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**The Economic Determinants of Civil Unrest:  
a Cross-National Study**

by

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August 2014

## **ABSTRACT**

The issue of civil unrest is of tremendous importance for the successful implementation of economic and social policies. The last five years have shown that civil unrest can have far-reaching outcomes; removing governments from power to ending an increase in tuition fees. The phenomenon is common to developing and industrialized countries. This study assesses the economic factors to civil unrest by examining the behavior of 57,026 individuals across 43 countries. Data is retrieved from the 2005-2008 wave of the World Values Survey (WVS), the corresponding Freedom House Gastil Index, and country level macro data from the World Bank Tables. Binary logistic and probit regression models reveal the role of inflation, unemployment, income, economic growth, education and civil freedom on the likelihood of participating in civil unrest. The findings reveal a varying impact of these variables among developing and industrialized countries.

Key words: civil unrest, protest, inflation, income, education, employment, gni growth, Gastil index, binary, logistic, probit

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## 1. INTRODUCTION

Civil unrest has been increasingly showcased in recent times with the latest upheavals of Occupy Wall Street demonstrations, the Arab Spring, and student demonstrations in Quebec. The phenomenon is common to developing and industrialized countries alike. Internal upheaval is now more common than international conflict. According to the Stockholm International Peace Research Institute 37 of the major active conflicts for 2011 were internal (SIPRI Yearbook 2013).

Yet, these events are in conflict with Mancur Olson's influential contributions on collective action. Based on rational choice theory, rational, self-interested individuals will not bear the cost of participating in group action and will instead 'free-ride' on the willingness of others to participate (Olson 1971). A key to Olson's argument is the concept that the outcome of any collective action is considered a public good and hence it cannot be withheld from any individual. There are many assumptions underlying Olson's "free-rider" problem and more recently some of these assumptions have been relaxed by Moore (1995). Olson's formulations were profound after decades of scholarship examining individual grievances to explain collective action (Humphries & Weinstein 2008). It appears that collective action leading to civil unrest is a variable and complex response. Why do some students protest and others choose to avoid it? Olson offered a partial explanation to the free-rider dilemma by introducing the notion of selective incentives; these are private goods offered to individuals to induce participation. Lichbach (1995) describes a range of private goods including money, land, looting and positions of authority. Another important private good offered by the collective group is to provide protection from violence. For example, an important strategy individuals use to protect themselves from violence by an opposing faction is to participate in a militia faction (Goodwin 2001; Kalyvas and Kocher 2007; Mason and Krane 1989).

Contrary to the idea of selective incentives to induce collective action, Davies, perhaps best known for his J-curve theory (1962), asserts that people's unmet expectations from a sudden crisis leads to civil unrest. His upside down J depicts civil strife as a response to sustained

economic development lifting people's expectations that end up unmet as they are presented with a sudden crisis. This crisis can be an unexpected decline in the economic conditions or a sudden increase in inequality from sustained growth. In line with Davies' J-curve theory is Gurr's influential theory on relative deprivation as the cause of civil unrest. Gurr stipulates that relative deprivation between what is and what people believe can be results in disruption and political violence. He states "discrepancy between the goods and conditions of life [people] believe are their due, and the goods and condition they think they can in fact get and keep" (Gurr 1970: 319) result in civil disorder.

Recent economic literature on the determinants of civil conflict place economic factors that motivate individuals for collective action into two categories: motives of greed and motives of grievance (Keen 2012, Humphreys & Weinstein 2008, Collier & Hoeffler 2004). This characterization helps to contrast opposing hypothesis of economic approaches to civil unrest that underlie an individual's decision to participate in collective action (Collier & Hoeffler 2004).

The first model assumes that individuals who participate in civil unrest are motivated by greed. The greed category is comprised of material incentives to induce or deter individual participation. Examples include rewards from looting or disincentives of holding a job. A small economic theory literature exemplified by Grossman (1991, 1999) models rebellions as a profitable industry motivated by greed. A key challenge in assessing the relevance of greed is to match the theoretical concept with its empirical counterpart. Two variables of interest are used as proxies to measure material sanctions or benefits of participation. The first variable describes an individual's employment status. This is important for two reasons: opportunity costs and risks of losing a job. First, employed individuals may not have sufficient time to contribute to protests because being employed may constrain the number of hours available for protest activities. Second, employment raises the risks of getting fired especially if co-workers or employers disapprove of participation (Beyerlein and Hipp, 2006). Hence utilizing the employment status would signal reduced opportunity costs if an individual is unemployed and fall in the greed category. The second variable of interest is inflation as it measures a relative redistribution of

wealth among individuals. Ladd 1981 shows that high inflation leads to arbitrary redistribution of income at the expense of the lower and middle class. Hence those at the lower end of the income scale may rebel to induce income redistribution (Olsen 1982, Smith 1992). Goldstone (1991) found that inflation produces elite conflict and makes states vulnerable for overthrow. Cohen and Linton (2010) found a longstanding relationship between revolt and inflation in their examination of data over the past five centuries.

The second model assumes that individuals who participate in civil unrest are motivated by grievance. The grievance category embodies various sources of frustration or discontent that incite individuals to participate in collective action. Scholars argue that the depth of an individual's discontent over his or her economic position in society is a major causal factor that differentiates between participation and non-participation (Humphries & Weinstein 2008). These grievances can be political, psychological, economic or social, but for the purpose of this study I focus on economic sources. The first variable of interest, income level, is probably more relevant when coupled with the second variable, income growth. I capture economic grievances by using information about the relative level of income of the sampled individual. This is in line with deprivation theory in that civil unrest is driven by relative deprivation of economic growth resulting in unequal divisions of an expanding economic pie. Naturally, the second variable of interest is gross national income (GNI) growth rate. The GNI growth rate of the economy, more significantly in the preceding period, is intended to evaluate new changes in income distribution. In addition, the significance of the GNI growth rate variable is to examine past evidence as presented by Alesina et al (1996) that attribute lower growth rates with a higher probability of unconstitutional political revolt.

Combining the two categories together, motives of greed and motives of grievance imply that an individual's economic position determines his or her propensity to participate in collective action. Hence, I hypothesize that individuals will participate in collective action if:

H1: They are relatively economically deprived in the course of growth

H2: They have a low opportunity cost to participate

The focus of this study is to assess economic explanatory factors for civil unrest based on a cross-national analysis of country data. Regression analyses is conducted and evaluated to formulate conclusions about the empirical evidence. These conclusions are then compared to the theoretical framework to examine the adequacy of the results.

## **2. DATA**

Data for this study come from the 2005-2008 wave of the World Values Survey (WVS), the corresponding Freedom House Gastil Index, and country level macro data from the World Bank Tables. The WVS is a unique data source for analyzing trends in social, political, and cultural values, and public opinion. It began in 1981 with an ongoing data collection effort of conducting surveys in more than 100 countries over the past 30 years. It is well-suited for answering questions about civil society participation and political action because no other academic survey has measured public values in as many countries worldwide and maintained relatively recent data. Other surveys on civil society participation have focused on one country or region making an analysis of cross-country differences difficult. Even if data can be accumulated from multiple surveys, question wording is important to maintain consistency in the measured variable and to avoid variation simply due to a measurement instrument (Klineberg, McKeever & Rothenbach 1998). Many studies have used newspaper reports to collect data on protests and socially disruptive events but these studies suffer from an unsatisfactory data base and as noted in (Wilzig & Ungar, 1985), "a local newspaper from each country as a second source would have been ideal, but problems of language and time made this choice impractical." Consequently, this results in undercounting and leads to the serious problem of making invalid conclusions. The World Handbook of Political and Social Indicators has been frequently utilized and provides "hard data" to study political processes, civil society behaviours and change but a key limitation of this data set is that it ends at 1977. For these reasons, the 2005-2008 WVS constitutes an excellent and broad dataset for evaluating cross-national differences in civil society behaviours and participation.

The Gastil Index is a measure compiled by the human rights organization Freedom House to assess the degree of civil and political freedom across countries over time. In addition, World Bank Tables are utilized to retrieve consistent macro level data of economic indicators.

The results presented in this paper analyze 43 countries that administered the full version of the WVS with their corresponding Gastil Index and macro data on inflation and GNI growth. These countries are presented in Appendix A. In each participating country the survey is conducted in the local language by a principal investigator and her or his team. The average number of individuals surveyed in each country is around 1,500, although final sample sizes for each country range from 900 to 3,050. Results are then translated and compiled into a single dataset for simple comparisons. After excluding missing data the following analyses are based on responses from 57,026 individuals in 43 countries.

The dependent variable in this study is a composite of three public behaviours to measure civil unrest. The first behaviour is associated with a subject's response to join a public protest, the second behaviour is a subject's response to join a boycott, and the third is associated with signing a petition. The question on the WVS reads: " V97.- Now I'd like you to look at this card. I'm going to read out some different forms of political action that people can take, and I'd like you to tell me, for each one, whether you have actually done any of these things, whether you might do it or would never, under any circumstances, do it. Attending lawful demonstration. Joining in boycotts. Signing a petition." Three response categories to this question include: 1) Have done, 2) Might do 3) Would never do. For the purpose of this study I dichotomize the subject's response to "Have done" with a coding of one and the other two responses with a coding of zero. This decision was based on the assumption that answering "Have done" indicates participation and is a better measure of civil unrest. The percent of subjects responding with "Have done" in each country ranges from 46% in Sweden to 3% in China and Vietnam with an average of 20% in all 43 countries. One problem with the survey question however, lies in the word "lawful" which can lead to a biased response given that protest activities are lawful in democratic OECD countries and unlawful in many autocratic developing countries. To minimize for this bias, I add a control variable known as the Gastil index which measures the degree of civil and political freedoms afforded to individuals in a given country. Although the Gastil index is not an

economic variable per se, it is added as a control variable to my independent variables of interest as it is assumed to drive the effect of joining in civil unrest. Without the addition of the Gastil index, I may observe a stronger or weaker correlation in my independent variables that is unwarranted. Hence, I control for other variables that influence the response by adding them to my regression. This method can minimize the effects of the uncontrolled confounding variables to obtain a less biased estimate of the relationship between the explanatory and the dependent variable.

The independent variables in my model are based on the theory presented in the literature. I consider four independent variables; two proxy variables to quantify greed and two variables to quantify grievance. The two primary independent variables of interest are inflation, measured at country level, and Gross National Income growth. Past research has identified inflation as a variable that is significantly correlated with the degree and magnitude of civil unrest (Cohen & Linton 2010, Palmer & Witten 1999, Goldstone 1999, Paldam 1987, Wilzig & Ungar 1985). The measure for inflation was retrieved from World Bank Tables for each country. The second variable of interest is Gross National Income growth which factors relative deprivation resulting from economic growth, which is a key factor to civil unrest stipulated by Davies' J-curve theory and Gurr's relative deprivation theory. The third variable of interest is an individual's income. In Western post-industrial nations, Dalton (2006) found that the rise in income levels produced affluent citizens with little incentive to overthrow established political regimes from which they draw many benefits. Hence we should expect those on the lower income scale to be correlated with higher degrees of civil unrest as they tend to express their grievances while those on the higher income scale are rather satisfied. In this study, income is measured on a scale ranging from one to ten with one indicating the lowest income step and ten indicating the highest income step as shown in Table 1. The fourth variable measures an individual's employment status. I assume that an employed individual has a material incentive not to participate in civil unrest, while an unemployed individual signals a low opportunity cost for participation and would therefore be more likely to participate. The employment status is also measured on a scale ranging from one to eight with one indicating full-time employment, four indicating retired persons, and seven indicating unemployment as shown in Table 1.

Two variables, education and Gastil index, are assumed to impact the correlations of the results and are added to the model as controls. Ronald Inglehart (1990) argues that unprecedented access to education and access to information creates a value shift where citizens are less concerned with physical and economic security and more concerned with post-materialist values of women's rights, elite corruption, and environmental degradation. Hence it is expected that with higher levels of education, individuals are more informed and more likely to join in civil unrest. For the purpose of this study, education is measured on a scale ranging from one to nine, with one indicating no education and nine indicating a university education with a degree as shown in Table 1.

The second control variable measures a country's political and civil freedom, the extent to which citizens are able to express their concerns without the risk of punishment or consequences. The Gastil index retrieved from Freedom House ranks a country's civil and political freedoms using data on civil society organizations, independent media and democratic elections. The index measure is continuous and ranges from one being completely free, four being partly free to seven not free at all. Norris (2002) found that Freedom House measure of freedom variable correlate strongly with national levels of protest.

### **3. METHOD**

I first present a series of graphs to visually illustrate the relationships between the independent variables of interest and degree of civil unrest. For each independent variable I separately graph its association with magnitude of civil unrest for OECD countries and developing countries. It is important to note that the correlations depicted by these graphs do not imply causation. They are simply visual representations of the variables to compare between OECD and developing countries. To examine the causal relationship, I estimate three logistic regression models and three probit regression models and test the statistical significance of these relationships. Model 1 includes all observations from all countries, Model 2 includes observations only from OECD countries, and Model 3 includes observations only from developing countries. I utilize a logistic and probit regression because of the binary nature of the outcome variable. In these models, self-

reported participation in civil unrest is a binary response in which  $y_i=1$  identifies participation for individual  $i$ . Rather than writing the binary outcome variable that only takes two values, 1 and 0, as a linear function of  $X$  independent random variables, I instead utilize an index function model that proposes the existence of an underlying continuous index  $y^*$  related to  $X$ . Hence my model of estimation is  $y^* = \alpha + \beta X + \varepsilon$  where  $y^*$  is the propensity that  $y_i=1$ .

$$y_i = 1 \text{ if } y^* > \gamma$$

$$y_i = 0 \text{ if } y^* \leq \gamma$$

where  $\gamma$  is the threshold. The advantage of this model is that the random variable  $X$  can have a linear effect on  $y^*$  which can range from minus to plus infinity while the outcome variable takes on two values, 0 and 1. Another advantage of the index function model is that it maps a direct response, of the individual making the binary choice, into a simple model of utility-maximization. The explanatory and control variables in the model, inflation, gni growth, employment status, income level, education and Gastil index are denoted by  $X$ , which are assumed to explain the causal effect on  $y^*$  with the  $\beta$  coefficients. Since  $y^*$  is not observed the distribution of the errors,  $\varepsilon$ , is unknown. To estimate the equation  $y^* = \alpha + \beta x + \varepsilon$  using the maximum likelihood method, assumption about the distribution of the errors is required. I make use of the two models, the logit and the probit models, as they hold different assumptions about  $\varepsilon$ . The logit model assumes that the errors have a standard logistic distribution where

$$F(X'\beta) = \Omega(X'\beta) = \frac{\exp(X'\beta)}{1 + \exp(X'\beta)}$$

On the other hand, the probit model assumes that the errors have a normal distribution where

$$F(X'\beta) = \Theta(X'\beta) = \int_{-\infty}^{x'\beta} \theta(z) dz$$

The results tend to be fairly similar across both models. However, in the field of economics the logit model tends to hold greater preference.

In the first set of models shown in Tables 3,4, and 6, logistic regression coefficients are translated into odds ratios by exponentiating the coefficients. The odds ratios express the odds that an individual will participate in a civil unrest. The coefficients differ among the models because of the functional form of the  $F$  function. However, in interpreting the coefficients only

the sign is utilized in my assessment and not the magnitude. The magnitude of the coefficients cannot be interpreted since the probit and logistic models have different scales of coefficients. To interpret the magnitude, I calculate the marginal probabilities shown in Appendix B. The marginal effect reflects the change in the probability of civil unrest participation given a one unit change in the independent variable.

The countries in my analysis are divided into separate development categories based on the international economic association, the Organization for Economic Cooperation and Development (OECD). OECD countries are typically post-industrial Western nations with more affluent economies while developing countries possess lower living standards, GNI per capita, and a lower industrialized base. Countries categorized as OECD or developing in the analysis are shown in Appendix A.

Tables 1 and 2 provide a descriptive statistic of the variables and the metrics involved with the standard errors in parentheses.

#### **4. RESULTS AND INTERPRETATION**

Dividing the countries into separate economic categories reveal different results based on the general economic and social conditions experienced by individuals.

When graphing the data to observe the correlation between inflation and degree of civil unrest for developing countries, a slightly negative correlation between the two variables exist with  $r=-0.12$ . For OECD countries, the correlation between inflation and civil unrest is  $r=-0.39$ . In OECD countries, I observe a data point, Chile, with an extreme value that could have a negative effect on my estimators. As an outlier, I remove Chile from my sample. Figures 1-2 provide a visual representation of the sample data and their respective correlations.

Next, I plot the correlation between gross national income growth rate and degree of civil unrest. For developing countries, the correlation holds a negative sign with  $r=-0.056$ . For OECD countries the correlation also hold a negative sign with  $r=-0.39$ . Figure 3-4 illustrate these correlations with a visual representation.

**Table 1: Descriptive Statistics**

	Employment	Income <sup>1</sup>	Education
Level 1	Full-time employee 30 hours a week or more	Lower Step Up to \$12,500	No Formal Education
Level 2	Part-time employee less than 30 hours a week	Second Step \$12,501 - \$20,000	Incomplete primary school
Level 3	Self-employed	Third Step \$20,001 - \$27,500	Complete primary school
Level 4	Retired/pensioned	Fourth Step \$27,501 - \$35,000	Incomplete secondary school: technical/vocational type
Level 5	Housewife not otherwise employed	Fifth Step \$35,001 - \$42,500	Complete secondary school: technical/vocational type
Level 6	Student	Sixth Step \$42,501 - \$50,000	Incomplete secondary school: University preparatory type, secondary intermediate general qualification
Level 7	Unemployed	Seventh Step \$50,001 - \$62,500	Complete secondary school: University preparatory type, secondary intermediate general qualification
Level 8	Other	Eighth Step \$62,501 - \$75,000	Some university-level education, without degree
Level 9		Ninth Step \$75,001 - \$100,000	University level education, with degree
Level 10		Upper Step \$100,000 or more	

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<sup>1</sup> Note: Annual income is equivalent to Canadian dollars

Table 2: Descriptive Statistics and Metrics of Variables

<b>Variable</b>	<b>Metric</b>	<b>All Countries Mean (SD)</b>	<b>OECD Countries Mean (SD)</b>	<b>Developing Countries Mean (SD)</b>
<b>Dependent Measures</b>				
Civil Unrest: Participation in public protest, sign a petition, join a boycott	1=Yes	0.387 (0.002)	0.615 (0.003)	0.256 (0.002)
<b>Independent Variables</b>				
Inflation	Percent	0.0660 (0.0002)	0.0255 (0.0001)	0.0899 (0.0002)
Income	1 - 10	4.570 (0.01)	4.835 (0.017)	4.418 (0.012)
GNI growth	Percent	0.095 (0.006)	0.055 (0.055)	0.1176 (0.0009)
Employment status	1 - 8	3.38 (0.009)	3.095 (0.0145)	3.55 (0.0119)
<b>Control Variables</b>				
Gastil Index	1-7, 1=Free 7=Not Free	2.71 (0.007)	1.25 (0.004)	3.56 (0.008)
Education	1 - 9	5.35 (0.01)	5.92 (0.015)	5.02 (0.0133)
Number of Countries		43	19	24
Number of Observations		57026	20828	36198

Source: World Values Survey 2005-2008 and Freedom House Gastil Index and World Bank Tables

Next, I plot the employment status, recall this variable is measuring the degree of employment on a scale of one to eight. For developing countries, the correlation is positive with  $r=0.2$ . For OECD countries, the correlation is negative with  $r=-0.5$ . Figures 5 and 6 provide a visual representation.

The next set of graphs show the correlations between income and civil unrest. For developing countries, the correlation is positive with  $r=0.1$ . For OECD countries, the association between income and civil unrest is also positive with  $r=0.63$ . Figures 7-8 show this visual representation. Again, these correlations do not provide any insight about the relationship of these variables. To explore the magnitude and direction of these relationships binary regression models are run and analyzed

To evaluate the statistical significance of my hypothesis and compare the relative effects of each of the factors assumed to influence civil unrest, Table 3 presents a series of logistic and probit regressions for the grievance model.

The grievance model results reveal a few main findings, some of which confirm prior research and some that point to new observations. Among the findings that confirm prior research is that GNI growth rate and income levels are statistically significant with civil unrest at the 1% level. However, it is interesting to note that the lowest income level does not hold any statistical significance in all three models of grievance. This could suggest that those at the lowest income scale are not interested in the economic affairs of the state or are preoccupied with finding means to put bread and butter on the table. Individuals at the middle income step and the highest income steps are 1.5 to 2 times more likely to join in civil unrest, as the odds ratios demonstrate in Model 1. This behaviour appears to be true for both OECD (Model 2) and developing countries (Model 3) with a slightly higher odds ratio for OECD countries. The probit model gives similar results in statistical significance and direction of coefficients as the logistic model. Hence, it appears that individuals from the middle to higher income strata are more inclined to respond to relative deprivation of economic growth than individuals at the lowest income steps. The grievance model suggests that H1 can be accepted with high statistical significance even under varying economic conditions present in OECD and developing countries.

Figure 1

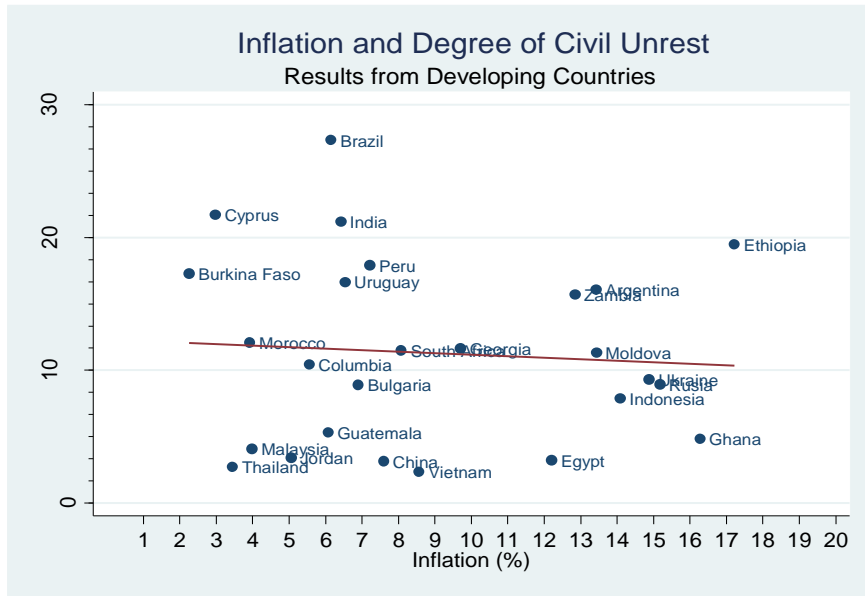


Figure 2

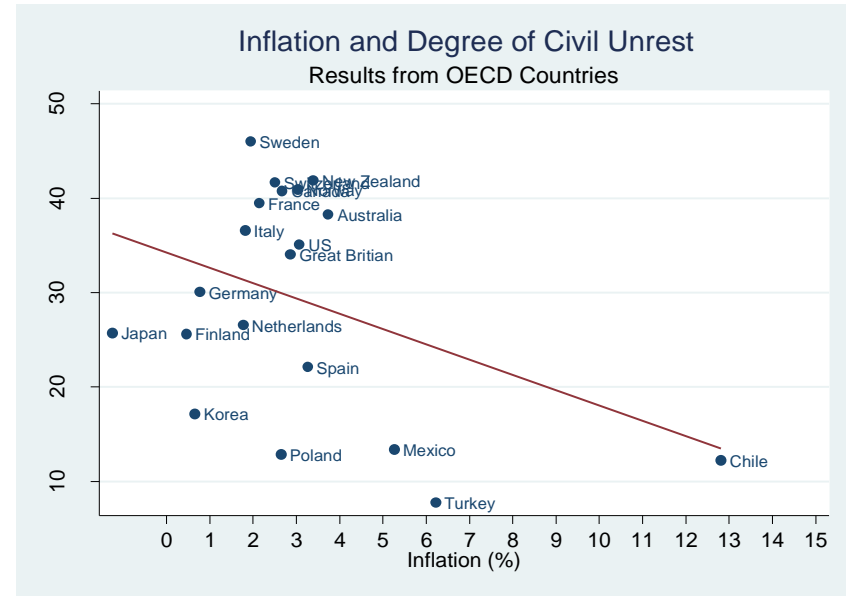


Figure 3

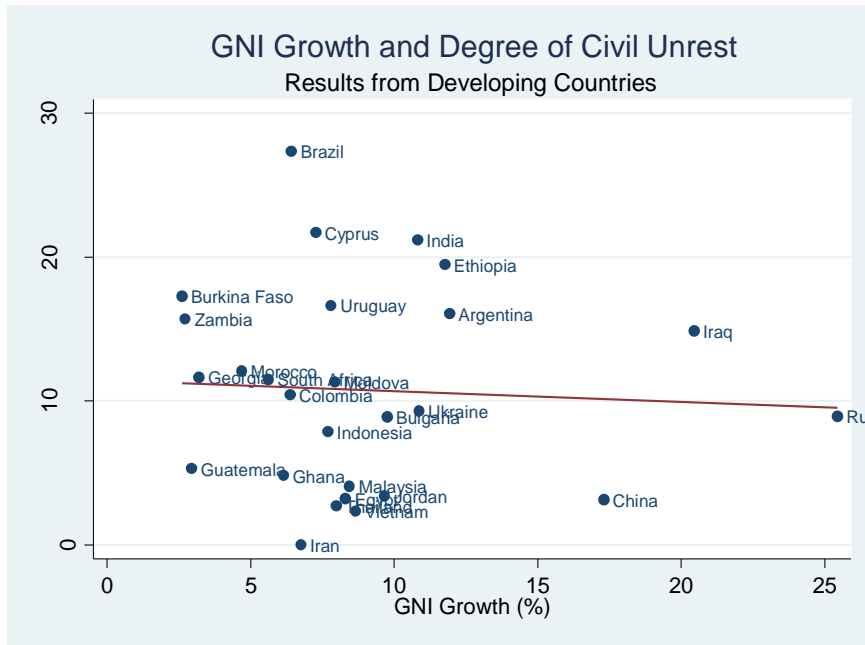


Figure 4

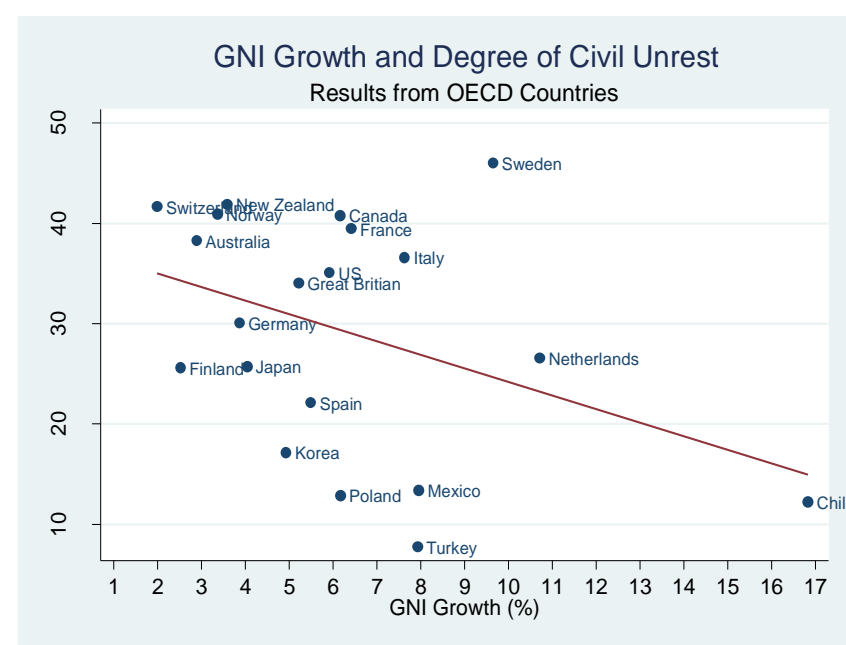


Figure 5

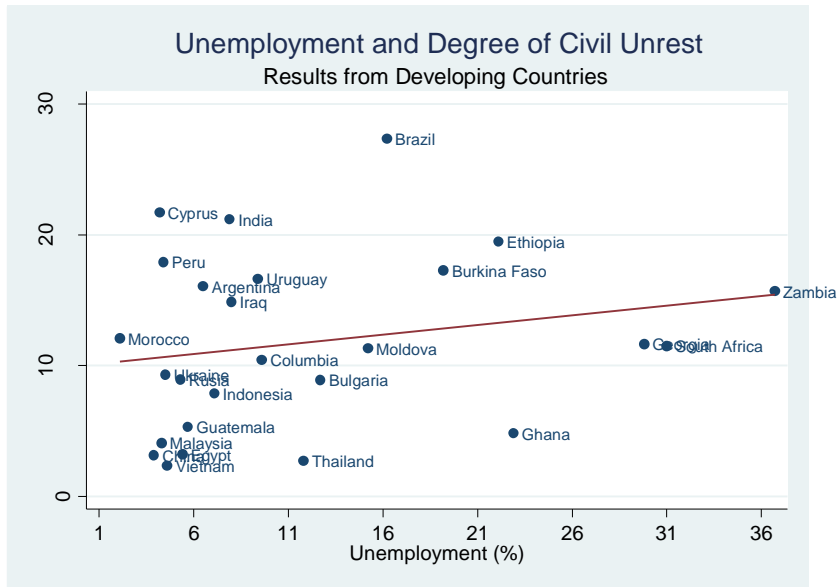


Figure 6

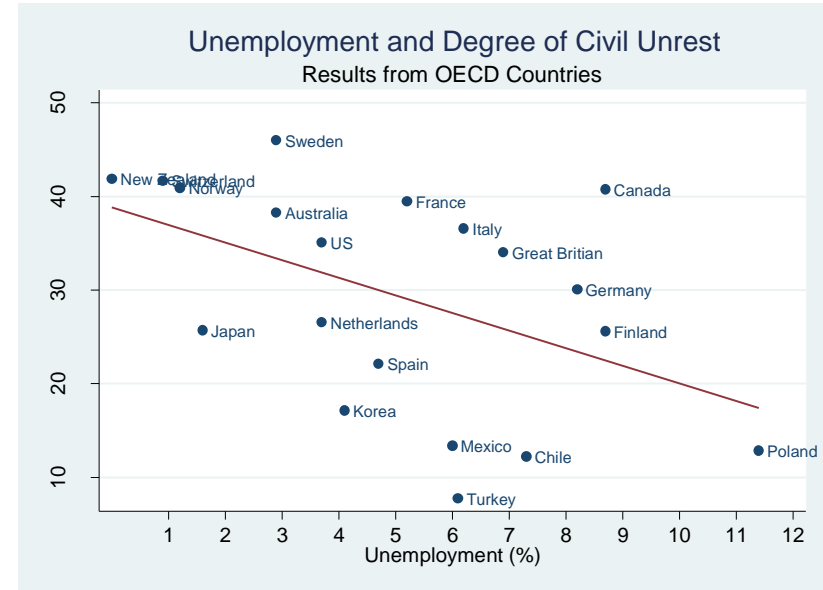


Figure 7

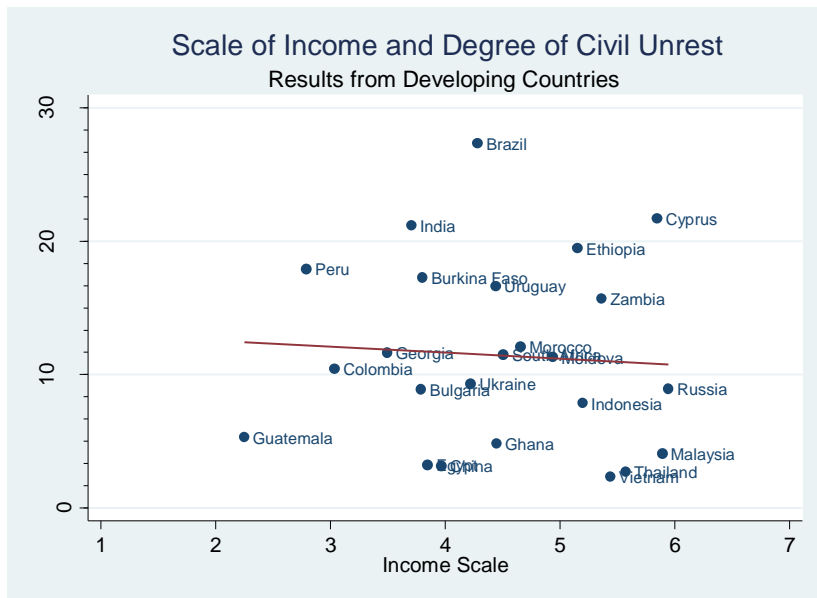
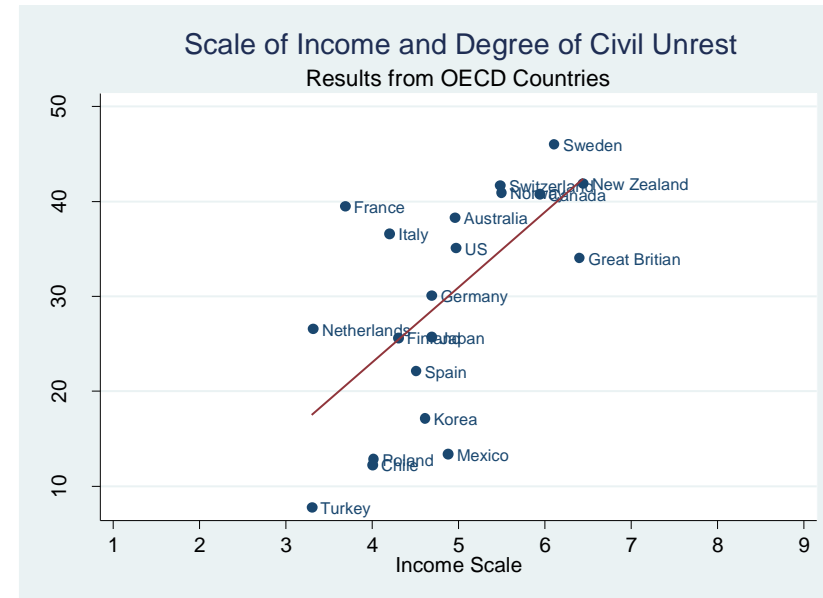


Figure 8



It is interesting to observe that the control variables, education and Gastil freedom index, are all statistically significant at the 1% level in both the probit and logistic models. It appears that those with higher levels of education are more likely to join a civil unrest. According to the odds ratios, those with university degrees are more than 4 times more likely to join in civil unrest. Both OECD and developing countries have similar results in this respect with an interesting observation in developing countries for individuals at the lower education level more likely to protest than in OECD countries.

The Gastil freedom index reveals an expected result, the higher index representing lower civil freedoms the less likely an individual is to join a protest. However, in inspecting the disaggregate regression, OECD countries is at odds with the overall picture. It appears that in OECD countries, the higher the index the more likely an individual is to join a protest. It should be noted that the variation in the data is minimal since OECD countries generally experience lower Gastil index thus affording citizens high degrees of freedom.

All six grievance models have low explanatory power with a pseudo R-squared of 0.14 or lower.

I now examine the greed model to check if it provides a better explanation of civil unrest. The greed model results reveal interesting findings, some of which are expected and some that are somewhat surprising. Among the findings that confirm prior research is that inflation and employment status are statistically significant variables at high levels of 1%. However, the direction of the coefficient is rather obscure for both the logistic and probit models. Since this is a binary regression, the coefficients cannot be interpreted in magnitude. Appendix B provides more detail on the magnitude of the variables by calculating marginal probabilities. The sign of the coefficients in Table 4 can be noted to reveal the direction of the variables. It appears that the higher the inflation the less likely an individual will join in civil unrest. However, the disaggregate regression shows divergent results for OECD and developing countries. For OECD countries, higher levels of inflation have the highest odds ratio showing that the odds an individual will join a protest increases by 40000 times. Meanwhile, in developing countries, it appears that the higher the level of inflation the less likely an individual will join a protest. Although the odds ratio is rather small, at 0.2 times less likely, it is a surprising observation. It seems to suggest that the inflation variable plays a critical role in the greed model but in the opposite direction depending on the overall economic situation, OECD versus developing

country. The marginal probabilities give a better idea in terms of magnitude of the inflation variable with civil unrest. It is interesting to note that the variable could be posing a different effect in OECD and developing countries due to the opportunity costs of holding less cash and having to make additional trips to the bank to counteract the effect of inflation. These costs are specifically known as the shoe leather costs and are more likely to be experienced in developing countries. In OECD countries, since inflation is normally maintained around the 2% levels these shoe leather costs are not present. Based on the greed model, I reject H1 for developing countries that individuals have a propensity to join a protest in the course of relative economic deprivation, in this case due to inflation. However, I accept H1 for OECD countries that individuals have a propensity to join a protest in the course of relative economic deprivation.

In examining the employment status variable, it reveals some interesting results. In both the logit and the probit models, this variable is statistically significant at the 1% level with some exception to individuals who are retired, level 4, who are statistically insignificant to the model. It appears that unemployed individuals, level 7, are less likely to join in civil unrest in both OECD and developing countries. Individuals with part-employment are more likely to join in civil unrest, while students, level 6, are less likely to join in civil unrest. Hence I reject H2 that individuals are more likely to participate in civil unrest if they have a low opportunity cost to participate. In this case, the cost of losing part-employment did not deter individuals from participating in a protest, but on the contrary induced participation. Individuals who are unemployed, retired, housewives, or students with a lower opportunity cost to join in civil unrest were in fact less likely to join a protest according to the greed model. It appears that in OECD and developing countries employment status plays a critical and similar role on the effect of civil unrest holding a high statistical significance, but in an unexpected direction. Hence individuals who are employed are more likely to join a protest than individuals who are unemployed.

The control variables, education and Gastil freedom index, have the same effect as the grievance model.

All six greed models have low explanatory power with a pseudo R-squared of 0.15 or lower.

I now turn to the question of which model provides for a better explanation of the risk of civil unrest; the grievance model or the greed model. Since each model is not a special case of the other, I use the J-test posed by Davidson and MacKinnon (1981) for non-nested models.

As shown in Table 5, I find that I cannot reject one model in favor of the other since  $p(\text{grievance})$  is significant in the greed model and  $p(\text{greed})$  is significant in the grievance model. Hence, I conclude that while the greed model is slightly superior, higher pseudo R-squared, some elements of the grievance model are likely to add to its explanatory power. Therefore, I investigate the combination of the two models as presented in Table 6.

In the combined model, the overall fit is slightly better for OECD countries, yet it is particularly weak for developing countries with a pseudo R-squared of 0.06. Other variables have no statistical significance that had statistical significance in the greed model. Since both the grievance and greed models are nested in the combined model, I use a likelihood ratio test to determine if the combined model is superior. I cannot reject the validity of the restrictions posed by the grievance or the greed models since my p-value for all three models is significant. Although the combined model has a slightly better pseudo R-squared, hence higher explanatory power, some variables are completely insignificant.

The constant is statistically significant in all three models and holds a negative value. Since the independent variable is a binary response (0-non-participation/1-participation), the negative constant in the models represents the magnitude if all covariates are equal to zero, then a failed response of non-participation is approximately one fold as illustrated in Model 1 of the grievance model.

I now turn to examine the marginal probabilities in the combined model to assess the magnitude of the impact of the independent variables on the model. It appears that in OECD countries, an individual is more than 200% more likely to join in civil unrest with a unit increase in inflation, while in developing countries an individual is 18% less likely to join in civil unrest with a unit increase in inflation. One explanation for this variation could be, as noted previously, the effect from the shoe leather costs of inflation experienced in developing countries but not in OECD countries, since in developing countries inflation can increase up to 20% while in OECD countries inflation is well maintained around the 2% range.

The economic growth variable measured by gross national income has a divergent effect in OECD and developing countries. In OECD countries, a person is less likely to join in civil unrest with a unit increase in GNI by about 8%. In developing countries, an individual is more likely to join in civil unrest by 14%. Hence, relative deprivation seems to have a higher impact in developing countries than in OECD countries. Perhaps growth is experienced on a more relative equal terms in OECD countries due to a progressive tax system that redistributes wealth.

The employment status variable is a categorical measure beginning with part-time employment to unemployment. The middle range measures include retired pensioners, housewives, and self-employed individuals. It appears that unemployed individuals are less likely to join in civil unrest by close to 1% in both developing and OECD countries. Hence, being available with a low opportunity cost to participate has an opposite effect on civil unrest.

A unit increase in income increases the likelihood an individual will join in civil unrest by close to 1% in both developing and OECD countries. I interpret the income variable to signify that individuals with resources at the higher income steps have a capacity to participate in civil unrest and are more likely to join the crowd.

Education has a consistent and expected result in both developing and OECD countries with a higher magnitude in OECD countries. A one unit increase in education increases the likelihood an individual joins in civil unrest by 2% in developing countries and 5% in OECD countries. Education has almost twice the impact in OECD countries. Past research by Barnes and Kaase (1979) noted that since the 1970s countries "have to contend with a polity full of young, well-educated men and women who do not accept that their political efficacy is bounded by officially sanctioned channels of representative democracy. They have a wider armory to deploy, and seem very willing to use it." (Barnes & Kaase:135).

The Gastile index variable also reveals some expected results. The more restrictive and unfree nation states, the less likely an individual is to join in civil unrest. This could be a result of increased costs from punishment, imprisonment, or torture that deter individuals from participation.

The predictive capacity of the combined, grievance, and greed models ranges around the 70% accuracy with a higher range for developing countries reaching 75% accuracy as illustrated in

Appendix B, Model 3. This is a fairly acceptable rate in predicting civil unrest and these models could shed some understanding on the explanatory variables of participation.

**Table 3: Grievance Model**

Variables	LOGISTIC			PROBIT					
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3			
	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio			
Independent Variables									
GNI growth	0.29 (0.06)***	1.34 (0.04)***	-1.23 (0.04)***	0.12 (0.06)***	0.73 (0.06)***	2.08 (0.04)***	0.18 (0.04)***	-1.29 (0.45)***	0.45 (0.04)***
Income									
Level 1									
Level 2	0.06 (0.04),	1.06 (0.07),	0.07 (0.07),	1.08 (0.05),	0.04 (0.05),	1.04 (0.05),	0.03 (0.02),	0.04 (0.04),	0.02 (0.03),
Level 3	0.18 (0.04)***	1.19 (0.04)***	0.08 (0.06)	1.08 (0.05)***	0.19 (0.05)***	1.21 (0.05)***	0.11 (0.02)***	0.04 (0.04),	0.11 (0.03)***
Level 4	0.19 (0.04)***	1.21 (0.04)***	0.07 (0.06)	1.08 (0.05)***	0.23 (0.05)***	1.26 (0.05)***	0.12 (0.02)***	0.04 (0.04),	0.13 (0.03)***
Level 5	0.22 (0.04)***	1.25 (0.06)*	0.12 (0.06)*	1.12 (0.05)***	0.24 (0.05)***	1.27 (0.05)***	0.14 (0.02)***	0.06 (0.04)*	0.14 (0.03)***
Level 6	0.3 (0.04)***	1.34 (0.07)***	0.21 (0.07)***	1.23 (0.05)***	0.3 (0.05)***	1.35 (0.05)***	0.19 (0.02)***	0.12 (0.04)***	0.18 (0.03)***
Level 7	0.29 (0.04)***	1.33 (0.07)***	0.32 (0.07)***	1.37 (0.06)***	0.19 (0.06)***	1.21 (0.06)***	0.18 (0.02)***	0.19 (0.04)***	0.11 (0.03)***
Level 8	0.32 (0.05)***	1.37 (0.08)***	0.32 (0.08)***	1.37 (0.06)***	0.25 (0.06)***	1.29 (0.06)***	0.19 (0.03)***	0.18 (0.05)***	0.15 (0.04)***
Level 9	0.72 (0.06)***	2.05 (0.09)***	0.67 (0.09)***	1.95 (0.09)***	0.37 (0.09)***	1.44 (0.09)***	0.44 (0.04)***	0.39 (0.05)***	0.21 (0.06)***
Level 10	0.75	2.11	0.72	2.06	0.27	1.3	0.47	0.42	0.15

	(0.06)***		(0.09)***		(0.11)**		(0.04)***		(0.05)***		(0.07)**
Education											
Level 1											
Level 2	0.28 (0.06)***	1.32	-0.35 (0.16)**	0.7	0.55 (0.06)***	1.74	0.14 (0.03)***	-0.23 (0.09)**		0.3 (0.04)***	
Level 3	0.32 (0.05)***	1.37	0.02 (0.14)***	1.02	0.36 (0.06)***	1.43	0.16 (0.03)***	-0.005 (0.08),		0.19 (0.03)***	
Level 4	0.81 (0.06)***	2.26	0.44 (0.15)***	1.6	0.77 (0.06)***	2.16	0.46 (0.03)***	0.25 (0.09)***		0.43 (0.04)***	
Level 5	0.95 (0.05)***	2.59	0.71 (0.14)***	2.04	0.78 (0.06)***	2.19	0.53 (0.03)***	0.41 (0.08)***		0.43 (0.03)***	
Level 6	0.82 (0.06)***	2.26	0.82 (0.15)***	2.28	0.67 (0.07)***	1.96	0.45 (0.03)***	0.48 (0.09)***		0.37 (0.04)***	
Level 7	0.88 (0.05)***	2.41	1 (0.15)***	2.7	0.74 (0.06)***	2.09	0.49 (0.03)***	0.58 (0.08)***		0.41 (0.03)***	
Level 8	1.4 (0.06)***	4.17	1.11 (0.15)***	3.06	1.33 (0.07)***	3.8	0.83 (0.03)***	0.66 (0.09)***		0.77 (0.04)***	
Level 9	1.5 (0.05)***	4.32	1.36 (0.15)***	3.9	1.34 (0.06)***	3.81	0.85 (0.03)***	0.8 (0.08)***		0.77 (0.03)***	
Gastil Index	-0.48 (0.01)***	0.62	-1.23 (0.04)***	0.3	-0.24 (0.01)***	0.79	-0.28 (0.003)***	-0.73 (0.02)***		-0.14 (0.004)***	
Constant	-0.36 (0.06)***	0.7	1.2 (0.16)***	3.3	-1.27 (0.07)***	0.28	-0.2 (0.03)***	0.74 (0.09)***		-0.74 (0.04)***	
No. of Countries	43		19		24		43		19		24
No. of Observations	57026		20828		36198		57026		20828		36198
Pseudo R <sup>2</sup>	0.14		0.12		0.05		0.14		0.12		0.05
Lg Likelihood	-32740		-12177		-19467		-32795		-12178		-19467

<sup>2</sup>Note: Standard errors are in parentheses. \*, \*\*, \*\*\* indicate significance level at the 10%, 5%, and 1% respectively

**Table 4:  
Greed  
Model<sup>3</sup>**

Variables	LOGISTIC			PROBIT					
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3			
		Odds Ratio	Odds Ratio	Odds Ratio					
Independent Variables									
Inflation	-5.26 (0.25)***	0.005 (1.07)***	10.64 (0.3)***	41910 0.2	-1.58 (0.15)***	0.2 6.59 (0.65)***	-2.96 (0.17)***		
Employment	Level 1								
	Level 2	0.07 (0.04)*	1.07 (0.06)***	0.19 (0.05),	1.2 (0.04)***	0.01 1.15	1 0.04 (0.02)*	0.11 (0.04)***	0.006 (0.03),
	Level 3	0.05 (0.03)*	1.06 (0.06)***	0.19 (0.04)***	1.2 (0.04)***	0.14 (0.02),	1.15 (0.02),	0.11 (0.04)***	0.08 (0.02)***
	Level 4	-0.02 (0.03),	0.98 (0.04),	-0.07 (0.05),	0.93 (0.05),	-0.07 (0.02),	0.93 (0.02),	-0.04 (0.03),	-0.03 (0.03),
	Level 5	-0.51 (0.03)***	0.6 (0.05)***	-0.24 (0.05)***	0.79 (0.05)***	-0.54 (0.02)***	0.58 (0.02)***	-0.14 (0.03)***	-0.31 (0.02)***
	Level 6	-0.33 (0.04)***	0.71 (0.07)***	-0.44 (0.04)***	0.64 (0.04)***	-0.13 (0.02)***	0.87 (0.02)***	-0.26 (0.04)***	-0.08 (0.03)***
	Level 7	-0.24 (0.03)***	0.79 (0.07)***	-0.27 (0.04)***	0.76 (0.04)***	-0.11 (0.02)***	0.89 (0.02)***	-0.16 (0.04)***	-0.06 (0.02)**
	Level 8	-0.18	0.83	-0.04	0.96	-0.53	0.58	-0.11	-0.3

<sup>3</sup>Note: Standard errors are in parentheses. \*, \*\*, \*\*\* indicate significance level at the 10%, 5%, and 1% respectively

	(0.06)***		(0.09)***		(0.01)***		(0.04)***		(0.05),		(0.05)***
Education	Level 1										
	Level 2	0.34	1.41	-0.33	0.72	0.6	1.83	0.18	-0.21		0.32
		(0.06)***		(0.16)**		(0.07)***		(0.03)***	(0.09)**		(0.04)***
	Level 3	0.31	1.36	0.03	1.03	0.36	1.43	0.16	0.004		0.19
		(0.05)***		(0.14),		(0.06)***		(0.03)**	(0.09),		(0.03)***
	Level 4	0.88	2.4	0.4	1.49	0.89	2.43	0.5	0.22		0.49
		(0.06)***		(0.15)***		(0.07)***		(0.03)***	(0.09)***		(0.04)***
	Level 5	1.03	2.8	0.76	2.13	0.88	2.42	0.6	0.44		0.49
		(0.05)***		(0.14)***		(0.06)***		(0.03)***	(0.08)***		(0.03)***
	Level 6	0.93	2.54	0.83	2.29	0.73	2.09	0.5	0.49		0.4
		(0.06)***		(0.15)***		(0.07)***		(0.03)***	(0.09)***		(0.04)***
	Level 7	0.94	2.57	1.16	3.18	0.78	2.18	0.53	0.68		0.43
		(0.05)***		(0.14)***		(0.06)***		(0.03)***	(0.08)***		(0.03)***
	Level 8	1.5	4.77	1.19	3.3	1.45	4.28	0.91	0.71		0.83
		(0.06)***		(0.15)***		(0.07)***		(0.03)***	(0.09)***		(0.04)***
	Level 9	1.6	4.84	1.57	4.8	1.4	4.08	0.92	0.93		0.81
		(0.05)***		(0.15)***		(0.06)***		(0.03)***	(0.08)***		(0.03)***
Gastil Index		-0.38	0.68	-1.44	0.23	-0.22	0.8	-0.22	-0.87		-0.13
		(0.01)***		(0.04)***		(0.01)***		(0.004)***	(0.02)***		(0.005)***
Constant		0.02	1.02	1.24	3.44	-0.89	0.41	0.02	0.76		-0.53
		(0.05),		(0.15)***		(0.06)***		(0.03),	(0.09)***		(0.04)***
No. of Countries		43		19		24		43		19	24
No. of Observations		57026		20828		36198		57026		20828	36198
Pseudo R^2		0.15		0.12		0.06		0.14		0.12	0.06
Lg Likelihood		-32449		-12139		-19419		-32528		-12138	-19424

**Table 5: J-Test**

		Grievance Model			Greed Model			
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	
Predicted Value	Greed Pr	5.04 (0.15)***	3.8 (0.32)***	5.08 (0.34)***	Griev. Pr	4.39 (0.22)***	3.8 (0.42)***	4 (0.35)***
Pseudo R <sup>2</sup>		15.6	12.7	0.06		15.2	12.8	0.06

**Table 6: Combined Model**

Variables	LOGISTIC			PROBIT						
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3				
		Odds Ratio	Odds Ratio	Odds Ratio						
Independent Variables										
Inflation	-5.5 (0.25)***	0.004 (1.11)***	10.7 (0.3)***	44379 (0.3)***	-1.69 (0.15)***	0.18	-3.1 (0.15)***	6.64 (0.67)***	-0.86 (0.18)***	
GNI growth	0.45 (0.06)***	1.57 (0.78)***	-3.61 (0.06)***	0.03 (0.06)***	0.74 (0.04)***	2.09	0.27 (0.04)***	-2.21 (0.47)***	0.45 (0.04)***	
Income	Level 1									
	Level 2	0.017 (0.04),	1.02 (0.07),	0.07 (0.05),	1.07 (0.05),	0.02 (0.05)***	1.02	0.01 (0.02),	0.04 (0.04)***	0.01 (0.03),
	Level 3	0.15 (0.04)***	1.16 (0.06),	0.05 (0.05)***	1.05 (0.05)***	0.18 (0.02)***	1.19	0.1 (0.02)***	0.02 (0.04)***	0.1 (0.03)***
	Level 4	0.17 (0.04)***	1.19 (0.06),	0.03 (0.05)***	1.03 (0.05)***	0.22 (0.02)***	1.24	0.1 (0.02)***	0.02 (0.04)***	0.12 (0.03)***
	Level 5	0.21 (0.04)***	1.24 (0.06),	0.06 (0.05)***	1.07 (0.05)***	0.22 (0.02)***	1.25	0.13 (0.02)***	0.04 (0.04)***	0.13 (0.03)***
	Level 6	0.28 (0.04)***	1.32 (0.07)**	0.15 (0.05)***	1.16 (0.05)***	0.28 (0.02)***	1.32	0.18 (0.02)***	0.09 (0.04)***	0.16 (0.03)***
	Level 7	0.28 (0.04)***	1.32 (0.07)***	0.24 (0.06)***	1.28 (0.06)***	0.16 (0.03)***	1.18	0.17 (0.03)***	0.15 (0.04)***	0.09 (0.03)***
	Level 8	0.31 (0.05)***	1.36 (0.08)***	0.21 (0.06)***	1.23 (0.06)***	0.23 (0.03)***	1.25	0.19 (0.03)***	0.12 (0.05)***	0.13 (0.04)***
	Level 9	0.69 (0.06)***	1.99 (0.09)***	0.55 (0.09)***	1.74 (0.09)***	0.36 (0.04)***	1.43	0.42 (0.04)***	0.33 (0.06)***	0.21 (0.06)***

	Level 10	0.7 (0.06)***	2	0.58 (0.09)***	1.79	0.25 (0.11)***	1.28	0.44 (0.04)***	0.33 (0.05)***	0.14 (0.07)**
Employment	Level 1									
	Level 2	0.1 (0.04)***	1.12	0.22 (0.06)***	1.24	0.03 (0.05),	1.03	0.06 (0.02)***	0.13 (0.03)***	0.02 (0.03),
	Level 3	0.03 (0.03),	1.03	0.19 (0.06)***	1.2	0.07 (0.04)***	1.07	0.02 (0.02),	0.11 (0.04)***	0.04 (0.02)*
	Level 4	0.04 (0.03),	1.04	-0.02 (0.04),	0.98	-0.05 (0.05),	0.94	0.03 (0.02),	-0.01 (0.03)***	-0.03 (0.03),
	Level 5	-0.48 (0.03)***	0.62	-0.2 (0.05)***	0.82	-0.56 (0.05)***	0.57	-0.28 (0.02)***	-0.12 (0.03)***	-0.31 (0.03)***
	Level 6	-0.32 (0.04)***	0.73	-0.38 (0.07)***	0.68	-0.15 (0.05)***	0.86	-0.19 (0.02)***	-0.22 (0.04)***	-0.08 (0.03)***
	Level 7	-0.16 (0.03)***	0.85	-0.19 (0.07)***	0.83	-0.06 (0.04),	0.94	-0.09 (0.02)***	-0.11 (0.04)***	-0.03 (0.02),
	Level 8	-0.14 (0.06)**	0.87	0.04 (0.09),	1.04	-0.54 (0.1)***	0.58	-0.09 (0.03)***	0.03 (0.05)***	-0.31 (0.05)***
Control Variables										
Education	Level 1									
	Level 2	0.32 (0.06)***	1.38	-0.3 (0.16)*	0.74	0.56 (0.07)***	1.76	0.17 (0.03)***	-0.2 (0.09)***	0.3 (0.04)***
	Level 3	0.29 (0.05)***	1.34	0.05 (0.14),	1.05	0.33 (0.06)***	1.39	0.14 (0.03)***	0.01 (0.09)***	0.17 (0.03)***
	Level 4	0.82 (0.06)***	2.27	0.44 (0.15)***	1.55	0.79 (0.07)***	2.19	0.46 (0.03)***	0.25 (0.09)***	0.43 (0.04)***
	Level 5	0.95 (0.05)***	2.59	0.72 (0.14)***	2.06	0.78 (0.06)***	2.18	0.54 (0.03)***	0.42 (0.08)***	0.43 (0.03)***
	Level 6	0.85	2.36	0.82	2.28	0.66	1.94	0.48	0.49	0.36

	(0.06)***		(0.15)***		(0.07)***		(0.03)***		(0.09)***		(0.04)***
Level 7	0.86	2.37	1.09	2.99	0.71	2.03	0.48		0.64		0.39
	(0.05)***		(0.15)***		(0.06)***		(0.03)***		(0.09)***		(0.03)***
Level 8	1.4	4.2	1.12	3.07	1.32	3.76	0.83		0.66		0.76
	(0.06)***		(0.15)***		(0.07)***		(0.03)***		(0.09)***		(0.04)***
Level 9	1.4	4.15	1.43	4.2	1.29	3.64	0.82		0.84		0.74
	(0.06)***		(0.14)***		(0.06)***		(0.03)***		(0.09)***		(0.03)***
Gastil Index	-0.38	0.68	-1.38	0.25	-0.22	0.8	-0.22		-0.83		-0.13
	(0.007)***		(0.04)***		(0.01)***		(0.004)***		(0.02)***		(0.005)***
Constant	-0.16	0.85	1.24	3.45	-1.07	0.34	-0.09		0.76		-0.63
	(0.06)***		(0.16)***		(0.07)***		(0.03)***		(0.09)***		(0.04)***
No. of Countries	43		19		24		43		19		24
No. of Observations	57026		20828		36198		57026		20828		36198
Pseudo R <sup>2</sup>	0.15		0.13		0.06		0.15		0.13		0.06
Lg Likelihood	-32312		-12088		-19340		-32384		-12086		-19344

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<sup>4</sup>Note: Standard errors are in parentheses. \*, \*\*, \*\*\* indicate significance level at the 10%, 5%, and 1% respectively

## 5. CONCLUSION

One conclusion from this study is that our theoretical understandings of what motivates individuals to participate in civil strife are different in developing countries and OECD industrialized countries. In developing countries, one may postulate from this study, that the greater the degree of economic security the more likely individuals are to express their concerns as depicted by the inflation and employment variables. The higher the inflation and unemployment the less likely an individual will participate in civil unrest. Based on the analysis outlined in the results section, in evaluating model 3 for developing countries, I fail to accept H1 and H2 that individuals will participate in civil unrest if they are relatively deprived in the course of growth and have a low opportunity cost to participate. In examining the employment status variable, the negative magnitude is close to 1% and this is at odds with the literature that unemployment creates 'available' citizens more likely to participate in protests, petitions, or boycotts. Consequently, the motive of greed is rejected in this model.

In OECD countries, the GNI growth rate increases the odds of individuals participating in civil unrest. This is in line with deprivation theory in that economic growth may increase the number of individuals who become disenchanted because where a country's average income is rising, the median income may drop. Hence, I accept my first hypothesis that individuals are more likely to join in civil unrest if they are relatively economically deprived in the course of growth. Consequently, motives of grievance for civil unrest appear to hold in this model. It seems that in OECD countries, greater economic insecurity is associated with more likelihood of civil unrest which is a contrast conclusion with respect to developing countries.

Overall, the empirical evidence in this study is rather inconclusive about the motives of civil unrest as both the grievance and greed models hold statistical significance with a relatively similar predictive power. Consequently, civil unrest can be caused by motives of economic grievances and motives of economic greed. The varying results across OECD and developing countries are a unique and interesting element to this study which could reveal some understanding on civil unrest participation in particular regions.

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**Appendix A**

Country Sample	All Model 1	OECD Model 2	Developing Model 3
	Australia	Australia	
	Brazil		Brazil
	Burkina Faso		Burkina Faso
	Canada	Canada	
	China		China
	Colombia		Colombia
	Cyprus		Cyprus
	Egypt		Egypt
	Ethiopia		Ethiopia
	Finland	Finland	
	France	France	
	Georgia		Georgia
	Germany	Germany	
	Ghana		Ghana
	Great Brittan	Great Brittan	
	Guatemala		Guatemala
	India		India
	Indonesia		Indonesia
	Italy	Italy	
	Japan	Japan	
	Malaysia		Malaysia
	Mexico	Mexico	
	Moldova		Moldova
	Morocco		Morocco
	Netherlands	Netherlands	
	New Zealand	New Zealand	
	Norway	Norway	
	Peru		Peru
	Poland	Poland	
	Russia		Russia
	South Africa		South Africa
	South Korea	South Korea	
	Spain	Spain	
	Sweden	Sweden	
	Switzerland	Switzerland	
	Thailand		Thailand
	Turkey	Turkey	
	Ukraine		Ukraine
	Uruguay		Uruguay
	USA	USA	
	Vietnam		Vietnam
	Zambia		Zambia

Appendix B Marginal Probabilities	Mean of X	dy/dx		Ave. dy/dx		dy/dy		Ave.dy/dx		dy/dx		Ave. dy/dx	
		Combined Model	Model 1	Grievance Model	Model 1	Greed Model	Model 1	Model 1	Model 1	Model 1	Model 1	Model 1	Model 1
Independent Variables													
Inflation	0.066	-1.19	-1.01								-1.12	-0.95	
GNI growth	0.095	0.11	0.09			0.084	0.072						
Income	4.57	0.015	0.013			0.016	0.013						
Employment	3.38	-0.012	-0.01								-0.014	-0.012	
Control Variables													
Education	5.35	0.036	0.031			0.038	0.032				0.04	0.034	
Gastil Index	2.71	-0.09	-0.078			-0.111	-0.096				-0.092	-0.078	
Correctly Predicted Y-hat		72.11%		70.78%		72.29%							
No. of Countries													43
No. of Observations													57026





