Human Trafficking and Natural Disasters: An Empirical Analysis

Author: Maria Gabriella Boria

Persistent link: http://hdl.handle.net/2345/bc-ir:106784

This work is posted on eScholarship@BC, Boston College University Libraries.

Boston College Electronic Thesis or Dissertation, 2016

Copyright is held by the author, with all rights reserved, unless otherwise noted.

Spring 16

Human Trafficking and Natural Disasters: An Empirical Analysis

Maria Gabriella Boria Adviser: Professor S Anukriti

Boston College Honors Thesis for Economics

Abstract

It is widely believed that natural disasters increase human trafficking from the affected region or country; however, credible analyses of the causal relationship are lacking. This paper estimates the causal effect of natural disaster occurrence on economic factors and the probability of human trafficking. I find that there is a significant, positive effect of disasters—as measured by an indicator for occurrence as well as disaster intensity—on human trafficking. Moreover, disasters negatively impact economic outcomes, suggesting a potential mechanism through which disasters indirectly affect trafficking. These findings are policy-relevant for anti-human trafficking and disaster relief organizations as they provide empirical evidence for a previously hypothesized relationship and may help prioritize the underemphasized rise in trafficking during times of inevitable chaos.

1. Introduction

The slavery of men, women, and children can be traced back in history to almost every culture, nationality, and religion. From ancient times to present day, human exploitation has been a global issue, varying in legal and social acceptance and economic importance through the course of time. Although today human trafficking has been outlawed everywhere in the world, it remains widely prevalent but largely unknown. In fact, The Economist (2005) compares slavery to polio. As many westerners relate it with earlier, darker times in human history, its extinction is widely assumed. However, while its eradication would demonstrate human progress, like polio, that has not yet been the case.

It has been estimated that 20.9 million people worldwide are being exploited at any given time. 18.7 million (90 percent) are exploited in the private sector, with 68 percent of them being victims of forced labor in agriculture, construction, domestic work, or manufacturing, and 22 percent are victims of forced sexual exploitation (ILO, 2012).

It is important to recognize that while these numbers are most definitely an indication of the size of the problem, an accurate estimate of the worldwide magnitude of trafficking and slavery victims is unknown and most likely impossible to decipher (Weitzer, 2015). This is due to multiple factors such as global definitional issues, the clandestine nature of the crime, and the reluctance of victims to come forward out of fear or shame. Without an accurate baseline estimate, it is difficult to measure continuities over time, especially changes in the size of the problem. Thus, statements asserting that human trafficking is the fastest growing source of income for organized crime and that it is the third most important following drugs and arms trade, cannot be corroborated.

The issues in lack of consistency and overconfidence in questionable or debunked perceptions of trafficking are particularly a problem for empirical work and policymakers. International organizations and national governments have attempted to raise public awareness on the issue of human trafficking, yet academic research on the topic, especially in economics, remains scarce (Mahmoud and Trebesch, 2010). The large literature in economics on organized crime, such as Fiorentini and Peltzman (1995) and Freeman (1999), as well as the growing field of migration economics, has notably ignored the market for human trafficking and migrant exploitation

(Weitzer, 2015). This results in very little available, reliable knowledge of human trafficking as an economic phenomenon and hence reduces the effectiveness of policymaking.

In this paper, I study the relationship between natural disasters and human trafficking. Although human trafficking is not as well-studied as the gravity of the problem warrants, there has recently been an increase in speculation of the relationship between human trafficking and natural disasters (CdeBaca, 2010; Singh, 2012; Childs, 2016). Isolated incidents of disasters in certain areas of the world have led people to infer a positive correlation between the two phenomena. However, to the best of my knowledge, no rigorous analysis has been conducted on the causal effect of natural disasters on human trafficking. Natural disasters have a substantial negative economic impact and cause instability in affected countries. As a result, many people are left vulnerable and desperate during times of disasters, often seeking migratory alternatives. Children are especially vulnerable under these circumstances as they may be separated from their families and removed by traffickers (Singh, 2012). It is evident that natural disasters make for a ripe environment in which human trafficking can flourish. However, little to no intervention against the illicit activity is prioritized in disaster relief efforts.

This paper therefore comes as an attempt to supplement the deficient literature on human trafficking as an economic issue and to empirically analyze the causal relationship between human trafficking and natural disasters. My paper has the potential to raise awareness and provide valuable information to anti-human trafficking and disaster relief organizations. It could also influence policymakers as they could obtain further insight into the limited knowledge of human trafficking determinants. Prioritization of human trafficking is imperative, especially during times of chaos, and a paper of this nature could help reach this goal.

The inspiration for this specific analysis comes from past studies like Akee et al. (2010) that investigate the association between trafficking and other exogenous factors such as conflict and fragmentation. As one studies the nature of human trafficking, it is evident that it is not often a black and white matter. Its aspects are defined by different spectrums that are narrowed down through the emergence of new research. Although the relationship between human trafficking and natural disasters has only been speculated (CdeBaca, 2010; Singh, 2012; Childs, 2016) yet not empirically examined, I a priori expect that natural disasters increase the probability of trafficking outflow from the affected country. I also expect the intensity of the disaster to make a difference in the prevalence of trafficking with higher intensity resulting in higher trafficking. Finally, I examine the economic channels or mechanisms through which disasters affect trafficking. I argue that while the effect of disasters on certain economic factors may play a role in the increase of trafficking, other traits of disasters also significantly influence the probability of trafficking occurrence.

These arguments are based on an interpretation of human trafficking as a spectrum of many factors. The later sections thus explain the scope of the problem as an array of conditions and the root causes that drive its interconnection with migration and economic patterns. This will then transition into an analysis of natural disasters and their potential enhancement of these patterns. Examples of the suppositions raised from the occurrence of typhoons, earthquakes, and floods on the increased vulnerability of people and poor economic conditions provide qualitative support towards the relationship with human trafficking. I hence base my arguments on these observations and use it as a firm base for the paper.

I use data on 120 countries in the years 2012 and 2011 to estimate the relationship between the incidence of natural disasters in a given year, the economic impacts, and the probability of being a source trafficking country using an Ordinary Least Squares regression methodology. The key results are in line with my expectations. The probability of trafficking increases significantly by 30.4 percent with the incidence of disaster as well as with the increase in intensity. These results are robust to controlling for other relevant socioeconomic characteristics of the country, region, and locality. I also find that 4.35 percentage points of the estimated effect of disasters on trafficking can be explained by the effect of disasters on GDP, unemployment rate, and trade share of GDP. Thus, the remaining 26.1 percent increase in the probability of trafficking are likely due to alternate mechanisms of disasters not controlled for.

The final part of my paper offers a conclusion and suggestions for the improvement of future research. It also calls policymakers to take action but more especially calls on special organizations involved in disaster relief and human trafficking prevention to work in tandem.

2. Human Trafficking: Prevalence and Patterns

2.1 Definitions and History

One of the biggest issues with studying human trafficking is definitional. Various definitions exist and each country has its own legal interpretation for it. There is little consensus on its actual structure and even less on how it should be measured (McCarthy, 2014; Ali, 2010; Guinn, 2008). The number of instances of trafficking that countries report can almost never be compared cross-nationally and their accuracy is questionable due to misidentification of victims by authorities (Laczko, 2007). This, in turn, affects the way that research is done on the topic so it is crucial to accurately define the concepts explored in this paper.

The human trafficking definition that is currently internationally accepted and ratified by 117 countries is derived from the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, also known as the Palermo Protocol. It is defined as:

"the recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation," with exploitation defined widely to include "at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labor or services, slavery or practices similar to slavery, servitude or the removal of organs" (UN Protocol 2000).

It is important to note that some countries have incorporated extra components to the Palermo Protocol's requirements and that this paper follows the United States' version of the definition, which includes the inducing of any commercial sex act of a minor. Aside from forced prostitution and labor, other events that have been classified as human trafficking include organ trafficking in Egypt (Budiani-Saberi et al., 2011) and the Balkans (OSCE, 2013) from Sudanese refugees, children forced begging in South Eastern European and Asian streets (Cherneva, 2011), and Westerners and Thai/Russian women transnational marriages (Tyldum, 2013). The distinct

characteristics of these activities manifestly depict the difficulty in drawing clear definitional parameters.

Although migrant smuggling,¹ forced labor,² and slavery are all considered distinct crimes under international law, it is difficult to separate them from human trafficking due to the several ways in which they intertwine and may evolve one into the other. Another slightly larger debate revolves around the close connection between prostitution and human trafficking, emerging in the early 1900s with the first anti-trafficking movement that concentrated on preventing women and girls from being transported abroad for prostitution purposes (Limoncelli, 2010).

As the trafficking issue rose in popularity again in the 1990s, this close connection continued amongst activists, influencing new policy decision-making centralized around prostitution. For example, the 2000 Trafficking Victims Protection Act focused new domestic law around this relationship and made it a standard for other countries to follow. This was done through the TIP report that began to be issued annually by the U.S. Department of State and now continues to assess each country's level of compliance with anti-trafficking standards (McCarthy, 2014).

The TIP report has just recently expanded to include other forms of trafficking thanks to newly discovered findings and estimates. According to ILO, there are nine times more labor trafficking victims than there are sex trafficking ones (ILO, 2005). The methods used to arrive at this ratio are not very clear, but the fact that the international market for cheap labor is certainly greater than the market for sexual services makes this argument rational. With a greater market for cheap labor comes greater demand for trafficking in these areas, so it is not sensible to believe that trafficking most predominantly revolves around the sex industry. In spite of this, most media reports, policymaking, and law enforcement globally focus on commercial sex markets (Chuang, 2010; Marchionni, 2012). While it serves to raise awareness, the labor trafficking problem gets neglected entirely and policies regarding prostitution, labor, and migration get affected respectively.

2.2 Prevalence

These estimates, although cannot be confirmed with certainty due to the crime's illicit and concealed nature, provide a general sense of the problem. Hence, of the aforementioned 21 million people estimated to be currently exploited, 44 percent have been trafficked either internally or internationally while the remaining victims are engaged in forced labor right in their place of residence (ILO, 2012). Of the people subjected to forced sexual and labor exploitation,

¹ Migrant smuggling occurs as a result of the smugglee paying the smuggler to facilitate the travel to the destination country, thereby both parties violating the law. Any exploitation in the process ends as soon as the border is reached, as opposed to trafficking. Realistically, however, at the end of the journey the smugglee is usually indebted to his or her smuggler and thus, must continue to pay their debts, often under exploitative conditions (Kyle and Koslowski, 2001

² The International Labour Organization (ILO) see trafficking victims as being engaged in forced labor, defined by the Forced Labour Convention as "all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily." This definition, therefore, does not require any crossing of borders and ignores the distinguishing from smugglees or illegal immigrants.

98 percent of them are women and 60 percent are men respectively. 93 percent of sexually exploited people move internally or internationally while only 33.7 percent of those exploited by forced labor, travel. As of 2007, the profits of all forms of trafficking are estimated at \$91.2 billion worldwide (Kara, 2008). This is greater than the entire economies of Iceland, Moldova, Gambia, Honduras, and Liberia combined. Sex trafficking alone is said to amount to \$27.8 billion in profits while labor trafficking produces \$3.8 billion (Belser, 2005).

The Eastern European countries Belarus, Bulgaria, Moldova, Romania, and Ukraine are some of the principal source countries of human trafficking (Mahmoud and Trebesch, 2010; ILO, 2005) while affluent and proximate Western European countries and Russia seem to be the main destinations. Other significant destinations include North America and Asia as well as certain countries in the Middle East like Israel, Lebanon, Turkey, and United Arab Emirates (UNODC, 2006).

The factors dictating whether a country is a source or a destination have been investigated with difficulty. Most of the findings indicate that this is largely a function of the country's economic conditions and consequently migration patterns and policies. Akee et al. (2007) find that income inequality within a country is a major determinant of out-trafficking. Vulnerable people in poor economic conditions seek better opportunities abroad. However, as the supply of legal migration and employment is limited, illegal means by which to travel and work abroad become seemingly worthwhile. Traffickers and smugglers take advantage of this supply and demand inequality and make a profit out of people's vulnerabilities.

This argument is supported by Mahmoud and Trebesch (2010) as they find that migration prevalence, as well as some determinants of migration, are key predictors of trafficking. When there is an increase of border restriction, there is also seemingly an increase in the probability of the migrant's victimization. In the same way, illegal migration patterns are indicators of trafficking risks. These are substantially lower, however, if human trafficking awareness is high in the region. Ignorance and hopefulness thus make people rely on third parties for desperate migration attempts, always expecting the best and often encountering the worst.

2.3 Human Trafficking as a Spectrum

The trafficking crime prevails because it is a high-profit, low-risk billion-dollar business. Victims usually participate willingly at the early stages, making them easier than arms and drugs to transport across borders (McCarthy, 2014). Because of the wide range of opportunities, the levels of organization, as well as the number of criminal trafficking groups, vary considerably across and within countries (Surtees, 2008).

On the one hand, there exist highly organized trafficking organizations like those found in Bulgaria (Petrunov, 2011). Their operations involve people with delegated roles, organized payrolls, and detailed bookkeeping methods, much in the same way that a regular business would function. These organizations have complete control of the process from source to destination country. On the other hand, there are less involved, more open-ended trafficking organizations. In a study by Chin and Finckernauer (2011), they find that Chinese women working for the sex trade used travel agencies or former prostitutes to facilitate their journey. Once they arrived at

their destination, locals assisted them in finding work at brothels and strip clubs. Never was there any controlling organizational figure delegating the process at any point.

The recruitment process also occurs on a spectrum and many traffickers approach it an array of ways. In order to facilitate the victims' movement or exploitation, traffickers frequently take advantage of corrupt officials (Studnicka, 2010). When recruiting, they may use complete deception and force or they may initially have the victim's complete consent and agreement. For example, a study in sex trafficking by Hoyle et al. (2011) showed that in Albania and Bulgaria, boyfriends often recruit women while in Southeast Asia, women themselves approach traffickers to pay off debts. Other types of recruitment found in the study involved recruitment through newspaper ads or by deceiving offers of education abroad. Once in the destinations, traffickers use all sorts of physical or psychological procedures, including debt bondage, to keep them subjected to work.

The last part of the spectrum describes the victims. In general, migrants are guided by push and pull factors. These may be poor economic, working, or home conditions on the push side and promises of a "modern," autonomous life on the pull side (Aronowitz, 2009). Therefore, on the one side, a victim may have been kidnapped and forced into confining, dangerous labor, deceived about the kind of work they would be doing, or receive little to no pay while experiencing physical, sexual, and psychological abuse. On the other side are people who give their full consent and suffer no abuse. Some of them are even liberated from oppressive conditions at home and enjoy upward mobility in their destination. In between these two sides are people who encounter combined experiences. For example, they may not be deceived about the type of job but rather about the working conditions or they may not be physically or sexually assaulted but are instead subjected to harassment and verbal abuse.

The fact that there are so many different parts to human trafficking, each ranging in variety, is yet another issue that researchers, policymakers, and law enforcement face. The ambiguity and subjectivity with which trafficking can occur make it difficult to study and to detect. This inevitably affects the way that we attempt to eliminate it.

2.4 Policy Adoptions and Implementation

The way in which we understand and interpret human trafficking affect policymaking, both regarding human trafficking and factors associated with it such as prostitution, labor and migration. A strong focus on sex trafficking has kept the attention concentrated on prostitution policy while ignoring the effects of labor and migration policy on trafficked victims. For example, Asian women in the Middle East working in the domestic sector have been found tied to their employers due to the 'Kefala' migration sponsorship system. The national labor law does not protect these workers. In addition, in the case of conflict, employers have the right to revoke their work permits if the employees do not comply, often leading to exploitative situations (Mahdavi, 2013). Another study showed that people are trafficked into forced labor where the labor markets are poorly regulated, increasing their vulnerability to exploitation (Anderson and O'Connell Davidson, 2003). Because migration and labor issues have a clear effect on human trafficking, neglecting their importance thus affects the efficacy of actual human trafficking policy.

Recently, there has been an increase in the effort to combat human trafficking by international organizations, national governments worldwide and NGOs. In 2007, the UN launched the Global Initiative to Fight Human Trafficking after the issuing of the Protocol to Prevent, Suppress, and Punish Trafficking in Persons (UN, 2000a) in 2004 and the Protocol Against the Smuggling of Migrants (UN, 2000b) in 2003. The European Union and the U.S. government have also augmented the anti-trafficking funding (Mahmoud and Trebesch 2010).

Different studies have found patterns in the behavior of countries regarding trafficking policy adoption. The pressure that the U.S. TIP report has applied on countries has helped drive the spread of anti-trafficking policies worldwide (Gallagher, 2011). This, in turn, affects the cumulative behavior of neighboring countries. Lloyd et al. (2011) find that states are more likely to criminalize trafficking if their neighbors do out of worry that not doing so will force trafficking over the borders into their countries. Developed countries have shown the most interest and commitment in passing anti-trafficking policies while regions like South Asia and the Middle East have shown less and even a decreasing collaboration (Cho et al., 2014).

One can say that anti-trafficking policy adoption has been a relative success. As of 2013, 182 countries have criminalized or partially criminalized human trafficking (Protection Project, 2013). However, its implementation seems to be a much more difficult task. In 2013, the total number of human trafficking prosecutions and convictions reported globally was only 9,460 and 5,776 respectively (US Department of State, 2014). This is because an effective response to trafficking from the criminal justice system warrants a substantial amount of government resources in order to successfully interdict the criminals and provide support for the victims so that they can be a part of the investigation (Gallagher and Holmes, 2008). Since the nature of the crime is still under a lot of speculation and much remains ambiguous, authorities believe implementation to be too difficult and likely a waste of resources (McCarthy, 2014).

First, not only does the array of different kinds of victims make it difficult to identify them, but they may also be severely traumatized and refuse to participate in the investigation or cooperate with authorities (Oram et al., 2012). Even in the United States that has invested a lot of resources to the anti-trafficking cause, many law enforcement officials do not believe that human trafficking exists in their area and remain unprepared to identify and respond to a trafficking case (Farrell et al., 2012). To make matters worse, if a trafficking case is identified and prosecuted correctly, it may not be pursued under the adopted trafficking laws, as they are largely untested and thus difficult to interpret. These cases then do not get reported as trafficking, hindering the accuracy of future research. Yet, there has still been notable progress in the adoption and implementation of human trafficking relative to previous years and with the continuation of research, this process can only improve.

2.5 Natural Disasters and Human Trafficking

As previously mentioned, people's vulnerability, poor economic conditions, and desire to migrate significantly affect the prevalence of trafficking. When exogenous factors like natural disasters strike, these circumstances are likely to heighten and are only made worse by the chaos inherent to disasters.

In the last few years, there has been some speculation regarding the relationship between natural disasters and human trafficking. For example in 2013, Typhoon Haiyan hit the Philippines, leaving approximately 10,000 dead and 600,000 homeless within a week. Even prior to the typhoon, Filipinos have found themselves in vulnerable economic positions with 47.5 percent of them living on less than \$2 per day. One in ten people thus find work abroad, many under exploitative conditions (Calkins, 2013). Due to the economic turmoil, widespread instability, and the severity of deaths and infrastructure, Haiyan was expected to have risen trafficking by a significant amount, especially that of children. Britain's International development secretary, Justine Greening said: "after previous emergencies in the Philippines, we have seen an increase in the violence against women and girls and in particular the trafficking of girls."

Similar patterns have been recognized in other countries enduring different disasters. The Pakistan floods in 2010 left the country one fifth underwater and crippling in poverty, allegedly increasing trafficking outflow. In the same year, the earthquake in Haiti also created appalling economic conditions. With the loosening of borders to allow aid flow and too many Haitian children already in forced labor, the earthquake only made Haiti even more susceptible to further exploitative conditions. Even the drought of 2011 in Africa saw families marrying off their daughters (often as young as nine years old) to pay their dowries before their livestock died (Calkins, 2013).

Children seem to be the most affected during times of natural disasters. Najat Maalla M'jid, the UN Special Rapporteur on the sale of children, child pornography and prostitution warned, "Children's vulnerability is significantly increased when they are separated from their families, unaccompanied, orphaned or displaced following a humanitarian crisis." As the report at the 19th Session of the Human Rights Council explained, some people take advantage of the unstable environment created by disasters to exploit children. This environment may cause a collapse of a strong State system that enables traffickers to bypass established standards and take children elsewhere, especially when they have been separated from their families.

Regardless of the clear patterns seen during natural disasters, human trafficking intervention is not prioritized in disaster relief efforts, especially child protection. Misty Buswell, the Deputy head of Office, Child Protection Initiative, Save the Children, noted that disaster relief responses usually concentrate on food. However, other tragedies like droughts cause displacement and increase vulnerability in such a way that it requires better protection and funding mechanisms. Currently, the lowest funded sector is protection and lowest within that sector is child protection (Singh, 2012).

Although scarce, there have been some efforts to address this issue. For instance, the U.S. Department of State has called for anti-trafficking measures during humanitarian aid settings. Also, programs such as the JTI Foundation pilot program seek to increase the evidence of the relationship between the frequency and intensity of natural disasters and a rise in human trafficking. This foundation emphasizes the importance of preventing forced migration through the establishment of a hazards and vulnerabilities database and the development of Community-Based Disaster Risk Reduction strategies. Awareness of this relationship is improving but as Harvard's Program on Humanitarian Policy and Conflict Research has stated, a stronger international response to human trafficking during complex emergencies is crucially necessary.

3. Data

The panel data used in this paper was collected from various sources and spans 120 countries and the years 2011 to 2012. Table 1 describes the variables used in my analysis.

I use three key measures in my analysis. The first measures trafficking and is based on the Trafficking in Persons (TIP) report (US Department of State 2013) that compiles descriptive accounts of trafficking incidences per country for the year 2012. The source-destination pairs are coded from the individual country reports. A 1 is awarded if the report mentioned the occurrence of trafficking from the source country to the destination country and a 0 otherwise (Akee et al., 2010). Map 1 shows the countries color-coded according to their categorization as a source, destination, both or transit/none. Only the color filled countries are taken into account. As the map shows, most countries are likely to be both source and destination. Out of the 120 countries, 79 fall under this category including large countries like the United States, Canada, Brazil, Russia, and China as well as smaller countries like Liberia, Lithuania, Haiti, and Nepal. Very few are considered strictly source or strictly destination. There are 22 source countries, which are mainly spread out through Latin America and the Caribbean, Africa, and Asia and 18 destination countries, which are concentrated in Europe with the exception of several countries like Australia, Kazakhstan, Malaysia, and Gabon. Only Algeria is considered a transit country, neither destination nor source in my study.

Secondly, I measure disasters and obtain the data from the Emergency Events Database (EM-DAT). The disasters recorded are earthquakes, droughts, floods, storms, landslides, and extreme temperatures. If any disaster is reported for the given year in the country, it is coded as 1 and 0 otherwise. To capture the effect of the *intensity* of the disaster on human trafficking, I collect data on the total number of deaths, the number of injured, and the number of people left homeless due to any of the disasters mentioned for the year 2012. I also collect a cumulative measure of the total number of people affected for the years 2012 and 2011 in order to capture the impact of the disaster intensity over time.

Finally, since most of the literature on human trafficking and migration finds that relatively poorer countries are more likely to be source countries while richer countries tend to be destination countries (Akee et al., 2010; Cho et al., 2015; Danailova-Trainor and Belser, 2006; Mahmoud and Trebesch 2010; Bruckert and Parent, 2002), Gross Domestic Product (GDP) per capita is included and collected from the World Bank Development indicators for the year 2012.

I follow prior literature and control for the following variables in my regression analysis. First, I use a distance variable that measures the simple distance per 1,000 km between the source and destination countries' most populated cities. It is obtained from the CEPII GeoDist dataset (2011) and it is used to monitor the effect of the distance traveled. Next, the indicator variable landlocked dummy is included to account for the ease with which trafficked victims can move from source to destination countries. It takes a value of 1 if a country is landlocked and 0 otherwise. Other variables include population, the sum of exports and imports (trade) as a share of GDP, unemployment rate, the share of people that are aged 65 or above, infant mortality, and continent/region categorical variables. They are also collected from the World Bank Development Indicators for the year 2012.

The nature of governance is captured through four different indices: voice and accountability, political stability and absence of violence, the rule of law, and control of corruption. The voice and accountability index variable measures the extent to which people believe they have voting rights, freedom of expression, freedom of association and freedom of media. Political stability captures perceptions of the probability of instability and/or violence motivated by any political party, including terrorism. Rule of law reflects people's confidence in the rules of society and the quality of contract enforcement, police, property rights, the courts, and police as well as the likelihood of crime and violence. Finally, the control of corruption variable demonstrates the perceptions of the strength of public power for private gain and control of the state by elites and private interests. These indices range from -2.5 (weak) to 2.5 (strong) governance performance. Kauffman, Kray, and Mastruzzi collected the data through the Worldwide Governance Indicators (WGI) project (2015) for the year 2012. These variables are included due to the effect of the quality of governance on both GDP and human trafficking as found by previous literature (Cho et al., 2015; Cho, Dreher, and Neumayer, 2012; Akee et al. 2012).

Finally, gender equality is captured through the Global Gender Gap Index Report 2013 (World Economic Forum). It examines four areas of gender inequality: economic participation and opportunity, educational attainment, political empowerment, and health and survival in which each country is given a score per area of inequality and then combined to form a final gender gap score. The score ranges between 0 and 1, 1 pertaining to having the most equality. This factor is important to determine a country's level of trafficking since studies have found very mixed results on the matter (Bettio and Nandi, 2010; Di Tommaso et al., 2009; Rao and Presenti, 2012; Clawson and Layne, 2007; Cho et al. 2015).

Table 2 presents the country-level summary statistics while Table 3 provides the summary statistics of the estimation sample, which is at the country-year level. It is important to note the mean of the trafficking dummy in Table 3 as it suggests that there is a 4.6 percent level of trafficking outflow. This will become critical when determining the relative effect of the independent variables on the level of trafficking. The average number of the probability of disaster occurrence is greater for the year 2012 (0.723) than it is for 2011 (0.583) yet there is a greater average number of people affected in 2011 (1.702) than in 2012 (0.839). This suggests that although fewer disasters occurred in 2011, their intensities were potentially of greater magnitude. The averages of total deaths, total injured, and total homeless increase respectively, with deaths being the lowest (0.008) and homeless being the highest (0.622). The summary statistics of the governance factors indicate that on average countries lie on the negative (weaker) score. However, the gender gap score average is well over 50 percent, indicating that there is relatively a larger worldwide equality between males and females. Finally, Table 4 lists all countries used in this paper, grouped by continent/region.

4. Empirical Methodology

To determine any possible link between natural disasters and human trafficking, I first estimate the overall effect of disaster occurrence in a country on trafficking from that country after controlling for other variables described in the previous section. To do this, I run two sets of regressions that estimate the effect of i) the incidence of disaster indicator variable on trafficking, and ii) the intensity of disasters on trafficking. The first model used is presented below: $trafficking_{ij} = \alpha_1 + \beta_1 disastert_i + \beta_2 controls_i + \beta_3 controls_j + \varepsilon_{ij}$ (1)

where $trafficking_{ij}$ is the binary dependent variable for the incidence of trafficking from source country *i* to destination country *j* in year the 2012. The variable takes a value of 1 if an incidence of trafficking has been reported and 0 otherwise. This method of source-destination pairing was suggested by Akee et al. (2010).

The variable *disastert*_i takes a value of the incidence of disasters in either 2012 or in 2011 in two separate regression variants. It is the primary binary independent variable coded as 1 if a disaster occurred in the given year in the source country and 0 otherwise.

Controls are the rest of the variables that take into account the source country's location, as well as its health, social, and governance status. These include the share of people that are aged 65 or above, infant mortality, the distance between countries and landlocked and continent/region categorical variables. It also includes the four indices representing the nature of the country's governance such as voice and accountability, political stability and absence of violence, the rule of law, and control of corruption, as well as the country's gender equality variable, the gender gap index. The same controls are included for the destination countries.

The second model finds the effect of the intensity of disasters on trafficking as follows:

$$trafficking_{ij} = \alpha_1 + \beta_1 intensity_i + \beta_2 controls_i + \beta_3 controls_j + \varepsilon_{ij}$$
(2)

where all the variables remain the same as previously described except for *intensity_i*. This independent variable takes a different form in three different regression variants. The first variant divides the variable into three distinct ones: total deaths, total injured, and total homeless for the year 2012. This is done in order to capture each of their effects on trafficking and to determine if there is a difference in effect depending on the level of harm to the populous.

The second and third variants are represented by a total affected cumulative variable for the year 2012 and 2011 respectively. They are introduced in two different regressions and seek to capture the effect of the collective intensity over time. The controls in all three variants include the economic factors GDP, unemployment rate, and trade share of GDP as well as the rest of the control variables previously mentioned.

Next, I try to understand the channels through which disaster impacts trafficking. Specifically, I test if the relationship between trafficking and disasters can be explained by the effect of the disaster on the country's economic outcomes. To do this, I first estimate the effect of the incidence of disaster on the economic factors GDP, unemployment rate, and trade share of GDP and then examine if the previously estimated relationship between disaster and trafficking changes when I control for these measures of a country's economic status.

To capture the effect of natural disasters on GDP I estimate the following regression:

 $EconFactors_{i} = \alpha_{1} + \beta_{1}disastert_{i} + \beta_{2}controls_{i} + \varepsilon_{i}$ (3)

where $EconFactors_i$ is the dependent variable and takes the value of either GDP, unemployment rate, or trade share of GDP for country *i* on three separate regression variants. The variable *disastert_i* represents the same disaster independent variables as mentioned before for the years 2012 and 2011 in another two separate variants per regression. The controls also remain the same as previously mentioned. Only the source countries are used for this model, lowering the observations to 120 or less. Although the small number of observations may decrease the coefficients' statistical significance, it may still provide an insight into the disasters direct effect on GDP and hence, their *indirect* effect on trafficking.

I estimate four specifications for each variant of the regression models. The first specification excludes all control variables, leaving only the dependent variable and the key independent variable of interest (*disastert_i* or *intensity_i*). The subsequent three specifications gradually accumulate regressors until they are all incorporated. Like this, I am able to determine the effect that certain control variables may have on the main explanatory variable and how significance varies accordingly. The coefficients of these main explanatory variables give a causal estimate of the effect rather than just the degree of correlation. This is because disaster occurrence, such as that of an earthquake or storm, is likely to be exogenous and unrelated to other factors that affect trafficking directly.

5. Results

Trafficking-Disaster Incidence

Table 5 shows the results of the first regression model, each panel representing a separate regression variant and each column referring to the different specifications. The first specification of each variant regresses trafficking on the incidence of disaster in the year 2012 or 2011 as seen in Column 1. The second specification includes general control variables for the source and destination countries such as the distance between them, health factors, population, and landlocked effects. The third specification controls for social and quality of governance conditions while the fourth specification controls for regional fixed effects.

As seen in Panel A, the estimates of the main variables of interest show that the incidence of disaster in the year 2012 is statistically significant and positively affects trafficking flows regardless of the specification. Panel B also shows very similar results for the incidence of disaster in the year 2011 except the lack of statistical significance for the fourth specification.

Focusing on Panel A, it is evident that although the magnitude of the coefficient decreases with the inclusion of control variables, the positive link remains across the board. Compared to the fourth specification (Column 4), the third specification excluding the regional fixed effects shows a larger coefficient magnitude of 2.3 percent. Relative to the mean for the trafficking variable (4.6 percent as seen in Table 2), an increase of 2.3 percentage points translates into a 50 percent increase in trafficking. The fourth specification including all control variables demonstrates that the incidence of disasters in the year 2012 increases the probability of the country being a trafficking source by 1.4 percentage points at a 5 percent significance level. Once again comparing to the mean trafficking level, this increase of 1.4 percentage points would mean an overall increase in trafficking of 30.4 percent, still a substantial effect.

Panel B shows the same specification patterns for the incidence of disasters in the year 2011 (one year prior the trafficking reports). This key variable is included in order to determine whether the incidence of disasters in the past affect trafficking flows in the future. The estimates show a constant positive link across the specifications with only the fourth one being a negative coefficient and lacking statistical significance. Nevertheless, they show that an increase in the incidence of disaster in the year 2011 increases the probability of trafficking in 2012 by 1.5 percentage points (a 32.6 percent increase) at a 1 percent significance level without taking into account the regional fixed effects (Column 3). Though Column 4 results in a very small, insignificant coefficient, the previous specifications of the regression demonstrate trends that a disaster in the previous year may positively and significantly affect trafficking in the upcoming year.

Table 5 thus confirms my hypothesis as it explicitly demonstrates the positive significant correlation between disasters (in the same and previous year of occurrence) and the probability of trafficking outflow from the disaster-affected country.

Trafficking-Disaster Intensity

Table 6 depicts the results of the second regression model with the same specification patterns as aforementioned and the three disaster intensity variants represented per panel: A) total deaths, injured, and homeless B) total affected in the year 2012 C) total affected in the year 2011. The first variant attempts to capture the effects of each level of harm on trafficking while the last two seek to capture the effect of the passage of time, much in the same way as the disaster variables did in the first model. The controls used remain the same as the first model with the exception that the second specification includes the economic factors GDP, unemployment rate, and trade share of GDP.

Like in the first regression model, the inclusion of further controls either decreases the magnitude of the coefficients or maintains them the same. Significance at the 1 percent level is preserved throughout the table, indicating a clear correlation between the intensity variables and trafficking regardless of the specification.

The first variant results in positive and significant coefficients for total deaths, injured and homeless. The coefficients for total deaths vary and decrease with the addition of further regressors while the coefficients for total injured follow a similar pattern with the exception of Column 2 and remain relatively more stable. The estimates for total homeless remain essentially the same regardless of the specification. The coefficients' magnitudes also seem to decrease parallel to the level of physical harm done to the population. While the coefficients of total deaths (greatest physical harm) are a lot larger than the coefficients of total injured, both of their coefficients are in turn a lot greater than the coefficients of total homeless (lowest physical harm). As can be seen by Column 4, an increase of 10,000 deaths increases the probability of trafficking by 33.9 percentage points and an increase in the same amount of people injured increases trafficking by just 3.4 percentage points. To a much lesser degree, an increase of 10,000 homeless increases trafficking by only .4 percentage points. These differences between the variable coefficients insinuate that as the severity of the disaster increases, so does the probability of trafficking outflow.

The second and third variants resulted in positive and significant results in all four specifications. The magnitudes of the coefficients do not vary much, although the total affected in 2012 has a larger impact on trafficking than the total affected in 2011, as expected. Regardless, the number of people affected does have an impact on the likelihood of trafficking for the current and previous year, as small as that effect may be. As can be seen from the table, an increase of a million people affected in 2012 increases the probability of trafficking outflow in the same year by .5 percentage points while an equal increase in 2011 increases trafficking in 2012 by .1 percentage points. These findings show that the impact of disaster intensity carries over to the following year and may indeed contribute to an increase in trafficking levels.

GDP-Disasters

Finally, Table 7 shows the results of the third model that follows the same specification patterns as before but instead focuses solely on source countries. Due to this, the number of observations decreases and may have been the cause for the drop in significance. Nonetheless, this model is used to determine any economic mechanisms through which disasters affect trafficking. The three economic factors incorporated as separate dependent variables are GDP, unemployment rate, and trade share of GDP. The main explanatory variables are incidence in disaster in the year 2012 and 2011, introduced separately in two different regression variants. Overall, the coefficients for *disastert* all turn out negative for each of the three dependent variable variables.

In the first section where GDP is the dependent variable, only the coefficient in the second specification (Column 2) turns out to be statistically significant at the 1 percent level and greater in magnitude than the rest. The variant including disasters in 2011 shows that specification 2 is once again the only one that provides a significant result but to a much lesser significance level. The coefficients' negative sign is expected, as an increase in disasters in 2012 should decrease the country's GDP for the same year. However, the signs for disasters in 2011 result positive after the first specification. This means that if there is a disaster in 2011, the country's GDP is likely to be higher than if no disaster occurred. An explanation for this may be that countries that endure disasters may receive large amounts of aid from foreign countries that could benefit the economy and indirectly increase GDP. Also, depending on the country and the efficiency with which they react to the situation, a disaster may mean a period of increase spending for rebuilding and recovery and thus a fiscal expansion (Kliesen, 1994). Studies on places that have endured disasters, i.e. hurricanes, earthquakes, and tsunamis, have found that after the immediate loss period, certain economies may enjoy a temporary boost through an increase of outcome, employment and innovation (Bennet, 2008; Baily, 2011). However, since I do not include information on the change of GDP from 2011 to 2012, the effect that disasters in 2011 may have had on that change is not clear, therefore possibly skewing my results as well.

The second section employs trade share of GDP as the dependent variable. The coefficients for disasters in 2012 and in 2011 all decrease in magnitude and significance with the addition of regressors. Only the coefficients for *disaster12* turn out to be significant in every specification. Nevertheless, it demonstrates that the incidence of disasters in 2012 decreases the level of trade for the same year with a significance level of 10 percent. *Disaster11* shows the same results up until the third specification. These findings appear sensible as the economy may slow down during a disaster, hindering international transactions as well. Furthermore, the effect of disasters

on economic conditions seems to be strong enough to roll over for the following year as depicted by the significance of *disaster11*'s coefficients.

The third, and final, section uses unemployment rate as the dependent variable. Only the coefficients of the third and fourth specification for disasters in 2012 result significant at the 5 and 10 percent level respectively. Their negative sign demonstrates that an incidence of disaster is likely to decrease the unemployment rate. This could be explained by the definition of employment. Since unemployment rate only takes into account people in the labor force, those that have given up searching for work after a disaster are not counted as being part of the labor force and thus are not considered unemployed. It may also be the case that employment actually does increase briefly after a disaster while the country is going through the recovery period. As mentioned before, a country's rebuilding activity usually generates "increased sales tax receipts and additional employment" (Kliesen, 1994). It can very well be the case that for a short period, unemployment decreases as the country seeks labor to restore itself.

While significance levels vary throughout the board, it nevertheless shows that there may be a significant, negative correlation between disasters and economic factors. Naturally it makes sense to believe that with the incidence of disaster comes an inevitable impact on the country's economy, primarily due to disasters' unexpected nature. Therefore, I am interested in identifying the disasters' mechanism on trafficking by quantifying how much of the disasters' effect on trafficking is due to their effect on economic factors versus how much of it is due to the disasters' inherent characteristics and inevitable consequences on society and the community. In order to do this, I run regression (1) once again, this time including the economic controls and only using the disaster variable for the year 2012 as the key independent variable. The results are in the following section.

Trafficking-Disaster Incidence and Economic Factors

Table 8 shows the results for the first regression model with the integration of the economic factors previously omitted. As can be seen on the table, the coefficients for disaster incidence in 2012 follow the same trends as disaster12 in Table 5: the magnitudes of the disaster coefficients also decrease with each new set of regressors added and the significance levels remain exactly the same per specification. The only difference between the results is the fact that the magnitudes of the coefficients in Table 8 are much lower than those in Table 5. This confirms the existence of disasters' economic mechanism. However, because the coefficients do not turn into zeros and are still very much significant, it also proves the existence of other mechanisms. The difference between the coefficient magnitudes in Column 4 for Table 5 and Table 8 is 0.002. This means that only 0.2 percent accounts for disasters' mechanism through GDP, unemployment rate, and trade share of GDP. Since the disaster coefficient is 0.012 and significant at the 5 percent significance level when accounting for the economic factors, I infer that 1.2 percent hence encompasses the impact of other disaster mechanisms affected by alternate factors not controlled for; potentially through the creation of instability and tumultuous conditions or their effect on other economic factors. This regression shows that the incidence of disasters in the year 2012 increases the probability of the country being a trafficking source by 1.2 percentage points, a 26.1 percent increase in the overall probability of trafficking outflow. Comparing it to the 30.4 percent increase previously established using Table 5, one can conclude that the difference of 4.3 percent is caused solely by disaster's economic mechanism on trafficking.

The coefficients for the remaining control variables are also interesting to analyze. They corroborate several results from the literature and provide additional information that may be beneficial for future research.

As expected, the coefficient for the distance variable indicates that it is negative and significant at the 1 percent significance level. A decrease of 1,000 km results in an increase of 1.1 percentage points of trafficking. This is in accord with migration literature and makes sense due to the close connection between migration and human trafficking. Previous studies find that trafficking and migration lie on a spectrum and may go hand in hand. Mahmoud and Trebesch (2010) conclude that an increase of migration prevalence translates into a substantial increase in the predicted probability of human trafficking. A shorter distance between source and destination countries may contribute to several migration patterns and thus to the increase of trafficking.

GDP per capita also results as expected, having coefficients of equal magnitudes but of opposite signs for the source and destination countries with a 1 percent significance level. An increase of \$10,000 of GDP per capita in a source country decreases the trafficking outflow by 1.4 percentage points. The same increase in the GDP per capita in a destination country increases that country's trafficking inflow by the same percentage. This is in line with the migration and human trafficking literature as previous studies record similar effects (Cho et al., 2015; Akee et al., 2010, 2012, 2014; Bettio and Nandi, 2010; Danailova-Trainor and Belser, 2006; Di Tommaso et al., 2009; Frank, 2011; Jac-Kucharski, 2012; Rao and Presenti, 2012). The fact that the effect of GDP per capita reflects a significant impact of income on both the source and destination countries suggests that trafficking is largely a phenomenon related to economic migration.

Subsequently, the landlocked dummy and the trade share of GDP variable give an insight on the effect of a country's openness on trafficking. The landlocked dummy coefficient proves to be negative and significant for both the source and destination countries. Not being landlocked increases the likelihood of being a source country by 1.5 percentage points and a destination country by 1.9 percentage points. This is inline with Akee et al. (2010, 2012, 2014) as they suggest that this is due to the access to seaports and thus the wider spectrum of countries from which traffickers can import victims.

The variable for the trade share of GDP is slightly more complicated. The coefficients for the source and destination countries are both significant and of equal magnitude, differing only in the sign as one is positive and the other negative respectively. This means that an increase in the trade percentage of GDP in a source country increases the probability of outflow but the same increase in a destination country lowers the probability of inflow. The source results are sensible since more trade suggests more openness and involvement with foreign relations, which could help with the trade of humans as commodities as well. From a destination perspective, however, a negative coefficient is not as reasonable and contradicts previous studies (Cho, 2013; Danailova-Trainor and Belser, 2006) that find the coefficient either insignificant or positive. One explanation could be that destination countries that have a high share of trade may also be countries that have stronger regulations because of the heavy volume of imports and exports that they handle. Regardless, a closer look at the effect of trade is warranted in order to make more accurate conclusions.

The population estimates result as expected but had little importance on their impact. The source country's population variable is positive and significant at the 1 percent significance level but the magnitude is infinitesimal. An increase of one million people only increases the probability of trafficking by 0.1 percentage point. The destination country's population coefficient is even smaller than that and a lot less significant. There is plenty of literature that concurs with these findings (Danailova-Trainor and Belser, 2006; Frank, 2011; Mo, 2011; Rao and Presenti, 2012; Cho et al., 2015), having positive correlate results but trivial in magnitude.

The effect of unemployment rate proves to be significant only for the source country and in an unanticipated way. It is negative and significant, as an increase of 1 percentage point of unemployment leads to a decrease of 0.3 percentage points of trafficking outflow. Past literature finds mixed results on the sign of the coefficient (Clawson and Layne, 2007; Jac-Kucharski, 2012), positive and negative respectively. These inconsistencies may be due to the subjectivity of official measurements of the unemployment rate that could vary per country and might classify different types of people as unemployed. Many of these rates can be undervalued, producing ambiguous results in the research.

The country health measures also seem to contradict one another. While the coefficient for the share of the population of age 65 or above are of equal magnitudes and have opposite signs for the source and destination countries (positive and negative respectively), their interpretations are counterintuitive. Significantly, an increase of 1 percentage point in the share of people 65 or above in a source country increases trafficking outflow by .2 percentage points. This could be explained by the notion that having an older population may mean that they are also less productive, potentially decreasing economic opportunities. The infant mortality variable only results negative and significant for the destination countries, as a decrease in dead infants would increase trafficking inflow into those countries. This is rational since it indicates a high level of resources available in the country that would make it a more desirable as a destination.

However, the literature seems to disagree with my findings. Where I find the source country infant mortality variable to be positive and insignificant, studies like Cho et al. (2015) and Mahmoud and Trebesch (2010) find it negative and significant but small in magnitudes. For destination countries, Bales (2007) finds it insignificant where I find it positive and significant. The differences in findings for both of these health factors as well as their disparity with past studies indicate that they are not very prominent and consistent when determining its effect on trafficking. There are clearly many other factors influencing the health of a country that may be indirectly affecting the levels of trafficking as well.

Furthermore, the governance and social factors are of keen interest as they reveal interesting trends about trafficking patterns. The perceived political stability of a source and destination country proves to be negative and significant, implying that the more politically stable a country is, the less likely trafficking flows are to occur in a country. This is in accordance with previous studies like Akee et al. (2014). As Cho et al. (2015) also finds, the perceived rule of law proves to be negative and significant at the 10 percent significance level for the source country. For the destination country, however, it results positive and significant at the 1 percent significance level, contradicting previous studies that find it insignificant or negative (Akee et al., 2010, 2012, 2014; Cho et al., 2013; Jakobsson and Kotsadam, 2013). The control of corruption proves to be

negatively correlated and significant exclusively in the destination countries. This makes sense as an increase in control of corruption should decrease trafficking inflow and the results match those of Bales (2007) and Cho (2013). The fact that the coefficient is insignificant for the source countries is no surprise as previous literature has found it to be insignificant and pertaining to mixed results as well (Bales, 2007; Jac-Kucharski, 2012; Mahmoud and Trebesch, 2010; Rao and Presenti, 2012).

Of greater interest are the results of the voice and accountability and gender gap variables. Their coefficients for the source country are both positive and significant at the 1 percent significance level. This means that the more freedom of expression, association and media as well as the lower difference in inequality between males and females in a country, the more likely the country is to participate as a source of trafficking. The coefficients of the gender gap variable are of particular interest because of their great magnitude. They are the largest coefficients of the regression model and are positive and negative respectively for the source and destination countries. Such significant, large estimates are important because they help clarify the past ambiguous results.

Previous literature looks at the effect of many gender-related indicators such as women's education and employment as well as women's economic and social rights. The results range in significance as well as in coefficient signs (Danailova-Trainor and Belser, 2006; Clawson and Layne, 2007; Bettio and Nandi, 2010; Di Tommaso et al., 2009; Rao and Presenti, 2012). However, this variety indicates that the effect of gender disparities do not have the clear-cut effect on trafficking that is intuitively expected. As Cho et al. (2015) suggests, and as my results confirm, gender discrimination may not necessarily increase trafficking but may rather hinder it. Many of the major source countries are not always the most oppressive towards women while their female education and labor participation are not often very low. The rationale is that countries with higher women oppression may actually constrain women mobility. This is supported by the results in Cho et al. (2015) on the effects of the share of Muslims in a population. Islamic countries tend to have low female economic participation and highly conservative views on women (Cooray and Potrafke, 2011). As a result, it becomes a lot more difficult for women to travel on their own, decreasing the ease with which trafficking may occur.

Similarly, the entire population of countries with lower voice and accountability has many of the same restrictions that women endure in female oppressive countries. While the gender gap variable can explain why countries with more female discrimination tend to engage in less female trafficking, the voice and accountability variable indicates the same trends for both male and female victims. Although Akee et al. (2014) suggest voice and accountability to be insignificant, my results demonstrate otherwise and serve to support the positive phenomenon of gender discrimination on trafficking as well.

Conclusion

Natural disasters and human trafficking have recently been associated with being positively correlated one with the other. These assertions are mostly based solely on conjecture and thus, little to no prioritization and attention has been awarded to human trafficking during times of complex emergencies. To the best of my knowledge, this paper is the first to explore and find a quantitative relationship between the two phenomena. Although natural disasters cannot be

prevented, a study of this kind may help raise awareness of the seriousness of the human trafficking problem during these times. It reinforces the speculations made by people who help combat human trafficking and provide new, concrete information to organizations that assist countries in states of emergency.

My findings show that disasters in source countries positively correlate with trafficking outflows and their effects have an impact over time. The intensity of the disasters is also positively correlated; an increase in the gravity of the physical harm caused by disasters increases the likelihood of the country being a source of trafficking victims. This effect also carries over time, but in a more trivial and less obvious manner. Finally, disasters have a clear mechanism affecting trafficking through their impact on GDP, unemployment rate, and trade share of GDP that is separate and distinct from alternate mechanisms not controlled for.

In addition to investigating the effect of natural disasters on trafficking, this paper seeks to corroborate the effect of other factors mentioned in the literature. I find that gender differences in society are by far the strongest factor in magnitude to affect trafficking. It shows that the more gender difference that exists in a country, the less likely it is to engage as a source for trafficking. Because of its strong significance, this finding is important as it helps guide the mixed results in literature in a certain direction. The other variables that I used as controls showed that certain geographic, economic, and governance factors are important in determining the likelihood of trafficking flows whereas health, unemployment and population factors are not as significant.

My results lie on a range of agreements and disagreements with the literature. As mentioned by Weitzer (2015), empirical findings on human trafficking can only serve as estimates and can never be fully confirmed due to the crime's illicit nature. Thus, this paper does not claim to provide the exact magnitudes of the effects of the factors investigated or their final role as a determinant of human trafficking. Instead, this paper acknowledges the complexity of the problem and only seeks to add to the literature so as to help continue the fight against human trafficking.

In order to improve the study, other factors such as the legalization of prostitution, internal and external conflicts, and a distinction between male and female statistics should be incorporated as they have proven to be significant in the past. Also, as suggested by the literature, a longitudinal, microanalysis might result in more accurate, representative estimates that could assist in particular policy-making and authority strategies. Further studies are always needed when dealing with a subject of clandestine nature. However, my findings have the potential to serve as a base for such further studies and provide a quantitative verification of the gravity of the situation.

References

- Akee, R., A. Basu, A. Bedi, and N. Chau (2007). Determinants of Trafficking in Women and Children: Cross-National Evidence, Theory and Policy Implications. Mimeo.
- Akee, R., Basu, A., Chau, N., & Khamis, M. (2010). Ethnic Fragmentation, Conflict, Displaced Persons and Human Trafficking: An Empirical Analysis. In G. S. Epstein & I. N. Gang (Eds.), *Migration and Culture: Frontiers of Economics and Globalization* (Vol. 8, pp. 691-716). Bingley, UK: Emerald Group Publishing.
- Akee, R., Bedi, A., Basu, A., & Chau, N. (2014). Transnational trafficking, law enforcement and victim protection: A middleman's perspective. *Journal of Law* and Economics, 57, 349-386.
- Akee, R., Basu, A., Chau, N., & Khamis, M. (2012). Vulnerability and Trafficking. Mimeo: Wesleyan University. 57, 349-386.
- Ali, H. M. (2010). Data collection on victims of human trafficking: an analysis of various sources. *J. Hum. Secur.* 6(1):55–69
- Anderson B, O'Connell Davidson J. (2003). *Is Trafficking in Human Beings Demand Driven? A Multi-Country Pilot Study*. Geneva: Int. Organ. Migr.
- Aronowitz A. (2009). Human Trafficking, Human Misery. Westport, CT: Greenwood
- Bales, K. (2007). What predicts human trafficking? *International Journal of Comparative and Applied Criminal Justice*, 31, 269-279.
- Baily, M. N. (2011). "Can Natural Disasters Help Stimulate the Economy?" *The Brookings Institution.* The International Economy Magazine. Web.
- Belser, P. (2005). Forced Labor and Human Trafficking: Estimating the Profits (ILO WP No. 42). Geneva: Switzerland.
- Bennett, D. (2008) "Do Natural Disasters Stimulate Economic Growth?" *The New York Times*. The New York Times. Web.
- Bettio, F., & Nandi, T. (2010). Evidence on women trafficked for sexual exploitation: A rights-based analysis. *European Journal of Law and Economics*, 29, 15-42.
- Budiani-Saberi D, Karim K, Zimmerman D. (2011). Sudanese victims of organ trafficking in Egypt: a preliminary evidence-based, victim-centered report. Rep., Coalit. Organ Fail. Solut., Washington, DC
- Bruckert, C., and C. Parent (2002). Trafficking in Human Beings and Organized Crime: A Literature Review. Royal Canadian Mounted Police. Mimeo.
- Calkins, Kelley. "Haiyan, Natural Disasters and Human Trafficking." Editorial. *Borgen Magazine*, November 28, 2013. <u>http://www.borgenmagazine.com/haiyan-natural</u> disasters-human-trafficking/.
- CdeBaca, L. U.S. Department of State. "Best Practices: Human Trafficking in Disaster Zones." News release, May 24, 2010. Keynote Remarks to the Harvard Kennedy School's Ash Center for Democratic Governance and Innovation
- Cherneva I. (2011). Human trafficking for begging. Buffalo Hum. Rights Law Rev. 17:25-74
- Childs, Anna. "Why Child Trafficking Surges after Disasters." CNN. March 23, 2016. http://www.cnn.com/2016/03/23/opinions/child-trafficking-natural-disasters/. CNN Showcase The Conversation
- Chin K. L, Finckenauer J. (2012). Selling Sex Overseas: Chinese Women and the Realities of Prostitution and Global Sex Trafficking. New York: NYU Press
- Cho, S.-Y. (2013). Integrating equality: Globalization, women's rights, and human Trafficking. *International Studies Quarterly*, 57, 683-697.

- Cho, S.-Y., Dreher, A., & Neumayer, E. (2013). Does legalized prostitution increase human trafficking? *World Development*, 41, 67-82.
- Cho, S.-Y., Dreher, A., & Neumayer, E. (2014). The determinants of anti-trafficking policies: Evidence from a new index. *Scandinavian Journal of Economics*, 116, 429-454.
- Cho, S-Y. (2015). Modeling for Determinants of Human Trafficking: An Empirical Analysis. *Social Inclusion*, 1, 2-21.
- Cho S., Dreher A., Neumayer E. (2012). Does legalized prostitution increase human trafficking? *World Dev.* 41:67–82
- Chuang J. A. 2010. Rescuing trafficking from ideological capture: prostitution reform and anti trafficking law and policy. *Univ. Pa. Law Rev.* 158:1655–728
- Clawson, H., & Layne, M. (2007). *Estimating Human Trafficking into the United States:* Development of a Methodology. Washington, D.C.: ICF International.
- Cooray, A., & Potrafke, N. (2011). Gender inequality in education: Political institutions or culture and religion? *European Journal of Political Economy*, 27, 268-280.
- Danailova-Trainor, G., & Belser, P. (2006). *Globalization and the Illicit Market for Human Trafficking: an Empirical Analysis of Supply and Demand* (ILO WP No. 78). Geneva, Switzerland: ILO.
- Di Tommaso, M., Shima, I., Strøm, S., & Bettio, F. (2009). As bad as it gets: Well-being deprivation of sexually exploited trafficked women. *European Journal of Political Economy*, 25, 143-162.
- Farrell A, McDevitt J, Pfeffer R, Fahy S, Owens C, et al. (2012). *Identifying Challenges to Improve the Investigation and Prosecution of State and Local Human Trafficking Cases*. Boston: Northeast. Inst. Race Justice
- Fiorentini, G., and S. Peltzman (1995). *The Economics of Organised Crime*. Cambridge University Press.
- Frank, R. (2011). *The Political Economy of Human Trafficking*. Mimeo: University of New Orleans.
- Freeman, S., J. Grogger, and J. Sonstelie (1996). The Spatial Concentration of Crime. *Journal of Urban Economics* 40: 216-231.
- Gallagher A. T. (2011). Improving the effectiveness of the international law of human trafficking: a vision for the future of the US trafficking in persons reports. *Hum. Rights Rev.* 12(1):381–400
- Gallagher A. T., Holmes P. (2008). Developing an effective criminal justice response to human trafficking: lessons from the front line. *Int. Crim. Justice Rev.* 18(3):318–43
- Guha-Sapir, D., Below R., Hoyois, Ph. EM-DAT: The CRED/OFDA International Disaster Database – www.emdat.be – Université Catholique de Louvain – Brussels – Belgium.
- Guinn, D. E. (2008). Defining the problem of trafficking: the interplay of US law, donor, and NGO engagement and the local context in Latin America. *Hum. Rights* Q. 30(1):119–45
- Hausmann, R., Tyson, L. D., Bekhouche, Y., Zahidi, S. (2014). The Global Gender Gap Index 2014. World Economic Forum, Geneva, Switzerland.
- Hoyle C, Bosworth M, Dempsey M. (2011). Labelling the victims of sex trafficking: exploring the borderland between rhetoric and reality. *Soc. Leg. Stud.* 20(3):313–29
- International Labor Organization (ILO). (2012). *Global Estimate of Forced Labour: Results and Methodology*. Geneva: ILO
- International Labor Organization (ILO). (2005). *Database in Global Reports*. Geneva, Switzerland: ILO.
- Jac-Kucharski, A. (2012). The determinants of human trafficking: A US case study.

International Migration, 50, 150-165.

- Jakobsson, N., & Kotsadam, A. (2013). The law and economics of international sex slavery: Prostitution law and trafficking for sexual exploitation. *European Journal of Law and Economics*, 35, 87-107.
- JTI Foundation. "Resilience to Natural Disasters and Human Trafficking." The JTI Foundation. http://jtifoundation.org/projects/resilience-natural-disasters-and-human-trafficking philippines/.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2009). *The Worldwide Governance Indicator (WGI)* project 1996–2014 (World Bank Policy Research WP No. 4978). Washington, D.C.: World Bank.
- Kara S. (2008). Sex Trafficking: Inside the Business of Modern Slavery. New York: Columbia Univ. Press
- Kliesen, K. L. (1994), "The Economics of Natural Disaster." *Federal Reserve Bank of St. Louis.* Web.
- Kyle D, Koslowski R, eds. (2001). *Global Human Smuggling: Comparative Perspectives*. Baltimore, MD: Johns Hopkins Univ. Press.
- Laczko F. (2007). Enhancing data collection and research on trafficking in persons, pp. 37-44
- Limoncelli S. (2010). *The Politics of Trafficking: The First International Movement to Combat the Sexual Exploitation of Women*. Stanford, CA: Stanford Univ. Press
- Lloyd P, Simmons BA, Stewart B. (2011). *The global diffusion of law: transnational crime and the case of human trafficking*. Presented at Annu. Meet. Am. Polit. Sci. Assoc., Sept. 1–4, Seattle
- Mahdavi P. (2013). Gender, labour and the law: the nexus of domestic work, human trafficking, and the informal economy in the United Arab Emirates. *Glob. Netw.* 13(4):425–40
- Mahmoud, T. O, & Trebesch, C. (2010). The economic drivers of human trafficking: Micro evidence from five Eastern European countries. *Journal of Comparative Economics*, 38, 173-188.
- Mapchart. "Create Custom Map" http://mapchart.net/.
- Marchionni D. M. (2012). International human trafficking: an agenda-building analysis of the US and British press. *Int. Commun. Gaz.* 74:145–58
- Mayer, T. & Zignago, S. (2011) Notes on CEPII's distances measures: the GeoDist Database CEPII Working Paper 2011-25
- McCarthy, L. (2014) Human Trafficking and the New Slavery. Annu. Rev. Law Soc. Sci. 10:221-242
- Mo, C. (2011). *Perceived Relative Poverty and Risk: An Aspiration-Based Model of Vulnerability*. Mimeo: Stanford University.
- Oram S, Stockl H, Busza J, Howard LM, Zimmerman C. (2012). Prevalence and risk of violence and the physical, mental, and sexual health problems associated with human trafficking: systematic review. *PLOS Med.* 9(5):1–13
- OSCE (Organ. Secur. Coop. Eur.). (2013). *Trafficking in Human Beings For the Purpose of Organ Removal in the OSCE Region: Analysis and Findings*. Vienna: OSCE, Off. Spec. Rep. Coord. Combating Trafficking Human Beings
- Petrunov G. (2011). Managing money acquired from human trafficking: case study of sex trafficking from Bulgaria to Western Europe. *Trends Organ. Crime* 14(2/3):165–83
- Protection Project (2013). The Protection Project Review of the Trafficking in Persons Report. Washington, DC: Johns Hopkins. Univ.
- Rao, S., Presentin, C. (2012). Understanding human trafficking origin: A cross-country empirical

analysis. Feminist Economics, 18, 231-263.

- Singh, D. (2012) The United Nations Office for Disaster Risk Reduction (UNISDR). "Child Traffickers Thrive on Disasters." News release, Unisdr.org.
- Studnicka ACS. (2010). Corruption and human trafficking in Brazil: findings from a multi-modal approach. *Eur. J. Criminol.* 7(1):29–43
- Surtees R. (2008). Trafficking of men—a trend less considered: the case of Belarus and Ukraine. Geneva: Int. Organ. Migr.
- The Economist. "Still With Us." The Economist, May 9, 2005.
- Tyldum G. (2013). Dependence and human trafficking in the context of transnational marriage. *Int. Migr.* 51(4):103–15
- United Nations (UN). (2000). Convention against Transnational Organized Crime and Its Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children. New York: UN.
- United Nations Office on Drugs and Crime (UNODC). (2006). *Global Report on Trafficking in Persons*. Vienna: UN.
- United States Department of State. (2013-2014). *Trafficking in Persons Report*. Washington, D.C.: United States Department of State Publication.
- Weitzer, R. (2015) Human Trafficking and Contemporary Slavery. *Annu. Rev. Sociol.* 41:223 -242
- World Bank. (2014). World development indicators. Retrieved from www.worldbank.org

Table 1: Variable Description	
Human Trafficking	
Trafficking	incidence of trafficking in a source country, $(0/1)$
Disasters	
Disaster12	incidence of natural disaster (Earthquakes Droughts Floods Storms
	Landslides, Extreme temperatures) in 2012 (0/1)
Disaster11	incidence of natural disaster in 2011, (0/1)
Intensity	
Total Deaths12	Total number of deaths caused by natural disasters in 2012 per 10,000 deaths
Total Injured12	Total number of injured caused by natural disasters in 2012 per 10,000 injured
Total Homeless12	Total number of people left homeless caused by natural disasters in 2012 per 10,000 homeless
Total Affected12	Total number of people affected by natural disasters in 2012 per 1,000,000 affected
Total Affected11	Total number of people affected by natural disasters in 2011 per 1,000,000 affected
Controls	
Source-Destination Distance	simple distance between source and destination countries (most populated cities) per 1,000 km
GDP	GDP per capita per \$10,000
Landlocked dummy	landlocked country, (0/1)
Population	all residents regardless of legal status or citizenship except for regufeess, midvear estimates per 1,000,000 people
Trade	sum of exports and imports of goods and services measured as a share of GDP per \$100
Unemployment rate	share of the labor force that is without work but available for and seeking employment
Population ages 65 or above	share of people ages 65 or above out of total population
Infant Mortality	the number of infants dying before reaching one year of age, per 100,000 live births in 2012
Voice and Accountability	extent of voting rights, freedom of expression, freedom of association, freedom of media index
Political stability	extent of political stability and absence of violence/terrorism index
Rule of law	extent to which people have confidence in and abide by the rules of society,
	quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence index
Control of corruption	extent to which public power is exercised for private gain index
Global Gender Gap	gender gap score in economic participation and opportunity, educational attainment, health and survival and political empowerment, range of 0
Continent/region dummy	East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean.
	North Africa and Middle East, North America, South Asia, Sub-Saharan Africa, (0/1)
NI-to XI is a sull A second shift to	Delitical Stability Dela offers and Control of Committee indian sector 25

Note: Voice and Accountability, Political Stability, Rule of Law, and Control of Corruption indices range from -2.5 (weakest) to 2.5 (strongest) governance performance.

Table 2: Summary Statistics, country level without scales						
Variable	Obs	Mean	Std. Dev.	Min	Max	
Disaster Data						
Disaster12 dummy	120	0.725	0.448	0	1	
Disaster11 dummy	120	0.583	0.495	0	1	
Total Deaths	120	75.658	251.027	0	2385	
Total Injured	120	522.3	3579.334	0	38567	
Total Homeless	120	6217.267	29549.09	0	297045	
Total Affected12 in millions	120	0.839	4.33	0	44.6	
Total Affected11 in millions	120	1.702	11.5	0	124	
Controls						
GDP	120	14750.590	20858.570	244.197	105447.1	
Landlocked dummy	120	0.208	0.408	0	1	
Population in millions	120	54	172	320716	1350	
Trade	117	87.740	45.727	25.267	348.122	
Unemployment rate	119	8.230	5.526	0.2	31.1	
Popu. 65 or above	120	8.872	5.821	2.327	24.287	
Infant mortality	120	25.398	24.442	1.6	104.1	
Voice and Accountability	120	-0.026	0.982	-1.883	1.753	
Political Stability	120	-0.193	0.924	-2.686	1.398	
Rule of Law	120	-0.095	1.034	-1.723	1.949	
Control of Corruption	120	-0.056	1.060	-1.561	2.391	
Gender Gap Score	104	0.691	0.061	0.546	0.873	
East Asia and Pacific	120	0.108	0.312	0	1	
Europe and Central Asia	120	0.333	0.473	0	1	
Latin America and Caribbean	120	0.183	0.389	0	1	
North Africa and Middle east	120	0.075	0.264	0	1	
North America	120	0.017	0.129	0	1	
South Asia	120	0.058	0.235	0	1	
Sub-Saharan Africa	120	0.225	0.419	0	1	

Table 3: Summary Statistics of the Estimation Sample						
Variable	Obs	Mean	Std. Dev.	Min	Max	
Trafficking						
Trafficking Dummy	14280	0.046	0.209	0	1	
Disaster						
Disaster12 Dummy	14280	0.725	0.447	0	1	
Disaster11 Dummy	14280	0.583	0.493	0	1	
Disaster Intensity						
Total Deaths12	14280	0.008	0.025	0	0.239	
Total Injured12	14280	0.052	0.356	0	3.857	
Total Homeless12	14280	0.622	2.943	0	29.705	
Total Affected12	14280	0.839	4.312	0	44.563	
Total Affected11	14280	1.702	11.438	0	124.300	
Controls						
Source-Destination distance	14042	7.462	4.339	0.081	19.812	
GDP Source	14280	1.475	2.077	0.024	10.545	
GDP Destination	14280	1.475	2.077	0.024	10.545	
Landlocked Source	14280	0.208	0.406	0	1	
Landlocked Destination	14280	0.208	0.406	0	1	
Population Source	14280	5.371	17.085	0.032	135	
Population Destination	14280	5.371	17.085	0.032	135	
Trade Source	13923	0.877	0.455	0.253	3.481	
Trade Destination	13923	0.877	0.455	0.253	3.481	
Unemployment rate Source	14161	8.230	5.503	0.2	31.1	
Unemployment rate Destination	14161	8.230	5.503	0.2	31.1	
Popu. 65 or above Source	14280	8.872	5.797	2.327	24.287	
Popu. 65 or above Destination	14280	8.872	5.797	2.327	24.287	
Infant mortality Source	14280	0.254	0.243	0.016	1.041	
Infant mortality Destination	14280	0.254	0.243	0.016	1.041	
Governance Factors						
Voice and Accountability Source	14280	-0.026	-0.978	-1.883	1.753	
Voice and Accountability Destination	14280	-0.026	-0.978	-1.883	1.753	
Political Stability Source	14280	-0.193	-0.920	-2.686	1.398	
Political Stability Destination	14280	-0.193	-0.920	-2.686	1.398	
Rule of Law Source	14280	-0.095	1.030	-1.723	1.949	
Rule of Law Destination	14280	-0.095	1.030	-1.723	1.949	
Control of Corruption Source	14280	-0.056	-1.055	-1.561	2.391	
Control of Corruption Destination	14280	-0.056	-1.055	-1.561	2.391	
Social Factors						
Gender gap score Source	12376	0.691	0.060	0.546	0.873	
Gender gap score Destination	12376	0.691	0.060	0.546	0.873	
Continent Region dummies						
East Asia and Pacific Source	14280	0.108	0.311	0	1	
East Asia and Pacific Destination	14280	0.108	0.311	0	1	
Europe and Central Asia Source	14280	0.333	0.471	0	1	
Europe and Central Asia Destination	14280	0.333	0.471	0	1	
Latin America and Caribbean Source	14280	0.183	0.387	0	1	
Latin America and Caribbean Destination	14280	0.183	0.387	0	1	
North Africa and Middle East Source	14280	0.075	0.263	0	1	
North Africa and Middle East Destination	14280	0.075	0.263	0	1	
North America Source	14280	0.017	0.128	0	1	
North America Destination	14280	0.017	0.128	0	1	
South Asia Source	14280	0.058	0.234	0	1	
South Asia Destination	14280	0.058	0.234	0	1	
Sub-Saharan Africa Source	14280	0.225	0.418	0	1	
Sub-Saharan Africa Destination	14280	0.225	0.418	0	1	

East Asia and	Ind Europe and Central Asia		Latin America and	North Africa and	North America	South Asia	Subsahara	n Africa
Pacific			Caribbean	Middle East				
Australia	Albania	Kazakhstan	Argentina	Algeria	Canada	Afghanistan	Angola	Gambia
Cambodia	Armenia	Kyrgyzstan	Belize	Djibouti	United States	Bangladesh	Benin	Ghana
China	Austria	Lithuania	Bolivia	Egypt		Bhutan	Botswana	Guinea
Fiji	Azerbaijan	Luxembourg	Brazil	Iran		India	Burkina Faso	Guinea-Bissau
Indonesia	Belarus	Moldova	Chile	Israel		Nepal	Burundi	Kenya
Japan	Belgium	Netherlands	Colombia	Jordan		Pakistan	Cabo Verde	Liberia
Korea, Rep.	Bosnia and Herzegovina	Norway	Costa Rica	Lebanon		Sri Lanka	Cameroon	Madagascar
Malaysia	Bulgaria	Poland	Cuba	Morocco			Central African Rep	Mauritania
Mongolia	Croatia	Portugal	Dominican Republic	Sudan			Chad	Niger
New Zealand	Cyprus	Romania	Ecuador				Comoros	Nigeria
Philippines	Czech Republic	Russia	El Salvador				Cote d'Ivoire	Senegal
Thailand	Denmark	Spain	Guatemala				Equatorial Guinea	South Africa
Vietnam	Estonia	Sweden	Guyana				Ethiopia	Zimbabwe
	Finland	Switzerland	Haiti				Gabon	
	France	Tajikistan	Honduras					
	Georgia	Turkey	Jamaica					
	Germany	Ukraine	Mexico					
	Greece	United Kingdom	Nicaragua					
	Hungary		Panama					
	Iceland		Peru					
	Ireland		Uruguay					
	Italy		Venezuela, RB					

Table 4: Regions and Countries

Table 5: Disaster Impact on Trafficking Excluding Economic Controls							
Dependent	Variable: Traffick	ing					
Panel	Variables	(1)	(2)	(3)	(4)		
A	Disaster12	0.034*** (0.004)	0.033*** (0.004)	0.023*** (0.005)	0.014** (0.005)		
	R-squared	0.005	0.065	0.084	0.099		
В	Disaster11	0.015*** (0.004)	0.016*** (0.004)	0.015*** (0.005)	-0.001 (0.005)		
	R-squared	0.001	0.061	0.083	0.098		
0	bservations:	14,280	14,042	10,506	10,506		

Notes: each panel represents a separate regression variant, controls are not included for brevity purposes. *** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses.

Table 6: Disaster Intensity Impact on Trafficking Dependent Variable: Trafficking						
Panel	Variables	(1)	(2)	(3)	(4)	
	Total Deaths	0.666***	0.640***	0.524***	0.339***	
Δ	Total Injured	(0.075) 0.047***	(0.077) 0.024***	(0.093) 0.040***	(0.100) 0.034***	
	Total Homeless	(0.005) 0.004***	(0.007) 0.003***	(0.009) 0.004***	(0.009) 0.004***	
	R-squared	0.001)	(0.001) 0.093	(0.001) 0.106	(0.001) 0.115	
D	Total Affected12	0.007***	0.005***	0.005***	0.005***	
B	R-squared	(0.000) 0.019	(0.001) 0.090	(0.001) 0.103	(0.001) 0.114	
С	Total Affected11	0.002***	0.001***	0.001***	0.001***	
		(0.000)	(0.000)	(0.000)	(0.000)	
	R-squared	0.014	0.086	0.099	0.111	
(Observations:	14,280	13,340	10,100	10,100	

Notes: each panel represents a separate regression variant, controls are not included for brevity purposes. *** p < 0.01, ** p < 0.05, * p < 0.1. Standard errors in parentheses.

Table 7: Impact of Disasters on Economic Factors						
Dependent Variable: GDP per capita						
Panel	Variables	(1)	(2)	(3)	(4)	
A	Disaster12 R-squared	-0.695 (0.423) 0.022	-0.974*** (0.333) 0.523	-0.026 (0.300) 0.765	-0.012 (0.307) 0.788	
В	Disaster11 R-squared	-0.258 (0.387) 0.004	0.626* (0.317) 0.503	0.183 (0.260) 0.766	0.383 (0.277) 0.792	
Dependent	Variable: Trade Sh	hare of GDP				
А	Disaster12 R-squared	-0.289*** (0.092) 0.079	-0.237** (0.094) 0.205	-0.214* (0.108) 0.284	-0.194* (0.110) 0.363	
В	Disaster11 R-squared	-0.268*** (0.083) 0.084	-0.250*** (0.084) 0.222	-0.176* (0.095) 0.281	-0.167 (0.102) 0.359	
Denendent	Variable: Unemple	ovment Rate	••			
A	Disaster12 R-squared	-0.724 (1.145) 0.003	-1.545 (1.231) 0.123	-2.820** (1.338) 0.182	-2.266* (1.346) 0.296	
В	Disaster11	-2.270** (1.012)	-1.282 (1.127)	-1.058 (1.214)	-0.134 (1.284)	
	K-squared	120	0.121	0.149	0.272	
U	uservations:	120	11/	102	102	

Notes: each panel represents a separate regression variant, controls are not included for brevity purposes. *** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses.

Table 8: Disaster Impact on Trafficking Including Economic Controls						
Dependent Variable: Trafficking	(1)		(2)	(4)		
Variables	(1)	(2)	(3)	(4)		
D	0.024***	0.000***	0 0 1 0 * * *	0.012**		
Disaster 12	0.034^{+++}	0.022^{+++}	0.019***	0.012^{**}		
Same Destination Distance	(0.004)	(0.004)	(0.006)	(0.006)		
Source Destination Distance		-0.010***	-0.009***	-0.011****		
CDDC		(0.000)	(0.001)	(0.001)		
GDP Source		-0.014^{+++}	-0.014^{+++}	-0.014^{+++}		
GDP Destination		(0.001)	(0.002)	(0.002)		
ODF Destination		(0.011)	(0.012)	(0.014)		
Landlocked Dummy Source		-0.013***	-0.021***	-0.015**		
Eandrocked Dunning Source		(0.004)	(0.021)	(0.006)		
Landlocked Dummy Destination		-0.021***	-0.023***	-0.019***		
Eularocked Dunning Destination		(0.021)	(0.029)	(0.01)		
Population Source		0.001***	0.001***	0.001***		
		(0,000)	(0,000)	(0,000)		
Population Destination		0.000***	0.000**	0.000*		
- · · · · · · · · · · · · · · · · · · ·		(0.000)	(0.000)	(0.000)		
Trade of GDP Source		0.019***	0.024***	0.020***		
		(0.004)	(0.005)	(0.006)		
Trade of GDP Destination		-0.020***	-0.020***	-0.020***		
		(0.004)	(0.005)	(0.005)		
Unemployment Rate Source		-0.003***	-0.003***	-0.003***		
1 2		(0.000)	(0.000)	(0.000)		
Unemployment Rate Destination		-0.000	-0.000	0.000		
		(0.000)	(0.000)	(0.000)		
Popu. 65 or Above Source		0.001**	0.002***	0.002***		
		(0.001)	(0.001)	(0.001)		
Popu. 65 or Above Destination		-0.001**	-0.002***	-0.002**		
		(0.001)	(0.001)	(0.001)		
Infant Mortality Source		-0.009	0.022	0.007		
		(0.011)	(0.015)	(0.025)		
Infant Mortality Destination		-0.041***	-0.069***	-0.092***		
		(0.011)	(0.015)	(0.025)		
Voice and Accountability Source			0.004	0.017***		
			(0.005)	(0.006)		
Voice and Accountability Desination.			-0.001	-0.005		
			(0.005)	(0.006)		
Political Stability Source			-0.003	-0.014***		
Delitical Stability Destination			(0.004)	(0.005)		
Political Stability Destination			-0.001	-0.009^{**}		
Pula of Low Source			(0.004)	(0.003)		
Rule of Law Source			-0.000	-0.022°		
Rule of Law Destination			(0.009)	(0.011)		
Rule of Law Destination			(0.034)	(0.011)		
Control of Corruption Source			(0.009)	-0.003		
Control of Contribution Source			(0.008)	(0.009)		
Control of Corruption Destination			-0.024***	-0.027***		
Control of Contraption Destination			(0.021)	(0.02)		
Gender Gan Score Source			0 261***	0 235***		
			(0.048)	(0.052)		
Gender Gap Score Destination			-0.124***	-0.183***		
· F · · · · ·			(0.048)	(0.052)		
Constant	0.021***	0.147***	0.047	0.099*		
	(0.003)	(0.014)	(0.051)	(0.059)		
Observations	14,280	13,340	10,100	10,100		
D	0.005	0.007	0.000	0 111		

R-squared0.0050.0870.0990.111Notes: country/region variables are controlled for but not included for brevity purposes. *** p<0.01,</td>** p<0.05, * p<0.1. Standard errors in parentheses.</td>





Created with mapchart.net ©