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# Protests in the Post-Cold War Era: World Systems Dynamics and Hardship Effects in Post-Colonial Countries

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PROTEST IN THE POST-COLD WAR ERA: WORLD SYTEMS DYNAMICS AND  
HARDSHIP EFFECTS IN POST-COLONIAL COUNTRIES

by

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A THESIS

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PROTEST IN THE POST-COLD WAR ERA: WORLD SYSTEMS DYNAMICS AND  
HARDSHIP EFFECTS IN POST-COLONIAL COUNTRIES

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University of Nebraska, 2017

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In this thesis, I explore the determinants of protests across 15 post-colonial countries from 1990 to 2010. Specifically, I investigate the direct and mediating impact of global economic dynamics and hardships experienced by populations in these countries. To that end, I employ world systems theory as well as relative deprivation and political opportunity theories. Analyses employ pooled-time series analysis based on national-level data from the Global Database of Events, Language, and Tone (GDELT), as well as data from the World Bank and the Polity IV project, which provide insight into the role of world systems dynamics on social unrest. Analyses demonstrate a strong direct, yet nonlinear, impact of world systems indicators on levels of protest. In contrast, the direct effect of hardships on protests suggests a more complex relationship. Male labor force participation rate appears to be the only measure to partially mediate between world systems indicators and protests. Importantly, I find evidence that the effects of hardship indicators on protest are strongly non-linear. For example, while female labor force participation was not significant in the full linear model, non-linear results indicate a U-shape relationship with protests. While complex, results indicate global economic indicators and hardships are predictive of protests, even after controlling for political opportunities. These findings do not undermine political opportunity explanations,

however they do indicate research has underestimated the importance of quality of life measures as a driver for protests.

## **Introduction**

When considering social unrest, a variety of events can be considered including, but not limited to, riots, violence perpetrated by the state, and protests. While more specific than social unrest, yet still broad in definition, protests function through a collective dissent regarding certain issues that arise (Schrodt 2012). Protests are unique regarding whom they target (e.g., government entities, religious groups) and whether or not violence ensues. Explanations regarding the rise of protests have taken many forms over the past six decades, with some scholars positing the rise is based in more psychological phenomenon (Gurr 1970) and building to explanations regarding windows of opportunity (McAdam 1982). While contemporary research focuses on how protests affect changes in policy and other political outcomes (Amenta, Caen, Chiarello, and Su 2010), explanations of how social unrest unfolds on a global scale have fallen short. In an attempt to fill the void, this thesis asks under what conditions do social protests occur and to what extent does global level economics and quality of life shape this relationship.

To better understand how global level dynamics and quality of life affect protests, two major theoretical frameworks are employed, world systems theory and relative deprivation theory. World systems theory focuses on global level dynamics; specifically how international economic factors affect a number of different outcomes, including protests (Smith and Weist 2012). Alternatively, relative deprivation theory uses grievances (Gurr 1970; McVeigh 2009) and measures of national-level raw materials (e.g., hardships) (Shefner, Rowland, and Pasdirtz 2015) to understand the rise of social movement activity, such as protests. Contemporary social movement research focuses on political opportunity explanations, however the development of political opportunity

focused on western industrialized democracies and research has focused on countries with similar characteristics (Kitschelt 1986). Therefore, by reintroducing relative deprivation concepts into social movement research, political opportunity measures are controlled for. The approach of this thesis broadens the scope of countries in which these relationships are generalizable, and tests the validity of both political opportunity explanations and relative deprivation theory in a diverse sample of countries. Figure 1 depicts the theoretical model, indicating an understanding of how global level dynamics shape protests directly, yet these global dynamics work through national-level hardships.

-----Insert Figure 1 Here-----

By better understanding the conditions that spur protest events, research will better validate and utilize political opportunity explanations, as well as relative deprivation theory. Replication and generalization are cornerstones to research; therefore this thesis provides insight into these necessary components. This not only benefits research, but also helps inform future global level initiatives to decrease broad social unrest. Understanding key predictors of protests helps to identify areas of focus for organizations that seek to decrease unrest, and increase the global population's quality of life.

### *Historical Background*

Major shifts in history have been shown to affect economics and hierarchical power relations in a global context. The British Empire is one of the largest and longest-standing empires in recent history, whose impact continues to shape the world-economic standing and politico-legal infrastructure of many countries around the world. Length and

strength of colonial rule also affect the access to resources a country has, as well as its position within the world economy (Ziltener and Kunzler 2013). Colonial rule was an intricate mechanism in the formation of the capitalist world economy, influencing the exploitation of poorer countries via countries that were more economically affluent and militarily advanced at the time of colonization (Sanderson 2005). These well-established effects of colonialism create a need to control for possible confounding historical processes, which is done using a sample of countries that were historically part of the British Empire, varying in timing of colonization and de-colonization.

While the legacy of British colonial rule has played an influential role in many countries, the global economy also experienced dramatic shifts at the beginning, as well as the end, of the Cold War. Over the course of the Cold War period, the integration of countries into the global economy shifted with the declination of some major superpowers (i.e., United States), influencing international trade and economics (Gaddis 1992). Some have argued that the end of the Cold War marked the decline of United States global hegemony and the beginning of capitalism becoming a truly global historical system (Wallerstein 1993). With the Cold War marking a shift in global dynamics, this thesis focuses on the post-Cold War Era. Using a sample of countries with a shared colonial history, I seek to explore how the modern world system helps to inform the rise of protest.

## **Literature Review**

### *World-Systems Theory*

World systems theory grew out of responses to modernization theories, specifically their lack of consideration for structural factors in understanding how countries transition from “traditional” to “modern” societies (Chirot and Hall 1982). It postulates that the division of labor develops from a world-economic perspective where capitalism perpetuates a global cycle of inequality, influencing multiple facets of international relations. As industrialization spread, some countries developed quickly therefore increasing their ability to engage in the world economy, however other countries industrialized slowly exacerbating a rise in global power hierarchies/inequalities (Olzak 1983; Amin 1993). Originally, world systems theory classified countries as either part of the core, indicating a centralized governmental power (strong government) and world-economic position, or as part of the periphery, affected by exploitation of resources and labor, and lack of a strong government (Wallerstein 1974). However, this original classification shifted with the introduction of semi-peripheral countries into the theoretical framework, a technical term applied to countries that have a combination of characteristics related to both core and peripheral countries (Wallerstein 1979). Semi-peripheral countries are unique in their position due to an overdevelopment of government entities (i.e., strong government) compared to their economic position, operating as a periphery country in terms of economic dependency on other countries for supplies (Billings and Scott 1994). Countries rarely, yet do, transition from one category to another, meaning these positions rarely change and offer limited mobility at the national level. Limiting the capability for peripheral countries to move through the world economy, core countries exploit peripheral countries’ cheap labor (Emmanuel 1972; Raffer 1987); this limits the ability for peripheral countries to move through the ranks of

the world economy or improve infrastructure (Petras and Brill 1986; Chase-Dunn and Grimes 1995).

Theoretically, country categorization based off economic position is consistent, however definitions of the “world-system” vary. Wallerstein (1974:347) defines the world system as the, “territorial division of labor in which the production and exchange of basic goods and raw materials is necessary for the everyday life of its inhabitants.” Building on Wallerstein’s work, growth in world systems research has led to alternative definitions. Frank and Gills (1993), for instance, define the world system as the transfer or exchange of economic surplus as a fundamental criterion for participation in the global economy. Chase-Dunn and Hall (1997:7), however, define the world system as “intersocietal networks in which the interactions are important for the reproduction of internal structures.” Chase-Dunn and Hall’s (1997) contribution introduces the notion that local, regional, and national structures have interconnected relationships mirroring the international world system. For the purpose of this thesis, I focus on the definition provided by Wallerstein (1974), specifically the production and exchange of basic goods.

So how is world systems position related to protests? While the theoretical classifications (core, periphery, and semi-periphery) are well-defined, multiple measures have been used to conceptualize a country’s location in the world system. Gross National Product (GNP) has been used as a measure of location due to its reflection of production levels (Arrighi and Drangel 1986; Korzeniewicz and Martin 1994). Terlouw (1992) used GNP, Gross Domestic Product (GDP), and four other measures to gauge core and peripheral locations in the world system. Generally, as a country’s GDP increases or their economy experiences an exogenous shock (i.e., economic depression), levels of social

unrest also increase (Holmes, Gutiérrez De Piñeres, and Curtin 2007). Economists, however, have long used a measure of “terms of trade” to analyze engagement in the world economy. Terms of trade represents a country’s ability to provide goods for others (exportations) and self-supply instead of outsourcing for materials (importations) (Svensson and Razin 1983; Idrisov, Ponomarev, and Sinelnikov-Murylev 2015). Easterly et al. (1993) found that a country’s higher rate of exports to imports (terms of trade) was associated with an increase in economic growth, such as increases in GDP. Although there are no set measures of world systems dynamics, GDP and terms of trade tap into central components of world systems theory regarding production and economic capabilities.

World systems dynamics have the capability to shape not only economic growth, but also socio-political outcomes. Scholars have established that known world systems dynamics affect a range of outcomes, such as religious movement (Billings and Scott 1994), ethnic mobilization (Olzak 1983), anti-systemic movements (Arrighi, Hopkins, Wallerstein, and Veechi 1989), and even austerity protests (Smith and Weist 2012; Wallerstein 1990). Focusing on specific types of social unrest, however, prevents the generalization of findings to a more global context. I seek to expand on the aforementioned work by using a general measure of social unrest (e.g, protests) as the outcome of interest. While research has shown a relationship between certain economic predictors, specifically GDP, and social unrest, other measures of global level economics, logically speaking, should follow a similar relationship. By employing multiple measures of global level economics, I posit relationships should be similar to those observed between GDP and socio-political outcomes. However, some research indicates that these

positive relationships may actually be nonlinear, with semi-peripheral countries (i.e., countries whose status is in flux) experiencing disproportional rates of unrest (Kwon, Reese, and Antram 2008). It is here that I situate my first set of hypotheses.

H1a: Countries with higher GDP and higher terms of trade will be associated with increased rates of social unrest.

H1b: The relationship between both world systems indicators (GDP and terms of trade) and the outcome of interest will be nonlinear, specifically core and periphery countries will be associated with decreased rates of social unrest.

### *Social Movement Theory*

While world systems theory provides insight into the impact of economic dynamics on protests, social movement theories offer a unique perspective on factors beyond economics that affect protest activity. Social movement theories have shifted focus over the past six decades from a more psychological, or grievance-based approach, to the impact of politics, culture, and emotions on protest (McAdam 1982; Goodwin and Jasper 1999; Polletta and Jasper 2001). Gurr's (1970) relative deprivation theory focused on the role of collectively experienced grievances, or the perception of a gap between what a group believes they should have compared to others around them. Focusing on feelings of economic deprivation, relative deprivation analyzes collective discontent (Gurr 1968, 1970; Feierabend, Feierabend, and Gurr 1972). Relative deprivation scholars have used political inequality (Moore 1978), rapid social change (Piven and Cloward 1977), and even inequality in land ownership (Muller and Sigelson 1987) to gauge perceptual injustice and subsequent collective action events. Critics of relative

deprivation theory have argued that the theory is too vague to be adequately tested (Zimmermann 1983), that the perception of inequality is an assumed cause for collective action (Jenkins and Parrow 1977; Oberschall 1993), and that overly psychological applications of the theory make inaccurate assumptions about the causes of social unrest (Snyder and Tilly 1972; Tilly 1975).

The 1970s critiques of relative deprivation theory led researchers towards a more structural understanding of what causes collective action. Specifically, researchers began to explore the role of social movement organizations (SMOs) gaining access to resources allowing for successful collective action, also known as resource mobilization theory. McCarthy and Zald (1973) find that increases in funding opportunities led to increased protest activity in the 1960s. Similarly, other scholars established when SMOs for the Farm Worker's Movement experienced increases in funding; the movement experienced increased success rates (Jenkins and Parrow 1977). Critics of resource mobilization theory, however, state that it lacks generalizability to broader social movements because most research using this frame has focused on specific movements and their outcomes (McAdam 1982).

Since the 1980's, political opportunity explanations, in many ways, have become the reigning paradigm regarding contemporary social movement research. Scholars have recognized the role of resources in developing collective action for many years (Gamson 1975), but more recently have stressed the importance of windows of opportunity in political and cultural spheres (McAdam 1982; McAdam, Zald, and McCarthy 1996; Tarrow 1998). The operationalization and explicit definition of political opportunities is key to adequately utilizing theories of political opportunity (Meyer and Minkoff 2004;

Meyer 2004). Tarrow (1995:19-20) posits that political opportunities are, “dimensions of the political struggle that encourages people to engage in contentious politics”. While still broadly defined, other scholars have operationalized political opportunities as support of a movement through government allies (Faupel and Werum 2011), the declination of major political parties (Tarrow 2011), as well as the shaping of social conditions to foster protest emergence (Tarrow 1998).

Similarly, Amenta, Carruthers, and Zylan’s (1992) political mediation model critiques prior political opportunity research which focuses on movement organization and action on social movement outcomes, positing political opportunity acts as a pivotal, mediating factor of movement success. Direct effects of political opportunities are foundational to political opportunity theory, however political mediation models suggest SMOs and their actions are mediated through political context to achieve success (or failure) (Soule and Olzak 2004; Amenta, Caren, and Olasky 2005). In recent decades, scholarly fixation with political opportunities has meant that inequality as a cause of mobilization/unrest has seen little attention (Snyder and Tilly 1972; Useem 1998). Similarly, much international social movement research focuses on political opportunity explanations (Moghadam and Gheytauchi 2010). For example, Kitschelt (1986) uses comparative analysis to understand political opportunities and anti-nuclear movements. Thus, it is here that I make a contribution with the current work.

Hardships, or deprivation of raw materials (i.e., employment and educational opportunities), measure a previous theoretical framework regarding social movements (relative deprivation theory). Only in recent years has social movement research seen a resurgence of relative deprivation, refocusing on the role of inequalities as possible

predictors. Van Dyke and Soule (2002) reintroduce grievances into social movement research by understanding the role of group threat in the rise of militia groups in the United States. Expanding upon this reintroduction, McVeigh (2009) finds that the decline of economic affluence for urban, white individuals in the United States led to increased numbers of, and protests by, the Ku Klux Klan and right-wing groups. Building off of McVeigh's (2009) call for grievances to be reintroduced, Shefner, Rowland, and Pasdirtz (2015) posit hardships are related to increased protests rates in Latin America. Measures of quality of life, such as hardships, are understood to increase the likelihood of mobilization to occur (Goldstone 2002; Almeida 2003; Alimi 2009; Berry 2015), however little research explores hardships as an explanative factor of mobilization.

While there has been some research on how quality of life measures, such as employment, relate to protest, this measure is not the sole predictive factor. Expanding past employment, I employ other quality of life measures to gauge hardships following the same logic applied regarding employment rates and protests. It is here that I situate the second set of hypotheses.

H2a: Countries with higher rates of hardships -- gauged in terms of labor force participation, fertility rates, and population dynamics -- will be associated with higher rates of protest.

H2b: The relationship between indicators of hardships and social unrest will be nonlinear. Specifically, countries with moderate rates of hardships will be associated with increased rates of social unrest.

*World-Systems Theory, Relative Deprivation Theory, and Protest*

Combining world systems dynamics and the resurgence of relative deprivation in social movement research, economics and hardships may work together to shape social unrest levels. Shefner, Rowland, and Pasdirtz (2015) find evidence that long-term indicators of economic and social inequality affect short-term indicators of economic inequality as a causal relationship for social unrest. These findings tie together the independent links between world systems theory and protests, as well as the proposed relationship between relative deprivation and protests. I seek to take a similar approach, proposing a mediation model, similar to what Amenta, Carruther, and Zylan's (1992) did regarding political mediation dynamics.

-----Insert Figure 2 Here-----

In line with prior research, I propose that indicators of location within the world system will be associated with protests (Wallerstein 1990; Holmes, Gutiérrez De Piñeres, and Curtin 2007; Smith and Weist 2012), as well as measures of relative deprivation as predictive of protests (McVeigh 2009; Shefner, Rowland, and Pasdirtz 2015). Scholars have used similar models to understand world systems, inequality, and political violence (Timberlake and Williams 1987). Additionally, I propose that national-level indicators of world systems dynamics work through measures of relative deprivation to effect social unrest. This deviates slightly from Shefner, Rowland, and Pasdirtz (2015) model, which used a short-term hardships measure as a mediator for the relationship between a measure for long-term hardships and austerity protests. Instead of employing one variable of long-term hardships and one-variable of short-term hardships, I use separate variables for different categories, including economics and hardships. Figure 2 provides a visual representation of the proposed theoretical model; this model seeks to understand how

world systems measures (GDP and Terms of Trade) influence protests, and how hardships (Male Labor Force, Female Labor Force, Adolescent Fertility Rate, and Urban Population) act as potential mediating variables. It is here that I situate the third, and final, hypothesis of this thesis.

H3: While the relationship between world systems indicators and protest will be present, this relationship will be partially work through measures of hardships.

In this next section I address data collection and the variable selection process employed to address each of the hypotheses indicated above. These data and methods help to answer the linear and non-linear hypotheses posited in each theoretical section, as well as the mediating relationship between world systems indicators and hardships.

### **Methods and Data**

To explore which causal factors shape protest activity, I use multiple data sources with aggregate measures for 15 countries that share a common colonial history. The sample includes Australia, Bangladesh, Canada, Egypt, Guyana, India, Kenya, New Zealand, Nigeria, Pakistan, Sierra Leone, Singapore, South Africa, Sri Lanka, and Trinidad and Tobago. This sample of countries provides variation in timing of colonization and independence from the British Empire, as well as variation in world systems indicators and hardship measures.

Data on social unrest come from the Global Database of Events, Language, and Tone (GDELT), a database that collects news sources from around the world including local, regional, national, and international newspapers (GDELT 2016). Alternatively,

databases of predictors of protests include: The World Bank, Polity IV, and the Integrated Network for Societal Conflict Research's (INSCR) Major Episodes of Political Violence (MEPV). With consideration of other data sources, the World Bank provides comprehensive data incorporating multiple outside sources (e.g., UNICEF, World Health Organization). The World Bank also provides data on quality of life, economics, gender, and other data of interest, while the Polity IV and INSCR's MEPV provide government and political indicators. The dataset constructed has a country by year format, with a sample of 15 countries across 21 time points (1990-2010), yielding a total of 315 observations. There were few missing data problems regarding the variables due to consistent collection of data and interpolation methods employed by the original sources.

I employ correlation and category-based multivariate analyses to effectively determine predictors of protest. This process is conducted on economic variables that represent the core foundations of world systems theory, as well as four categories of variables to tap into hardships at a national scale: employment, health, population, and political. One to two variables were chosen to represent each category of variables.

### Variables

#### *Dependent Variable: Protests*

The outcome of interest is the number of protests reported per country in a given year. Various events captured in the GDELT dataset are coded into 21 possible categories of unrest. For the purpose of this thesis, I focus on events labeled "Protests". The criterion for protests includes events that are both violent and non-violent, which may or may not be aimed at the government (GDELT 2016). While other types of social unrest were considered by the GDELT and INSCR's MEPV (unconventional mass violence,

fighting, coup d'etats), protests represent a broad spectrum of events that can be both violent and non-violent. To request these events, I utilize the GDELT Analysis Service (<http://analysis.gdeltproject.org/module-event-exporter.html>). The total number of events is summed by country and year to create a continuous variable of the number of reported protests. To account for a non-normal distribution, the variable is logged, after adding 1 to prevent exclusion of original observations totaling zero.

### World-Systems Indicators

The following variables are used to operationalize key concepts associated with world systems theory, specifically world economic position and engagement in the world economy, including domestic production and consumption.

*Gross Domestic Product.* Prior research has found that GDP and similar measures (GNP) represent a country's location in the world system (Arrighi and Drangel 1986; Terlouw 1992). GDP offers an aggregate measure of economics, and has been used as a proxy for economic success and development of countries. GDP comes from the World Bank dataset and defined as the value of production within a country in a given year (World Bank 2016). Detailed descriptive statistics provide evidence of high skewness and kurtosis, therefore this variable is logged to normalize the distribution.

*Terms of Trade.* Similar to GDP, terms of trade gauges the position of a country within the world economy, especially a country's engagement in the global economy (Taussig 1927; Svensson and Razin 1983; Findlay 1991; Idrisov, Ponomarev, and Sinelnikov-Murylev 2015). With exploitation as a key aspect of world systems theory, this variable taps into a country's ability to self-support and provide goods to other areas of the world,

or whether a country may be more dependent on importations from other countries to survive. Terms of trade is operationalized as the division of total exports of a country within a given year by total imports of a country within a given year multiplied by 100. A lower value on this variable represents a lower amount of exportations relative to importations, while a higher value indicates higher amounts of exports relative to total imports.

### Hardships

In recent years relative deprivation explanations have gained momentum in social movement research (Useem 1998; Van Dyke and Soule 2002; McVeigh 2009). Building off of Shenfer, Rowland, and Pasdirtz (2015), I use aggregate level measures of inequality, including access to resources and quality of life, to gauge hardships. These hardship measures act as measures of relative deprivation.

*Employment and Educational Opportunities.* Employment and educational opportunities represent a country's quality of life by allowing assessment of residents' abilities to engage in a formal labor environment and provide for families. Formal labor market participation rates are indicative of economic stability (Cerrutti 2000), therefore I employ two measures of unemployment. First, I use the male paid labor force participation rate, measured as the percentage of men in the work force relative to the entire male population (15 and older). Similarly, the rate of employment for women in the paid labor force relative to the entire female population is used (female labor force participation rate). I hypothesize that both male labor force participation and female labor force

participation will be associated with linear decreases in protests, as well as an inverted U-curve non-linear relationship.

*Health.* To gauge overall health of a nation I use the adolescent fertility rate. Research has established a link between adolescent fertility rates and international levels of inequality, specifically a nation's overall health (Lynch, Smith, Kaplan, and James 2000; Pickett, Mookherjee, and Wilkinson 2005). The adolescent fertility rate measures the percent of women (15-19) who report being pregnant or have children relative to the entire female population that is pregnant or has children (World Bank 2016). I propose adolescent fertility rate will be associated with a linear increase in protests, as well as an inverted U-curve non-linear relationship.

*Urban population.* Dense urban populations signal areas of overcrowding, leading to inequality of resources and poor quality of life (Camahan, Gove, and Galle 1974). This is measured as the percent of people, relative to the entire population, who reside in an urbanized area of the country (World Bank 2016). I hypothesize a linear increasing relationship between urban population and protests, as well as an inverted-U curve non-linear relationship.

### Controls

The majority of research on determinants of protests has focused on the role of political opportunities. Therefore to gauge the role of political and government power, I include type of government, the presence of violence in a nation, and number of individuals who served in the armed forces.

*Government Type.* Government type influences the rates of unrest and national growth (Gurr 1970; Kurzman, Werum, and Burkhart 2002). This measure was originally coded from -10 (Full Autocracy) to 10 (Full Democracy) in the Polity IV data set. I rescale government type to be 0 to 20, with increases in the scale representing a more democratic government, to ease interpretation of results.

*Armed Forces Personnel.* Research suggests that the size of military personnel indicate a state's repressive power, specifically against collective action (McPhail and McCarthy 2005). Analyses include the total number of armed forces personnel a country reports in a given year. Although considered, there was no consistently collected police force data to my knowledge. Detailed descriptive statistics show evidence of high levels of skewness and kurtosis regarding armed forces personnel. Due to evidence of a positive skew, the variable has been logged to normalize the distribution.

*State Violence.* State violence is defined as the intensity of violence and warfare in a country, available from INSCR's Major Episodes of Political Violence. Presence of conflict within a country has been shown to have effects on the level of trade (Morrow, Siverson, and Tabares 1999) and social movement activity (della Porta 1995). INSCR constructed this measure as the sum of ethnic violence, ethnic warfare, civil violence, and civil warfare, ranging from no presence of state violence (0) to extreme intensity (40).

### Analytic Strategy

I employ pooled-time series analysis with panel-corrected standard errors to examine the relationship between world systems indicators, hardships, and protests.

Figure 1 provides a visual representation of the proposed model. Due to the setup of the

dataset and number of time points and observations, panel corrected standard errors are preferred when using time-series cross-sectional data (Beck 2001; Garrett 1998). To empirically determine whether a pooled-time series analysis is preferred over normal ordinary least squares (OLS) regression, I use the Breusch-Pagan Lagrange Multiplier (BPLM) to test the variance across observations (i.e., panel effects). Results indicate a pooled-time series analysis is preferred over OLS regression ( $p < .001$ ). Table 2 provides the linear results of proposed independent variables. Model 1 introduces control variables, Models 2 and 3 analyze the relationships between each of the proposed theoretical frameworks, and Model 4 combines Models 2 and 3 to create a full model. With a similar setup, Table 3 analyzes the non-linear relationships with the same setup as Table 2. Results for these analyses are reported in percent changes, calculated from the regression coefficient. With the logging of the outcome variable (protests), regression coefficients are exponentiated, subtracted by 1, and then multiplied by 100 to determine if an increase in the measure is associated with an X% increase in the percent of protests.

In order to test the proposed indirect effects on protests, Table 4 provides results of world systems indicators predicting hardships. Each model represents a separate outcome variable: male labor force participation, female labor force participation, adolescent fertility rate, and percent residing in an urban area. For the purpose of consistency, the control variables are used in each of these models as well. Sobel tests are used to calculate the mediation effects via the world systems indicators relationship with hardships and measures of hardships with protests in the full model (Table 2, Model 4) (Preacher and Leonardelli 2016). Results of the Sobel tests are not reported here, but are available upon request from the author.

## **Results**

-----Insert Table 1 Here-----

### *Correlation Matrix*

Table 1 provides a correlation of all variables of interest. Due to the logging of skewed variables, the correlation matrix reports variables post-transformation. GDP moderately correlates ( $r > .40$ ) with adolescent fertility rate ( $r = -.562$ ), urban population ( $r = .516$ ), armed forces personnel ( $r = .643$ ), and protests ( $r = .617$ ). Armed forces personnel moderately correlate with female labor force participation ( $r = -.551$ ), state violence ( $r = .509$ ), and protests ( $r = .663$ ). The adolescent fertility rate correlates moderately with urban population ( $r = -.554$ ). All other correlations between variables of interest fall below a .30 correlation.

Correlation values higher than .5 are tested using a variance inflation factor (VIF) to determine the presence of multicollinearity issues. These tests are done using ordinary least squares (OLS) regression and post-estimation in Stata 13.1. Regressions are conducted solely on variables with high correlations, as well as a full model regression including all possible independent and confounding variables. All results indicate no presence of multicollinearity, therefore all variables are used in the subsequent models.

-----Insert Table 2 Here-----

### *Linear Effects*

Table 2 provides the effects of world systems indicators, measures of hardships, and controls on protests. Results are discussed below in percentage change due to logging of the dependent variable and some independent variables, based on the calculation

discussed in the Analytic Strategy section. Model 1 analyzes the relationship between the control variables and protests. It appears that for an every one percent increase in armed forces personnel, a country experiences a 105.3% ( $\beta=.719$ ,  $p<.001$ ) increase in the percent of protests. States with more democratic governments are associated with an increase ( $\beta=.064$ ,  $p<.001$ ) in protest percentage. Contrarily, for an every one unit increase in the level of civic violence, a country experiences a 4.74% ( $\beta=-.049$ ,  $p<.05$ ) decrease in percentage of protests. All proposed control variables show significant effects in predicting protests; therefore all will be used in Models 2 through 4.

Model 2 analyzes the relationship between world systems indicators (GDP and Terms of Trade) and protests, controlling for possible political opportunities. A one percent increase in a country's reported GDP is associated with a 3.68% ( $\beta=.380$ ,  $p<.001$ ) increase in percent of protests. A one unit increase in the terms of trade, however, is associated with a decrease ( $\beta=-.010$ ,  $p<.001$ ) in the percent of protests. Model 3 analyzes the relationship between variables representing hardships and protests. A one unit increase in the male labor force participation rate is associated with a decrease of 7.21% ( $\beta=-.075$ ,  $p<.001$ ) in the percent of protests, however a one unit increase in female labor force participation is associated with a 2.36% ( $\beta=.023$ ,  $p<.001$ ) increase in the percent of protests. There is a marginal decrease ( $p<.10$ ) in the percent of protests as urban population increases and no evidence of a significant relationship between adolescent fertility rates and protests.

Model 4 combines world systems indicators, hardship measures, and controls to understand the role of all variables and protests. Similar to Model 2, increasing GDP by one percent is associated with an 8.10% ( $\beta=.817$ ,  $p<.001$ ) increase in percent of protests,

yet a one unit increase in terms of trade is associated with a 1.66% ( $\beta=-.017$ ,  $p<.001$ ) decrease in the percent of protests. Increasing the rate of male labor by one percent is associated with a decrease ( $\beta=-.067$ ,  $p<.001$ ) in the percent of protests, and female labor force participation is no longer a significant predictor of protest percentage. Contrary to Model 2, a one unit increase in the adolescent fertility rate is associated with an increase ( $\beta=.011$ ,  $p<.001$ ) in the percent of protests and as urban population increases, a one unit increase is associated with a 1.10% ( $\beta=-.020$ ,  $p<.001$ ) decrease in the percent of protests. Model 4 shows no evidence of armed forces personnel, civic violence, or government type having a significant effect on protests, indicating a spurious relationship.

-----Insert Table 3 Here-----

#### *Non-Linear Effects*

While Table 2 provided results on the linear effects of the variables of interest on protests, Table 3 analyzes the possible non-linear effects of world systems indicators, hardships, and controls on protests. Model 1 provides results of the non-linear relationships of the controls on protests. As armed forces personnel increase, as do the percent of protests, however this reaches a point of diminishing return where protest percentage begins to decrease as armed forces personnel increase (inverted-U curve). As with armed forces personnel, civic violence follows the same relationship, reaching a point of diminishing return. There seems to be no non-linear relationships between government type and protests, according to Model 1.

Model 2 introduces world systems indicators into the model, along with controls. Results indicate that there is no non-linear relationship between GDP and protests. On the other hand, increases in terms of trade are associated with a decrease in protests, and as

terms of trade reaches a certain point the percent of protests increases (U-curve). While armed forces personnel does not seem to have a non-linear relationship in the model after controlling for world systems indicators, civic violence continues to have a non-linear relationship (inverted U-curve). However, as democracy level increases the percent of protests initially increases but at a certain level of democracy protests begins to decline (inverted U-curve).

Model 3 analyzes the possible non-linear relationships with the measures of hardships and protests. Results indicate male labor force participation does not have a non-linear relationship with protests. However, female labor force participation indicates no significant relationship at lower values, yet begins to be associated with an increase in protests at a certain point. The adolescent fertility rate shows no relationship in its lower values but at a certain point begins to be associated with decreases in the percent of protests. As the urban population increases, as do the percent of protests, however as the percent of the population residing in an urban area reaches a certain point the percent of protests begins to decrease (inverted U-curve). After introducing measures of relative deprivation into the model, armed forces personnel and civic violence no longer hold non-linear relationships, however government type continues to hold the same relationship as Model 2 (inverted U-curve).

The full model (Model 4) analyzes the non-linear relationships between world systems indicators, measures of hardships, and controls on protests. Similar to Model 2, GDP does not have a non-linear relationship with the percent of protests, however terms of trade only shows marginal significance ( $p < .10$ ) of a non-linear relationship with percent of protests. Female labor force participation indicates an initial decreasing

relationship with percent of protests, however at a certain point the female labor force participation begins to be associated with an increase in the percent of protests (U-curve). The adolescent fertility rate no longer has a significant relationship with protests after controlling for world systems indicators. Urban population continues to show an initial increase as the percent of people in a country reside in urban areas and begins to decrease at a certain point. Similar to Models 2 and 3, increases in democracy levels provide evidence of a non-linear relationship with protests.

-----Insert Table 4 Here-----

#### *World-Systems and Relative Deprivation*

Results provided in Table 4 indicate the relationship between world systems indicators predicting the four concepts of hardships. Model 1 analyzes the relationship between GDP and terms of trade on predicting male labor force participation. A one percent increase in GDP is associated with a .21 ( $p < .01$ ) increase in male labor force participation, while a one unit increase in terms of trade is associated with a .06 ( $p < .001$ ) decrease in male labor force participation. Model 2 finds evidence that a one percent increase in GDP is associated with a .70 ( $p < .001$ ) decrease in female labor force participation. An increase in terms of trade is associated with a .03 ( $p < .05$ ) increase in female labor force participation. Terms of trade is not a significant predictor adolescent fertility rate, however an increase in GDP by one percent is associated with a 12.35 ( $p < .001$ ) decrease in the adolescent fertility rate. Increases in GDP ( $\beta = 6.91$ ,  $p < .001$ ) and terms of trade ( $\beta = .06$ ,  $p < .05$ ) are both associated with an increase in the percent of the population that resides in an urban area.

### *Mediation Effects*

To calculate the mediation effects of world systems indicators through measures of hardships, I use Preacher and Leonardelli's (2016) Sobel test calculator (<http://quantpsy.org/sobel/sobel.htm>). Mediation results are calculated using regression coefficients and standard errors of each hardships variable from Table 2 (Model 4), as well as coefficients and standard errors from all models in Table 4. Results indicate a partial mediating relationship between GDP and male labor force participation, as well as a partial mediating relationship between terms of trade and male labor force participation. Although there was evidence of a partial mediating relationship between GDP, as well as terms of trade, and female labor force participation there is no evidence to support that female labor force participation is predictive after controlling for GDP and terms of trade. While world systems indicators are predictive of all hardship measures, there was no evidence of a direct relationship between two predictors of hardships (adolescent fertility rate and urban population) and protests prior to the introduction of world systems indicators. Therefore, it cannot be concluded that mediation is present for adolescent fertility rate and urban population, however there is evidence to support that a suppression effect exists for female labor force participation.

### *Results Summary*

Overall, there is at least partial support for all but one of the proposed hypotheses. Hypothesis 1a proposes world systems indicators would show a positive linear relationship with protests. Results indicate GDP provides a consistent positive relationship with protests, however terms of trade consistently indicates a decreasing

relationship with protests. Hypothesis 1b proposes the relationship between world systems indicators and protests would be non-linear, specifically semi-periphery countries would be associated with decreased rates of unrest. While GDP shows no non-linear relationship with protests, the relationship between terms of trade and protests indicates a U-shape relationship. The non-linear relationship between terms of trade and protests is opposite of the hypothesized relationship.

Hypothesis 2a posits increased measures of hardships will be associated with increased rates of protests. Results confirm that as hardships increase for 2 of the 4 measures there is an observed increase in protests. Hypothesis 2b proposes hardships will have a non-linear relationship with protests, specifically an inverted-U shape. Findings show evidence that female labor force participation and urban population have a non-linear relationship with protests. Urban population's finding is in the proposed direction, however female labor force participation indicates that moderate employment rates of females are associated with decreased rates of protests. Finally, Hypothesis 3 proposes that world systems measures work through hardships to effect levels of protests. Sobel tests for mediation indicate only one measure of hardships acts as a mediator, male labor force participation, however there is evidence of mediating suppression effect for female labor force participation. In this next section I discuss how these findings help inform a variety of sources, as well as the limitations of the study.

## **Discussion**

This thesis explores the relationship between world systems dynamics and hardships on protests in a post-colonial context. It makes three main contributions:

First, findings advance our contemporary understanding of social unrest predictors, indicating a need to reconsider the role of hardships. Challenging prior criticisms of hardships as an assumed reason for the rise of protests (Jenkins and Parrow 1977; Oberschall 1993), findings suggest including quality of life measures, such as hardships, better inform predictors of protest activity. Model 1 in Tables 2 and 3 begin with control variables, representing possible political opportunities. Regarding model fit statistics ( $R^2$ ), linear models with only controls explain 47.6% of the variance, however when hardships are introduced in Model 3 an 11.7% increase in variance explanation occurs ( $R^2=.593$ ). Similarly in the non-linear models, the political opportunity models explain 50.7% of the variance, but the introduction of hardships into the model increase variance explanation to 68.1%, more than a 17% increase. Findings presented here do not necessarily challenge political opportunity theory, however these findings do contribute empirical evidence to the idea that collectively experienced hardships are strong predictors of protest activity and quite possibly of social unrest at large. In line with prior research (Useem 1998; Van Dyke and Soule 2002; McVeigh 2009; Shefner, Rowland, and Pasdirtz 2015), I posit measures of hardships are explanatory measures of protests, and should be reconsidered in future social movement research.

-----Insert Figure 3 Here-----

Second, this thesis illustrates the importance of considering non-linear relationships in our effort to predict protests. In line with Gurr's (1970) inverted-U curve hypothesis, multiple measures provide evidence of a non-linear relationship with protests. Prior to introducing non-linear terms, female labor force participation rate and government type indicated no relationship with protests in the full model (Model 4).

Once a squared term was introduced there was evidence that these measures were associated with significant, yet alternate, non-linear relationships. It is possible that measures may have perfectly non-linear relationships with social unrest but the linear terms will produce null results, as depicted in Figure 3. This advances the field methodologically by indicating testing for non-linear relationships should be considered and, at minimum, tested. Disregarding this possibility, as indicated in this study, may lead researchers to falsely conclude there is no relationship present (Type II Error). While this may be true for a post-colonial sample, these findings have the capability of being generalizable at a global scale. Logically speaking, based off of Gurr's (1970) postulation, social unrest is complex and predictors of unrest cannot be assumed to act in a linear fashion.

Third, by exploring the mediating relationship between world systems dynamics and measures of hardships on protests, results suggest focusing solely on direct relationships oversimplify explanations of protests. Consistently, world systems indicators provide evidence of a direct relationship with protests. Calculations of Sobel tests, however, provide support that global level economics work through national-level measures of hardships to inform protest activity. The premise of world systems theory indicates global level economics influence a number of different outcomes, which has been concluded in the results. Table 4 indicates world systems measures affect all four measures of hardships, and Table 2 indicates a direct relationship with protests.

Understanding how global level dynamics work to inform national-level quality of life, such as hardships, allows observation of how global level economics shape populations'

experiences. These experiences, such as rates of employment, in return help to shape national-level social unrest.

While this thesis provides insight to multiple areas of social movement research, it does not come without limitations. First, the data used are only at the national-level, leaving little room to apply findings at disaggregate levels. It is possible that these relationships may not manifest themselves in more local levels, and future research should explore this possibility. Second, using the post-Cold War era as the initial point may be missing possible complex relationships regarding the British Empire. For example, the deindustrialization of the west and rise of the European Union (EU) in 1970 impacted the British Empire, which may have had lasting effects that are not considered in the data. Similarly, 1945 marked the collapsing of the British Empire effectively shifting world powers and trade across the globe. Finally, the research focuses only on countries that share a common colonial history. Had other sets of countries been considered, such as only countries that are part of the Organisation for Economic Co-operation and Development (OECD) or only countries that had U.S. military presence in the past 20 years, the results may have shifted due to major historical influences.

### **Conclusion**

In conclusion, this thesis provides insight into the complex relationship between world systems dynamics, hardships, and protests. Results find partial support of world systems indicators and protests, indicating a need to take into account the positions countries hold in the world-economy. While political opportunity explanations offer an important contribution to social movement research, this thesis indicates hardships help to explain

the rise of social unrest in an international context. These relationships, however, may not be linear. It is possible that linear findings may not represent the data adequately, and due to cases of perfect non-linearity, may lead researchers to commit a Type II error. Finally, there is partial evidence that world systems dynamics work through hardships to effect social unrest.

Regarding social movement research, the findings not only validate political opportunity explanations as a cause for protests but that prior social movement theories still hold utility in contemporary research. While windows of opportunity may allow for unrest to foster, quality of life continues to act as a predictive factor. While not seeking to challenge political opportunity explanations, social movement research will benefit by understanding to what degree do relative deprivation concepts explain social unrest when paired with political opportunity indicators. Similarly, focusing on direct relationships only may have missed complex relationships between certain variables and social movement activity.

Not only do social movement scholars benefit from this research, global organizations and initiatives to reduce social unrest and increase quality of life benefit as well. Understanding that protests occur due to collective dissent, these findings help administrators and policy makers consider factors that may be indicative of increases in social unrest that will help identify and suppress unrest levels. While increasing a country's engagement in the world economy may act as a small fix, initiatives to increase employment rates and cut down on areas of overcrowding help to decrease the level of social unrest. Considering the final results, future research might begin to explore other facets of access to resources and raw materials to understand national-level unrest.

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**Table 2: Pooled-Time Series Analysis of Protests: Linear Effects of World Systems Indicators, Hardships, and Controls<sup>a</sup>**

	Model 1	Model 2	Model 3	Model 4						
GDP (1)	1									
Terms of Trade (2)	0.174	1								
Male Labor Force Participation Rate (3)	0.019	-0.255	1							
Female Labor Force Participation Rate (4)	-0.088	0.047	-0.324	1						
Adolescent Fertility Rate (5)	-0.562	-0.154	-0.171	0.161	1					
Urban Population (6)	0.516	0.148	-0.223	0.282	-0.554	1				
Armed Forces Personnel (7)	0.643	-0.159	0.274	-0.551	-0.171	0.006	1			
Civic Violence (8)	0.150	-0.132	0.191	-0.347	0.068	-0.349	0.509	1		
Government Type (9)	0.287	0.080	-0.037	0.227	-0.314	0.124	-0.191	0.045	1	
Protests (10)	0.617	-0.150	-0.082	-0.186	-0.012	0.017	0.663	0.319	0.053	1

**Table 1: Correlation Matrix**

	1	2	3	4	5	6	7	8	9	10
GDP (1)	1									
Terms of Trade (2)	0.174	1								
Male Labor Force Participation Rate (3)	0.019	-0.255	1							
Female Labor Force Participation Rate (4)	-0.088	0.047	-0.324	1						
Adolescent Fertility Rate (5)	-0.562	-0.154	-0.171	0.161	1					
Urban Population (6)	0.516	0.148	-0.223	0.282	-0.554	1				
Armed Forces Personnel (7)	0.643	-0.159	0.274	-0.551	-0.171	0.006	1			
Civic Violence (8)	0.150	-0.132	0.191	-0.347	0.068	-0.349	0.509	1		
Government Type (9)	0.287	0.080	-0.037	0.227	-0.314	0.124	-0.191	0.045	1	
Protests (10)	0.617	-0.150	-0.082	-0.186	-0.012	0.017	0.663	0.319	0.053	1

<sup>a</sup>  $P^{u,v}, P^{u,v,t}, P^{u,v,t}$

<sup>a</sup> The natural log of the outcome variable, protests, has been taken to account for a non-normal distribution.

<sup>b</sup> The natural log of this variable has been taken in order to account for a non-normal distribution.

Table 3: Pooled-Time Series Analysis of Protests: Non-linear Effects of World-Systems Indicators, Hardships, and Controls <sup>a</sup>

	Model 1		Model 2		Model 3		Model 4	
	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
<b>World Systems Indicators</b>								
GDP <sup>b</sup>			0.113	0.578			1.312	0.676
GDP <sup>2</sup> <sup>b</sup>			0.011	0.012			-0.005	0.014
Terms of Trade			-0.063	0.011	***		-0.025	0.009
Terms of Trade <sup>2</sup>			0.000	0.000	***		0.000	0.000
								+
<b>Hardships</b>								
Male Labor Force Participation					-0.359	0.197	0.023	0.169
Male Labor Force Participation <sup>2</sup>					0.002	0.001	0.000	0.001
Female Labor Force Participation					-0.029	0.023	-0.105	0.022
Female Labor Force Participation <sup>2</sup>					0.001	0.000	0.001	0.000
Adolescent Fertility Rate					0.012	0.011	0.009	0.010
Adolescent Fertility Rate <sup>2</sup>					0.000	0.000	0.000	0.000
Urban Population					0.110	0.021	0.062	0.019
								***
Urban Population <sup>2</sup>					-0.001	0.000	-0.001	0.000
								***
<b>Controls</b>								
Armed Forces Personnel <sup>b</sup>	2.012	0.309	***	0.490	0.325	0.539	-0.892	0.488
Armed Forces Personnel <sup>2</sup> <sup>b</sup>	-0.059	0.015	***	0.019	0.019	0.026	0.030	0.022
Civil Violence	0.208	0.077	**	0.414	0.098	0.097	0.169	0.079
Civil Violence <sup>2</sup>	-0.032	0.011	**	-0.053	0.011	0.013	-0.018	0.009
Government Type	0.129	0.081		0.273	0.290	0.064	0.611	0.064
Government Type <sup>2</sup>	-0.002	0.003		-0.012	-0.011	0.003	-0.028	0.003
Constant	-11.232	1.544	***	-1.589	9.803	8.229	-17.214	10.652
N	315							
R-Squared	0.507							
	0.681							

\*p<.05, \*\*p<.01, \*\*\*p<.001

<sup>a</sup>The outcome variable, protests, has a constant added (1) and been logged to account for a non-normal distribution.

<sup>b</sup>This variable has been logged to account for a non-normal distribution.

Table 4: Pooled-Time Series Analysis of Hardships: Effects of World-Systems Theory

	Model 1		Model 2		Model 3		Model 4	
	Male Labor Force Participation	Female Labor Force Participation	Adolescent Fertility Rate	Urban Population	Coeff.	s.e.	Coeff.	s.e.
<b>World Systems Indicators</b>								
GDP <sup>a</sup>	-1.134	0.290 ***	5.074	0.686 ***	-16.172	1.330 ***	15.244	0.987 ***
Terms of Trade	-0.030	0.011 **	-0.115	0.021 ***	0.038	0.059	-0.151	0.036 ***
<b>Controls</b>								
Armed Forces Personnel <sup>a</sup>	1.872	0.400 ***	-8.521	0.914 ***	6.174	1.886 ***	-10.389	1.134 ***
Civil Violence	-0.158	0.209	0.609	0.402	0.958	0.922	-1.847	0.386 ***
Government Type	0.206	0.121	-0.459	0.220 *	-0.491	0.527	-1.515	0.261 ***
Constant	82.404	1.711 ***	33.579	3.621 ***	398.127	6.769 ***	-174.001	7.420 ***
N	315							
R-squared	0.157							
			0.476		0.380		0.564	

\*p<.05, \*\*p<.01, \*\*\*p<.001

<sup>a</sup>This variable has been logged to account for a non-normal distribution.

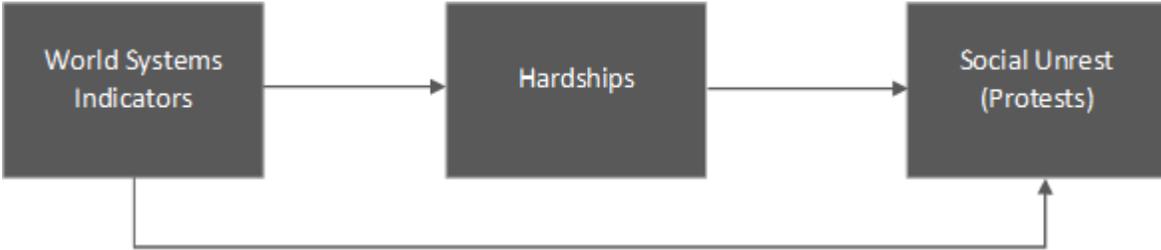


Figure 1: Conceptual Model

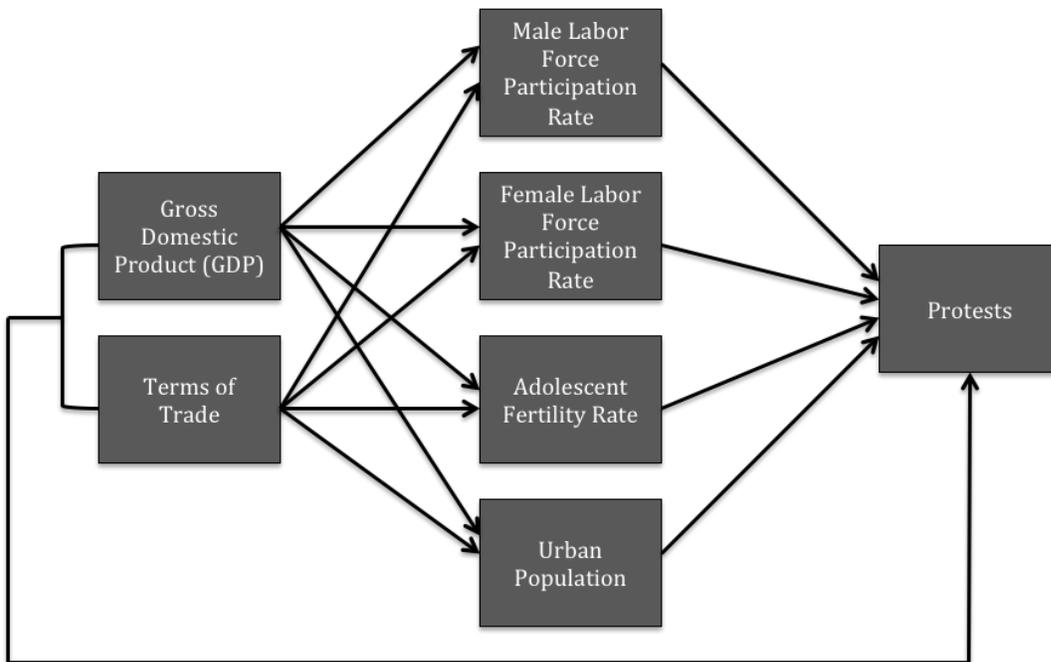


Figure 2: Conceptual Map of Mediating Model

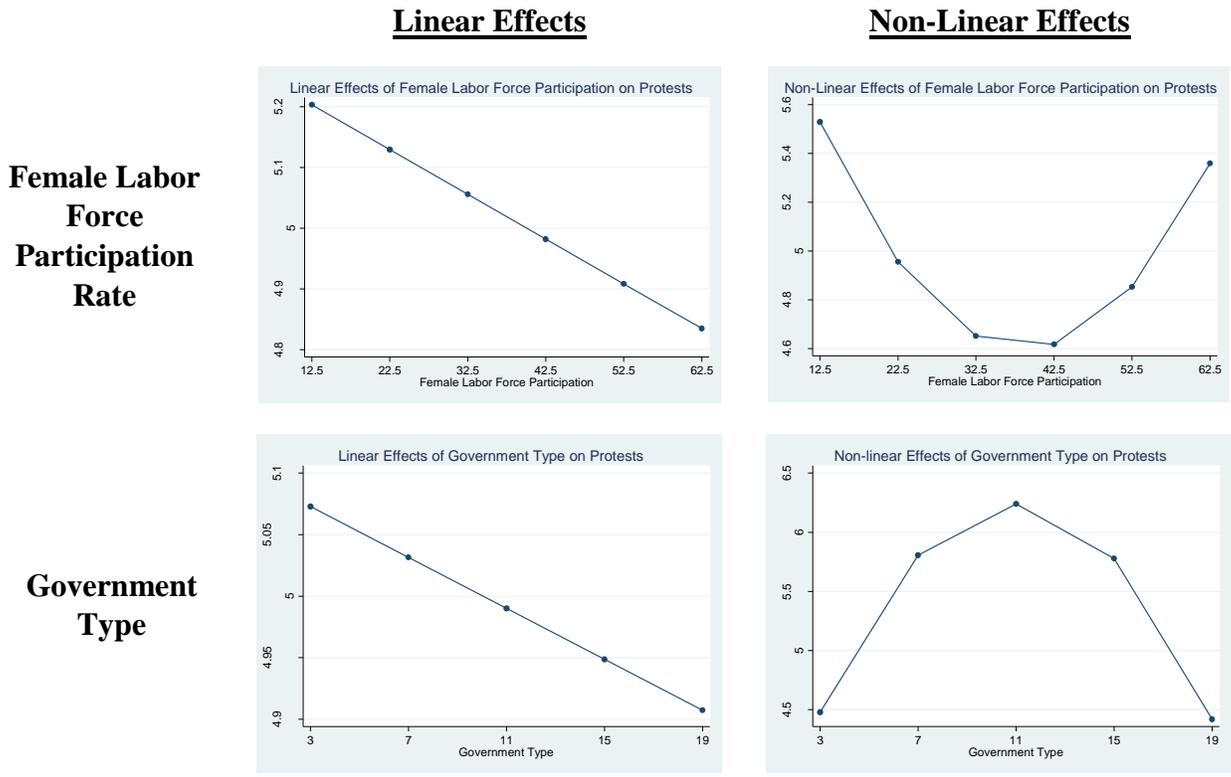


Figure 3: Linear and Non-Linear Relationships of Female Labor Force Participation and Government Type on Social Unrest