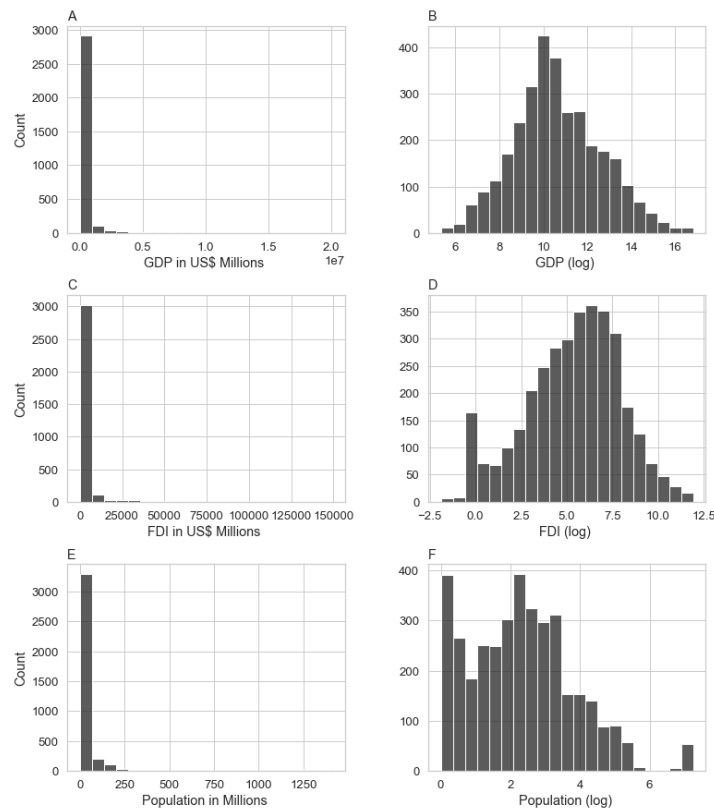
**Independent Variable 2:** Annual change in PFI (by scores)

$$\Delta PFI_{it} = PFI_{it} - PFI_{i(t-1)}$$

### Control Variables

According to the literature, several control variables are included in this research in order to control for potential factors affecting the human rights conditions in each country. These control variables are GDP, FDI (net of inward and outward), population size, and the level of democracy, which may independently influence the human rights practices in recipient countries.

The level of democracy is positively associated with human rights conditions (Callaway and Matthews, 2008). In other words, when a country is more democratic, it is less likely to abuse its citizens. As the measure of the level of democracy, I use the Polity score. The Polity score measures the difference between institutionalized democracy (0-10) and institutionalized autocracy (0-10); hence it has a twenty-one-point scale ranging from -10 (the least democratic) to +10 (the most democratic). As a reference, the Polity score is used as a control variable in Lee (2011) while as a dependent variable to measure the democratic outcomes in Finkel et al. (2007). The other control variables (GDP, FDI and population size) are transformed with a natural logarithm to normalize their distributions as shown in Figure 5 as the original data is skewed.



**Figure 5.** The left column figures (Panels A, C, and E) show the distributions of three control variables before the normalization and the right column figures (Panels B, D, and F) show them after normalization.

## Methods

### Hypotheses

I test three hypotheses summarized as follows:

*H1*: The increase in U.S. aid amounts positively affects the improvement of human rights in aid-recipient countries.

*H2*: Higher levels of press freedom lead to improvements in human rights practices in the respective countries.

*H3*: The press freedom in aid-recipient countries affects the relationship between U.S. aid and human rights.

### Regression Models

#### Model 1

$$\Delta FSI_{it} = \alpha + \beta_1 \Delta \left( \frac{US\ Aid}{GDP} \right)_{i(t-2)} + \beta_2 \Delta PFI_{i(t-2)} + \beta_3 \Delta \left( \frac{US\ Aid}{GDP} \right)_{i(t-2)} * \Delta PFI_{i(t-2)} + \sum_n \beta_n CV_{n,it} + e_{it}$$

$i = \text{country}$   
 $t = \text{year}$   
 $CV = \text{Control Variable}$

I test first whether the level of human rights improves in recipient countries after receiving U.S. aid. Likewise, I also test whether human rights improve after press freedom improves. Finally, I test whether press freedom in an aid-recipient country affects the channel through which U.S. aid affects the human rights in the same aid-recipient country. In other words, I test whether press freedom works as a moderator between U.S. aid and human rights. For the test on Hypothesis 3, the interaction term of U.S. aid and Press Freedom Index is included in the regression.

Two explanatory variables are lagged at two years. There is no conclusive discussion in the previous literature regarding how long foreign aid takes to affect human rights conditions in recipient countries. Regan (1995) uses a one-year lag, while Meyer (1998) and Callaway and Matthews (2008) include a three-year lag in their empirical models. Thus, I choose to use a two-year lag as the time lag to determine the effect of U.S. aid on human rights conditions in order to eliminate the potential impact of reverse causality in the designed model.

#### Model 2

$$\Delta FSI_{it} = \alpha + \beta_1 \Delta \left( \frac{US\ Aid}{GDP} \right)_{i(t-2)} + \beta_2 \Delta PFI_{i(t-2)} + \beta_3 \Delta \left( \frac{US\ Aid}{GDP} \right)_{i(t-2)} * \Delta PFI_{i(t-2)} + \sum_n \beta_n CV_{n,it} + \sum_i \beta_i Country_i + e_{it}$$

$Country_i = \text{Dummy Variable for Country } i$

Following Finkel et al. (2007) who include the country-level fixed effect in their regression, I control for a country's hidden characteristics which are constant over time in each country, such as its geopolitical location and nationality, which may have a role in determining its improvement in human rights. To estimate a fixed effect, I add a dummy variable for each country to Model 1. Anything else that does not change over time at the country level would be captured by these fixed effects in Model 2.

Model 3

$$\Delta FSI_{it} = \alpha + \beta_1 \Delta \left( \frac{US\ Aid}{GDP} \right)_{i(t-2)} + \beta_2 \Delta PFI_{i(t-2)} + \beta_3 \Delta \left( \frac{US\ Aid}{GDP} \right)_{i(t-2)} * \Delta PFI_{i(t-2)} + \sum_n \beta_n CV_{n,it} + \sum_i \beta_i Country_i + \sum_t \beta_t Year_t + e_{it}$$

*Year<sub>t</sub> = Dummy Variable for Year t*

In Model 3, I further add the time fixed effect to Model 2 as human rights conditions in each country may not be driven by the country’s specific factors but by the global universal trend factors since the post-cold war era. The time fixed effect helps capture the unobserved same factors for each time period across countries.

Table 2 and Figure 6 show the descriptive statistics and correlations of the variables used in the regression model, respectively. Figure 7 shows the distributions of variables used in the regression model except for those already presented in Figure 5.

**Table 2.** Descriptive statistics of the variables used in the regression model.

	DV <sup>1</sup>	IV1	IV2	Control Variables			
	ΔFSI	Δ (US Aid/GDP)	ΔPFI	GDP	FDI	Population	Polity
Unit	Index	%	Index	US\$ mil	US\$ mil	mil	Index
Count	1,756	2,022	2,289	3,127	3,605	3,720	2,827
Mean	(0.26)	0.01	(0.96)	321,314	2,486	42	2.2
Std Dev	1.80	0.41	6.59	1,278,190	10,238	156	6.0
Min	(6.10)	(6.65)	(40.50)	207	(10,176)	0	(10.0)
25%	(1.50)	(0.02)	(3.76)	11,001	25	2	(3.5)
50%	(0.50)	0.00	(0.37)	33,272	228	9	5.0
75%	0.70	0.02	1.90	146,739	1,137	25	7.0
Max	16.20	7.85	43.55	20,056,066	149,342	1,411	10.0

	Raw Data			Calculated	
	FSI	US Aid	PFI	US Aid / GDP	GDP per Capita
Unit	Index	US\$ mil	Index	%	US\$
Count	1,878	2,876	2,413	2,141	3,099
Mean	82	208	63	0.33	6,646
Std Dev	14	781	21	0.74	5,641
Min	37	(6)	0	(0.02)	245
25%	72	10	52	0.03	2,177
50%	81	53	68	0.11	4,930
75%	91	146	77	0.37	9,696
Max	115	13,282	97	41,236	41,236

<sup>1</sup>DV means Dependent Variable while IV means Independent Variable.



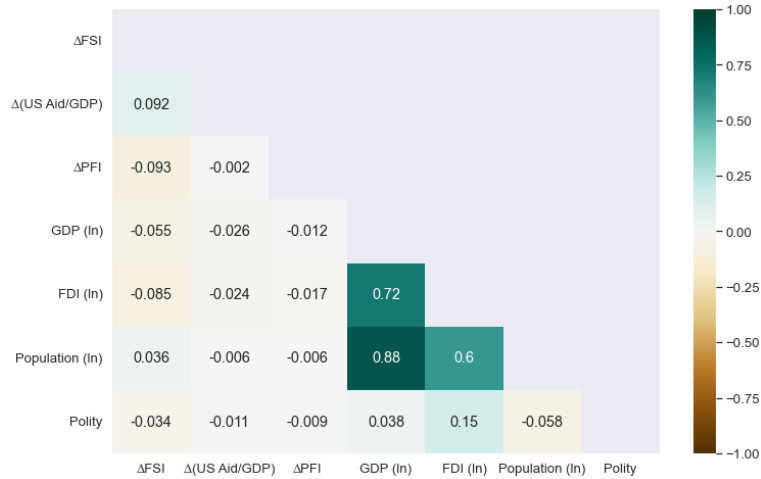


Figure 6. Correlations of the variables used in the regression model

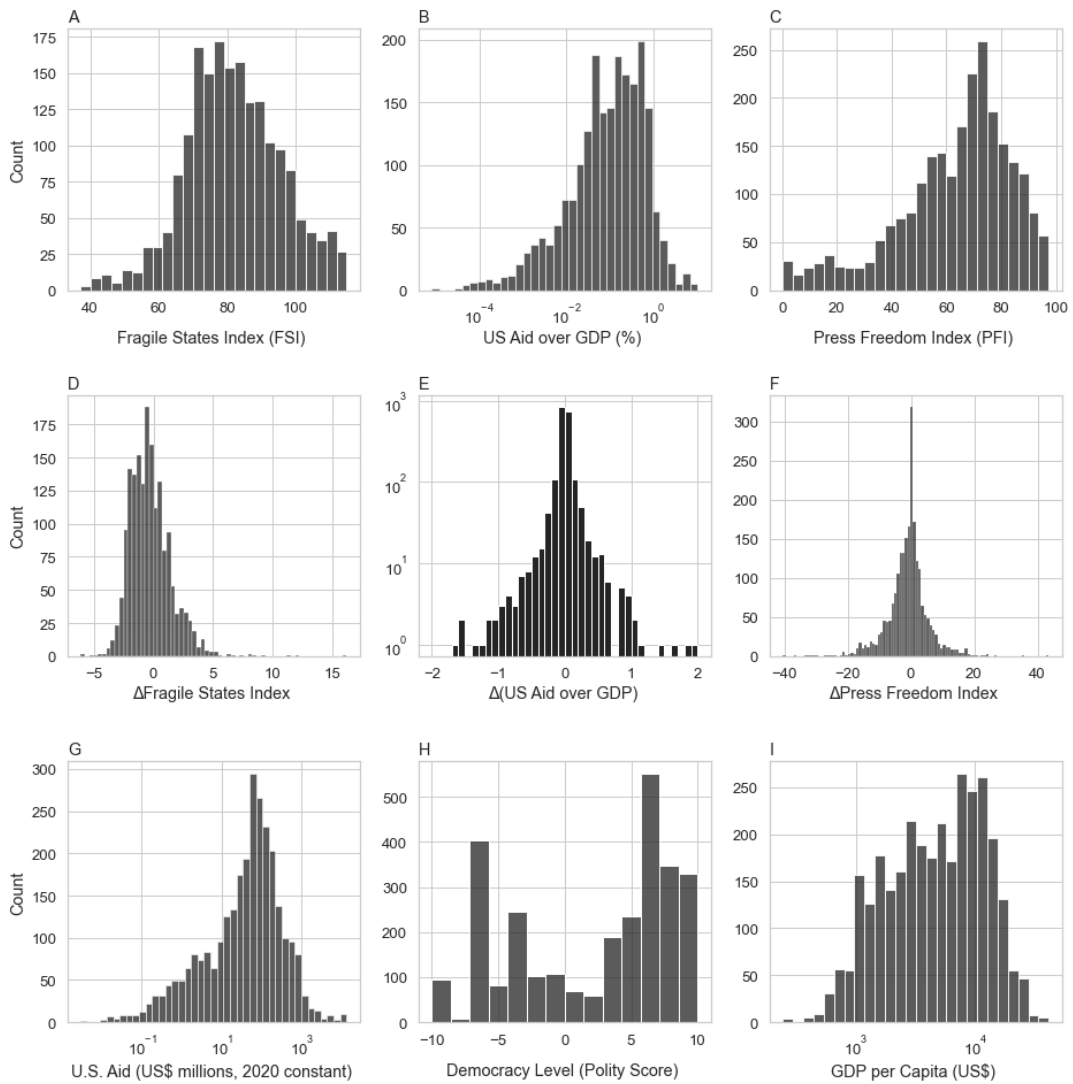
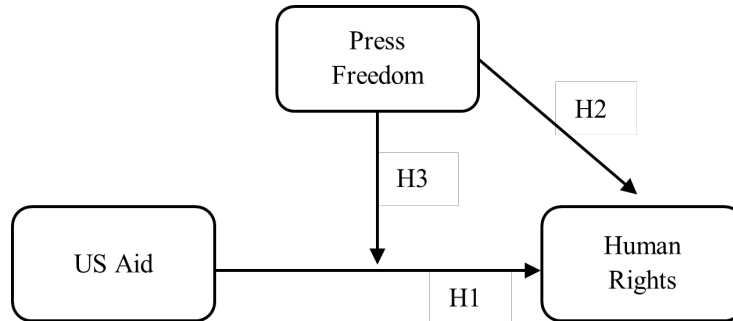


Figure 7. Distributions of variables used in the regression model

## Results and Discussion

In my sample, 135 unique countries are classified as developing countries, out of which 101 countries survive in the regression model as 34 countries drop due to missing values in any variable. The tested period is constrained from 2007 to 2018 because Fragile States Index is available only from 2006 and the Polity score is available only up to 2018 as seen in Table 1. In sum, the panel data used in the regression model contains total 101 countries for the period between 2007 and 2018. The regression results are summarized in Figure 8. I find statistically significant results in Hypothesis H1, H2 and H3.



**Figure 8.** The diagram shows the relationship among three main variables hypothesized in my research.

Column 1 to 3 in Table 3 shows the results from the multivariate linear regression Model 1 to 3 described above. The coefficients of the primary independent variable  $\Delta(\text{US Aid/GDP})_{i(t-2)}$  are statistically significant ( $p < 0.01$ ) in all three models. In Model 1, the coefficient of  $-0.506$  indicates that human rights, measured by the Fragile States Index, is expected to improve on average by 0.506 points if the U.S. increases the amount of aid by 1% point over GDP of the recipient country.

In terms of the effect of press freedom on human rights, both Model 1 and Model 2 show statistically significant results ( $p < 0.05$ ) but in Model 3, which includes both the country and time fixed effects, the result is not statistically significant. In Model 1, the coefficient  $-0.017$  of  $\Delta\text{PFI}$  indicates that human rights measured by the Fragile States Index are expected to improve on average by 0.017 points if the press freedom measured by Press Freedom Index improves by 1 point.

Finally, I find the coefficient on the interaction term of U.S. aid and press freedom to be statistically significant in all three models ( $p < 0.01$  in Model 2 and 3 while  $p < 0.10$  in Model 1). In Model 1, the coefficient  $-0.028$  of the interaction term between  $\Delta(\text{US Aid/GDP})_{i(t-2)}$  and  $\Delta\text{PFI}_{i(t-2)}$  indicates that human rights is expected to improve by 0.028 points if the U.S. aid over GDP increases by 1% point and press freedom improves by 1 point in the same year.

To estimate the aggregate effect on human rights of the 1% point change in U.S. aid over GDP simultaneously with 1 point change in Press Freedom Index in the aid-recipient country, one needs to sum up three coefficients of  $\Delta(\text{US Aid/GDP})$ ,  $\Delta\text{PFI}$ , and  $\Delta(\text{US Aid/GDP}) * \Delta\text{PFI}$ . In Model 1, the aggregate number is 0.551, which implies the human rights level improves by 0.67% ( $= 0.551/82$ ) on average given the average FSI of developing countries in my sample is 82 as shown in Table 2.

Regarding the coefficients on control variables, the coefficient signs of GDP, FDI and level of democracy are all negative in Model 1 to 3 in Table 3. At the same time, that of population is mixed probably because the country fixed effect in Model 2 and 3 absorbs the explanatory power of a population variable whose value changes gradually over time. The coefficient sign of GDP indicates that higher economic development and size positively affect human rights improvement. The coefficient sign of FDI is consistent with Kim and Trumbore (2010) who find mergers and acquisitions (M&As), one specific form of FDI, positively impact human rights conditions. The level of democracy is positively associated with human rights conditions, consistent with Callaway and Matthews (2008). Finally, the

coefficient sign of population in Model 1 is consistent with Henderson (1991) who argues that a government puts more repression when population increases as the pressure on resource allocation also increases.

In conclusion, my research provides empirical evidence that (1) U.S. aid makes a positive impact on human rights improvement in aid-recipient countries, (2) press freedom improvement also makes a positive impact on human rights improvement, and (3) press freedom strengthens the effect of U.S. aid on human rights in aid-recipient countries.

**Table 3.** Regression results are presented. The t-statistics are reported in parentheses. The superscripts \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. To save space, coefficients of country and year dummy variables are omitted.

DV = $\Delta FSI_t$	Model 1	Model 2	Model 3
Intercept	2.525*** (0.503)	19.342*** (2.269)	13.523*** (2.920)
$\Delta(\text{US Aid/GDP})_{i(t-2)}$	-0.506*** (0.171)	-0.508*** (0.164)	-0.423*** (0.152)
$\Delta PFI_{i(t-2)}$	-0.017** (0.008)	-0.014* (0.007)	-0.009 (0.007)
$\Delta(\text{US Aid/GDP})_{i(t-2)} * \Delta PFI_{i(t-2)}$	-0.028* (0.017)	-0.045*** (0.016)	-0.042*** (0.015)
GDP (ln)	-0.296*** (0.071)	-1.632*** (0.277)	-1.209*** (0.280)
FDI (ln)	-0.070* (0.042)	-0.136** (0.061)	-0.098* (0.057)
Population (ln)	0.407*** (0.072)	-1.100 (0.995)	-0.402 (1.214)
Level of Democracy	-0.004 (0.009)	-0.093*** (0.029)	-0.097*** (0.027)
R-squared	0.053	0.246	0.371
R-squared Adj.	0.047	0.166	0.297
N	1,124	1,124	1,124
Fixed Effect - Country	No	Yes	Yes
Fixed Effect - Year	No	No	Yes

## Conclusion and Limitation

Empirical studies from the literature to understand the impact of U.S. foreign aid on human rights practices of aid-recipient countries provide mixed results. Previous literature uses the absolute amount of foreign aid as the independent variable and the absolute level of the human rights index as the dependent variable. Moreover, the authors choose different indexes as human rights measures depending on their objectives and preferences. My research tries to contribute to this debate by proposing a new statistical approach to test the effect of the change in U.S. aid on the change in human rights of aid-recipient countries. My statistical models predict that the effect of foreign aid is not only positive but also statistically significant in improving human rights conditions in aid-recipient countries. My paper sheds new light on whether the U.S. should or should not continue to provide aid to other developing countries.

For this study, I use Fragile States Index as a dependent variable and U.S. aid as an independent variable. Then, I analyze the effect of aggregate U.S. aid on comprehensive human rights conditions from a big picture

perspective. Despite my study's thorough analysis into this topic, this paper does not examine the specific components of U.S. aid that affects specific aspect of human rights.

The FSI consists of a total of 12 subsectors, in which each subsector gets a score from 0 to 10, resulting in the total FSI score ranging from 0 to 120. Twelve subsectors are (1) Security Apparatus, (2) Factionalized Elites, (3) Group Grievance, (4) Economic Decline, (5) Economic Inequality, (6) Human Flight and Brain Drain, (7) State Legitimacy, (8) Public Services, (9) Human Rights, (10) Demographic Pressures, (11) Refugees and Internally Displaced Persons, and (12) External Intervention. Likewise, U.S. aid amounts are classified into nine categories which are (1) Peace and Security, (2) Democracy, Human Rights, and Governance, (3) Health, (4) Education and Social Services, (5) Economic Development, (6) Environment, (7) Humanitarian Assistance, (8) Program Support and (9) Multi-sector.

Therefore, for future research, it would be worthwhile to examine which subsector within FSI is most significantly affected by U.S. aid. One can run a regression model using each subsector score as a dependent variable, resulting in 12 different regressions. Likewise, as U.S. aid amounts are classified into nine categories, it could replace U.S. aid with nine explanatory variables in the regression model to find which type of U.S. aid significantly affects the recipient countries' human rights conditions.

## Acknowledgments

I would like to thank my mentor, Professor Seongkyu "Gilbert" Park, for his advice and guidance while developing this research work. I have learned a lot about how to approach research questions, how to use research methodology, and last but not least, how to think about normative science. I also want to thank my teacher, Mrs. Yingru McCaughey, who kindled my passion and love for mathematical research. I am grateful for her support and encouragement throughout my study.

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