Natural Disasters and Human Trafficking: Do Disasters Affect State Anti-Trafficking Performance?

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ABSTRACT

Despite the oft noted negative connection between natural disasters and human trafficking, no quantitative study has been performed. Natural disasters, like conflict, can destroy homes and the economic security of individuals forcing them to migrate and making them targets for traffickers. This article tests the link between a state's ability to address trafficking and natural disasters, testing the popular prediction that a state's capabilities will be strained as increased natural disasters occur thus producing a negative effect. The findings though demonstrate that states are actually more likely to perform better in their efforts to confront trafficking. I argue that this is because natural disasters actually strengthen and enhance the state, and particularly its security institutions, in responding to these events. I place these findings in the context of other recent quantitative studies of trafficking that have also produced contradictory results when compared with the field's qualitative studies.

INTRODUCTION

Human trafficking is a rapidly growing segment of international crime and thus of increasing importance as a topic in the studies of human security scholars (Shelley, 2010; CullenDuPont, 2009). The quantitative study of this activity has been handicapped in large part due to a lack of reliable data, yet there are some encouraging recent findings and efforts that have provided insights into state factors associated with this crime (Cho, 2015; Cho, Dreher, and Neumayer, 2014; Frank, 2013). Theoretically, there are several variables that can make individuals or certain groups more vulnerable to trafficking, but the gap between theory and empirical tests remains evident. This article works towards closing this gap, quantitatively testing for a relationship between natural disasters and a state's ability to address human trafficking.

Trafficking is a threat to human security everywhere and is as much a reflection of a state's socio-political make-up as it is its martial capabilities. Whereas a state can either violate or preserve its citizens' human rights by choosing to engage in or refrain from certain behaviours, factors of human security are often defined by that which is indirectly in a state's area of control (Jonsson, 2009a). For instance, a state can refrain from using excessive force on its citizens, thus preserving a measure of their physical integrity rights. Alternately, if that state chooses not to prosecute domestic violence, or does not fully enforce laws against it, the security of a segment of its society is at threat.

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In a similar fashion, natural disasters may place the security of a segment of a state's society at greater risk of suffering certain hazards by creating what has been referred to as protection gaps. These gaps are the difference between what is needed and what is provided for the safety and security of citizens (see Martin, Weersinghe, and Taylor's 2014 edited volume). However well a state provides for the rights of its citizens, their safety and security is likely to be negatively affected following a natural disaster and gaps between what is needed and provided will emerge. While some states are better able to meet this challenge and can provide security for their citizens, others will fall short, leaving citizens with certain needs unfulfilled. It is in this latter situation that individuals are more at risk of trafficking, as desperation will drive them towards riskier forms of migration to satisfy these needs elsewhere.

This article looks at the as yet untested connection between natural disasters and human trafficking. Like conflict's effect on trafficking (Akee, Basu, Chau, and Khamis, 2010) natural disasters can destroy or threaten the homes and livelihoods of individuals, putting those affected in a position where they may be more likely to attempt riskier methods of migration. Further, natural disasters can affect the political stability of a state and exacerbate social inequalities (Drury and Olsen, 1998), also creating an at-risk population.

Testing whether or not the experience of natural disasters can affect the performance of states in meeting their obligations in combating trafficking, this article finds that those states which experience an increase from one year to the next in the relative-average of natural disaster events, are more likely to be better at meeting their obligations in confronting this crime. These findings stand in stark contrast to the qualitative literature, but, I argue, are consistent with recent quantitative findings; the sum of these works should encourage human security and human trafficking scholars not just to seek vulnerabilities that can lead to trafficking, but also to address the variations in *opportunity*.

Responses to natural disasters by the state are often highly centralized and utilize security institutions like the armed forces because of their ability to mobilize and operate efficiently. Further, the relief camps and disaster areas are often highly securitized to protect property and individuals; movement tends to be restricted or otherwise managed. Any and all of these factors could act to reduce the opportunities of those who would be made vulnerable to trafficking to have to move, or to be moved from, these areas.

This article continues in four parts. After an introduction to the relevant literature and the development of the article's theory, the methodology employed is introduced. This is followed by an analysis of the findings, and the article concludes with some comments about, and suggestions for, future work.

THEORETICAL DEVELOPMENT

The United Nations (2000) set forth its definition of human trafficking in the *Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children*, or, as it is often referred to, the Palermo Protocol. According to this document, trafficking in persons includes "the recruitment, transportation, transfer, harbouring or receipt of persons, by means of the threat of 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 of receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation" (Article 3, paragraph a).

The aspect of exploitation is an important determinant of what activities constitute trafficking as opposed to human smuggling or other forms of migration. Exploitation here refers to both sexual exploitation and labour exploitation, and it is common across these types for a trafficking victim to

have their wages confiscated by their trafficker, and to live in indentured servitude (Shelley, 2010: 110; see also Cullen-DuPont, 2009). The labour they engage in puts these victims at risk of being arrested as either a prostitute or a non-native labourer (Claudio, 2004: 262; Farrell & Fahy, 2009); thus they often lose their status as victims and are treated as criminals.

Human trafficking most often starts as voluntary migration, leading to very similar patterns of movement for both legitimate and illegitimate or involuntary movement (Cho, 2015; Musto, 2009). People wish to move from one place to another for any number of reasons; the most common, though, tend to be economic in nature (Cho, 2015). Perhaps unsurprisingly people are moving from economically challenged areas to economically thriving areas. Some of these individuals will be better able to utilize legitimate forms of migration to these places while others will need seek illegitimate, and quite often illegal, modes. This latter group is often made up of the socially vulnerable; certain groups who find themselves marginalized socially, politically, and economically, thus creating a disenfranchised population more likely to try riskier forms of migration including smuggling and possibly resulting in trafficking (Shelley, 2009).

Who is and is not "vulnerable" to trafficking is not fixed at any given time in any given place. In short, vulnerability is a relative measure of an individual's or a group's coping capacity. In this sense, "vulnerability is generated by social, economic, and political processes that influence how hazards affect people in varying ways and differing intensities" (Blaikie, Cannon, Davis, and Wisner, 1994: 5). The vulnerability of one group will be relative to the vulnerability of others, with socially castigated groups, the poor, and the very old and very young tending to make up the most common vulnerable groups. In which case these groups have a higher exposure to risk (food insecurity, health issues, fewer economic opportunities, etcetera) and a lower capacity to cope.

The Palermo Protocol also identifies the ways in which states are responsible for addressing this crime. These are often referred to as the 3Ps or the prosecution of traffickers, the prevention of trafficking, and the protection of victims (UNODC, 2006). The UNODC provides state level reports based on performance in meeting each of these expectations, but there is a high degree of variance in the standards by which these components are judged. For instance, the obligation to protect victims is often referred to as "soft" whereas the prevention obligation is a "hard," criminal justice issue (Lloyd & Simmons, 2015; Osterdahl, 2009, p. 72; Simmons, Charnysh, & Lloyd, 2015). It is not uncommon for poorer states to find themselves unable to establish the minimum standards of prevention because of a lack of capacity (Osterdahl, 2009, p. 74; Makarenko, 2009).

While human trafficking has been identified as a rising threat to security in many parts of the world, the study of this crime remains nascent. Cross-national data is often suited more for advocacy than study and conceives of uniform standards where cross-national variation in laws is dominant (Kanguspunta, 2003; DiNicola, 2007). Yet there are points on which much of the trafficking literature can agree. First and foremost, that across all social groups, women and girls are most at risk of trafficking. This is especially so as gender discrimination remains a common characteristic of many societies (Shelley, 2010: 17). Women have found themselves on the outside of many economic and political institutions as dominant stereotypes regarding physical and mental deficiencies have persisted well into the twenty-first century (Paxton and Hughes, 2007: 103, 108).

Shelley (2009, 11) notes that: "Women most likely to be trafficked are those who are denied property rights, economic rights, and participation in the political process." These are characteristics of lesser-developed states with rather unstable politics where women's rights are poorly supported (Caprioli, Hudson, McDermott, Emmett, & Ballif-Spanvill, 2007). Economically these "[w]omen from the peripheral zones, to whom local production and dissolving economic sectors did not offer any more opportunities, represent a ready-made labor supply which is, at once, the most vulnerable, the most flexible and, at least in the beginning, the least demanding work force" (Morokvasic, 1984: 886). With so few economic opportunities open to them domestically, they often seek them elsewhere.

Gender imbalance is also a key characteristic in forced migration which is not "voluntary migration as a result of free choice taken in a safe, secure, and stable environment" (Jonsson, 2009: 5). One of the most common causes of forced migration is the presence of conflict or civil violence. While all migration has an element of the unknown in terms of a rational, cost-benefit decision-making process "[d]isplacement in the context of civil conflict is a consequence of the presence of the threat of a violent attack, and not a voluntary migration decision in a narrow sense" (Czaika and Kis-Katos, 2009: 402). Women tend to suffer the negative externalities of conflict, like poor food security or a lack of health care, more so then men due to gendered social roles which can preference men over women in relief efforts (Pluemper and Neumayer, 2006). Without this relief, women could then be encouraged to try riskier migration methods (Akee, et al, 2010).

The lack of a police presence has consistently been found to correlate with higher trafficking levels, and is a familiar aspect of war zones. In conflict zones, Pluemper and Neumayer (2006: 734-735) argue, "[t]he absence of a rule of law hits the vulnerable most severely," and Czaika and Kis-Katos (2009, 412) find that forced migration due to conflict is "related to a lack of police presence" (see also Lozano-Gracia, Piras, Ibanez, and Hewings, 2010). Yet, even in areas where a conflict has not sapped the state's capacity, a weak or ineffective police presence can lead to increased trafficking.

A state's capacity, or its ability to see its preferences fulfilled,[1] need not necessarily be affected by conflict specifically to encourage migration. The collapse of the Soviet Union, for instance, altered the capabilities of many of the former Soviet states. Jonsson (2009b, 105) describes how the presence and increased strength of organized crime groups in these former Soviet states was common (see also Friman and Reich, 2007). In these cases, the state was unable to fulfill its duty to ensure a certain measure of its citizens' security and trafficking increased.

Cho (2015, 8) found in her examination of state characteristics associated with trafficking that "weak institutions and poor governance" were key factors leading to risky migration patterns. Human rights scholars have noted a relationship between the quality of a government and poor rights behaviour. In particular, where a state has no capacity to control its agents, violations are apt to increase (Englhart, 2009). It is also true that where judiciaries remain independent and thus maintain a capacity to enforce laws, human rights are better respected (Powell and Staton, 2009). So too is there a consistent relationship between government corruption and human trafficking as well (Shelley, 2010: 6-7).

Ultimately, whether through discrimination, conflict, or a lack of state capacity, these individuals are made more vulnerable to trafficking due to the riskier forms of migration, such as employing human smugglers, that they must take compared with their peers of more stable socio-political standing. The decision-calculus of this latter group to move can include legitimate forms of migration, and is often not a result of the endogenous pressure their gender, race, or age can bring. A safe, secure, and stable environment in which to make migratory decisions is best created by states who have the capacity not only to defend and uphold rights but also to increase the levels of human security its citizens enjoy so as to reduce the risks associated with the act of migration itself. Events that can alter a state's capacity to fulfil these criteria and exacerbate the vulnerabilities of those most likely to suffer from trafficking are natural disasters.

These can lead to political unrest, and exacerbate income inequalities and social inequalities (Drury and Olson, 1998). In findings that mirror those related to conflict, Neumayer and Pluemper (2007) also find that women are more apt to suffer the negative externalities of natural disasters than men; here too they argue that socially constructed gender differences are apt to harm women more than men. McAdam (2014, 28) argues that "[t]hose displaced [by natural disasters] may suffer from the same lack of access to basic rights and resources, and experience psychological distress" as those displaced by conflict.

Shelley (2010, 94) argues that during events like economic crises and natural disasters the pool for potential victims increase; Gutauskas (2009, 140) also lists those made transient by natural

disasters as potential victims. Yet to the best of my knowledge, the connection between natural disasters and human trafficking has remained untested. This is probably in large part due to the lack of reliable quantitative data on the matter. Because of its inherently unseen nature, counts and accurate levels of trafficking are unknown. It is, however, possible to test whether or not a state's capacity to address this crime, that is, the ability to prevent its occurrence, prosecute the traffickers, and protect their victims, is affected by the occurrence of natural disasters.

There is good reason to believe that where natural disasters occur there would be an increased supply for traffickers, especially in those states with weak institutions and little capacity. Made homeless by the disaster or having had their economic stability threatened, just as with conflict, individuals may find themselves in a position where they are unable to reasonably approach the decision to migrate, and are more likely to attempt less legitimate, more risky, forms of migration. They may then end up victims of trafficking, or be more at risk of coming into contact with a recruiter for traffickers. In this case then, we would expect that there is likely to be an inability on the part of the state to prevent trafficking.

With this in mind the expectation here is that:

> *Hypothesis 1: States will perform more poorly in their efforts to prevent human trafficking when confronted with increased levels of natural disasters.*

The standards for prevention by states assumes they will engage in activities and employ measures to make trafficking more difficult. Border and immigration policies, information campaigns to raise awareness of this issue, and practices that discourage the use of commercial transportation for trafficking, would be considered just a few ways states can act to prevent trafficking (UNODC, 2006: 12).

Further, it is expected that:

> *Hypothesis 2: States will perform more poorly in their efforts to prosecute human traffickers when confronted with increased levels of natural disasters.*

As the standards of prosecution rely on a state's not just having laws against trafficking but actually enforcing them, it is likely that a sudden, increased strain on a state's abilities, due to the disaster, will reveal more weaknesses than it will strengths of the state's anti-trafficking efforts.

Finally, the expectation regarding how well a state will protect victims is that:

> *Hypothesis 3: States will perform more poorly in their efforts to protect victims of human trafficking when confronted with increased levels of natural disasters.*

Providing protection for victims often entails social spending packages that help to shelter and even provide temporary residency. It is likely that as a state experiences increased levels of natural disasters social spending will be reduced as responses to the disaster need be paid for.

These expectations are derived from the current literature and reflect how vulnerability can increase or be otherwise affected by natural disasters. In the next section I explain the operationalization of these concepts and the methodology used to test the above hypotheses.

METHODOLOGY[2]

To test the effect natural disasters have on a destination state's ability to confront this crime, this article utilizes the 3P Index (Cho, Dreher, Neumayer, 2014). This measure provides a 1-5 score for a given country-year based on U.S. Department of State and the United Nations Office on Drugs and Crime reports. States score a 1 for noncompliance and a 5 for full compliance to the Palermo

Protocol's components of prevention, protection, and prosecution, and is available for the years 2000 to 2014. The measure is altered to capture year-to-year change, that is, I have created a binary variable where 0 reflects no change or a negative change, and 1 a positive change. In this way, the expectation that a state's level of trafficking prevention, prosecution, and protection are related to these measures in the previous time-period is addressed.

The independent variable is a count of the occurrence of natural disasters from the EMDAT dataset as collected and published by the Centre for Research on the Epidemiology of Disasters (Guha-Sapir, Below, Hoyois, 2009). This set provides a count of natural disasters that meets one or more of the following standards: 10 or more fatalities, 100 or more individuals affected, the declaration of a state of emergency, and/or a call for international assistance. Its temporal availability is also 1901 to 2014.

It should be expected that every state experiences disasters differently and that it is very likely that states are prepared for encountering an average number of disasters from year-to-year. Therefore, the measure operationalized here captures those cases in which a state experiences greater-than-average events, or a number of events that likely challenges the state's resources. To do this the author calculated the yearly-average number of disasters for each state across the data, then the difference of disasters experienced in $YEAR_t$ from $YEAR_{t-1}$.

There are any number of compounding variables that might exist in relation to trafficking. For instance, respect for human rights, physical and political, as well as socio-economic rights, can affect a state's levels of trafficking. A state's respect for the freedom of its citizen's movement within its borders can certainly make the movement of individual's easier; its respect for women's economic rights and workers' rights should capture the desire to leave a state. Country-year performance in relation to these rights as measured by the Cingranelli and Richards Index (CIRI) are employed here (Cingranelli, Richards, and Clay, 2014). This measure is from U.S. Department of State and Amnesty International country-reports and is temporally available from 1981 to 2011 for up to 202 cases (Cingranelli and Richards, 2010).

Certain state characteristics like its overall bureaucratic capacity can greatly influence whether or not individuals decide to migrate. This is controlled for here using the International Country Risk Guide[3] (ICRG) quality of government indicator which captures a government's vulnerability to corruption, its bureaucratic capacity, and its adherence to law and order (Teorell, Dahlber, Holmber, Rothstein, Hartmann, and Svensson, 2015: 297). These three issues are intimately related to the threat of trafficking. The data covers up to 140 cases over the period of 1981 to 2015.

Other important controls include a state's level of globalization (Cho, Dreher, and Neumayer, 2014), represented by the KOF Index of Globalization (Dreher, 2006; Dreher, Gaston, and Martens, 2008). This index represents a state's level of globalization along three dimensions (Dreher, 2006: 1092). Economic globalization, or long distance flows of goods, is measured by both a state's level of trade and the presence of trade barriers. Political globalization, or the diffusion of government and policies, is measured by the number of embassies, peacekeeping missions, and international organizations the state is a party to. Finally, social globalization, or the spread of ideas, information, images, and people, is representative of the flows of people, information, and "cultural proximity."[4] Here the measures are combined for a given country-year to capture overall levels, and the data covers up to 207 cases over the period of 1970 to 2013.

Overall unemployment as a percentage of the adult population, as captured by the World Bank's Development Indicators, is also controlled for as this increased unemployment could increase the need for economic migration (World Bank, 2009). A conflict dummy, as created by the Peace Research Institute of Oslo's Armed Conflict Dataset (Gleditsch, Wallensteen, Eriksson, Sollenberg, & Strand, 2002), indicating the presence of conflict (both internal and international) is also included as this has been linked to trafficking as well. This measure uses the Correlates of War (Small and Singer, 1982) definitions of conflict and has a temporal range of 1946 to 2008 and covers the

universe of cases (225 cases of conflict, most, 163, internal; Gleditsch, Wallensteen, Eriksson, Sollenberg, and Strand, 2002: 620).

Finally, each model includes yearly-fixed effects to address any temporal dependency on monitoring or reporting capabilities that could influence the 3P Index. (These coefficients are available in the Appendix, Tables 2–4.)

ANALYSIS

Table 1 demonstrates the results for logistic regression models testing the three hypotheses on a fully specified sample of 622 observations, 2001 to 2008. The coefficients for all three indices are positive, counter the stated hypotheses, and statistically significant. These models suggest that states are actually more likely to improve their performance in relation to combating trafficking. When examining the summary statistics, though, (Appendix Table A1) there is an obvious issue with potential outliers concerning the level of state-to-state experiences in natural disasters. Table 2 tests the same relationship this time with an ordinary least-squares (OLS) model with robust standard errors. Here too, the coefficients are signed positively and statistically significant.

TABLE 1

LOGISTIC REGRESSION RESULTS: INCREASED EFFECTS OF NATURAL DISASTERS ON A STATE'S ANTI-TRAFFICKING RESPONSIBILITIES, 2002 − 2008

	Prevention	Prosecution	Protection
Increase in Natural Disasters	0.129**	0.116**	0.125**
	(3.21)	(2.86)	(3.10)
Log of Population	−0.488***	−0.391***	−0.408***
	(−4.55)	(−3.56)	(−3.82)
Log of Trade	0.232	−0.019	0.378
	(0.88)	(−0.07)	(1.42)
Log of GDP per capita	−0.007	0.033	0.249
	(−0.04)	(0.19)	(1.44)
Women's Economic Rights	0.045	−0.025	0.029
	(0.09)	(−0.15)	(0.17)
Freedom of International Movement	−0.090	−0.087	−0.009
	(−0.53)	(−0.49)	(-0.05)
Worker's Rights	−0.044	−0.199	0.083
	(−0.24)	(−1.07)	(0.46)
Quality of Government	1.754	2.433*	1.327
	(1.80)	(2.43)	(1.36)
Globalization	−0.028	−0.033*	−0.041**
	(−1.89)	(−2.14)	(−2.73)
Polity Score	0.024	0.012	0.020
	(0.96)	(0.49)	(0.81)
Unemployment	0.024	0.032	0.012
	(1.25)	(1.70)	(0.67)
War	0.139	0.156	0.224
	(0.59)	(0.65)	(0.93)
Constant	1.497	1.598	−0.578
	(1.01)	(1.05)	(−0.39)
Prob>Chi2	0.000	0.000	0.000
Pseudo R-squared	0.12	0.12	0.12
N	622	622	622

T-Statistics in parentheses; *p>0.05, **p>0.01, ***p> 0.001
All models include yearly fixed effects.

TABLE 2

ROBUST REGRESSION RESULTS: INCREASED EFFECTS OF NATURAL DISASTER ON A STATE'S ANTI-TRAFFICKING RESPONSIBILITIES, 2002-2008

	Prevention	Prosecution	Protection
Increase in Natural Disasters	0.031***	0.028**	0.031***
	(3.37)	(3.15)	(3.34)
Log of Population	−0.118***	−0.094***	−0.102***
	(−4.77)	(3.95)	(−4.11)
Log of Trade	0.045	−0.008	0.088
	(0.74)	(−0.14)	(1.42)
Log of GDP per capita	0.000	0.002	0.062
	(0.01)	(0.06)	(1.51)
Women's Economic Rights	0.009	−0.007	0.008
	(0.25)	(−0.21)	(0.21)
Freedom of International Movement	−0.019	−0.014	0.006
	(−0.48)	(−0.37)	(0.17)
Worker's Rights	−0.011	−0.050	0.009
	(−0.26)	(1.23)	(0.22)
Quality of Government	0.379	0.542*	0.350
	(1.69)	(2.49)	(1.54)
Globalization	−0.006	−0.006	−0.010**
	(−1.81)	(−1.95)	(−2.87)
Polity Score	0.004	0.002	0.004
	(0.79)	(0.35)	(0.70)
Unemployment	0.005	0.008*	0.003
	(1.27)	(1.97)	(0.87)
War	0.031	0.040	0.051
	(0.58)	(0.76)	(0.95)
Constant	0.884*	0.900**	0.369
	(2.53)	(2.65)	(1.05)
Prob>F	0.000	0.000	0.000
N	622	622	622

T-Statistics in parentheses; *p>0.05, **p>0.01, ***p> 0.001
All models include yearly fixed effects.

Table 3 reports the results of the same models but with the standard errors clustered on the state. The results are consistent save for the coefficients associated with prosecution. Although if we consider that there are likely fewer cases of trafficking and fewer victims, it only follows that there would be little to no effect on prosecution.

These results consistently suggest that states who experience an above average number of natural disasters are more likely to improve their performance in relation to the responsibilities laid out for states by the Palermo Protocols. Yet, these models have only looked at the single period in which an event occurs. The effect of disasters can be long-term, and the variance in people's ability to cope and recover will differ. Table 4 displays the results of models testing the lagged effect of natural disasters seven years on. The results show that the positive and significant effect is consistent for five years after one in which a state experienced above average disaster events.

Admittedly, these fully specified models are run on samples that are relatively small. Dropping the conflict dummy increases the number of observations and the temporal coverage of these models. Table 5 shows the coefficients for the explanatory variable on larger samples; the results are consistent, save for where standard errors are clustered on states. Here, only the protection measure remains positive and significant. That it is the protection measure is perhaps unsurprising in that this is the measure most indicative of a state's enforcement capacity. This measure is meant to

TABLE 3

OLS REGRESSION RESULTS: INCREASED EFFECTS OF NATURAL DISASTER ON A STATE'S
ANTI-TRAFFICKING RESPONSIBILITIES, 2002-2008

	Prevention	Prosecution	Protection
Increase in Natural Disasters	0.029*	0.025	0.024*
	(2.52)	(1.82)	(2.40)
Log of Population	−0.101***	−0.074*	−0.082**
	(−3.70)	(−2.45)	(−2.66)
Log of Trade	0.046	−0.001	0.079
	(0.66)	(−0.02)	(1.09)
Log of GDP per capita	−0.001	0.007	0.051
	(−0.03)	(0.12)	(1.00)
Women's Economic Rights	0.008	−0.005	0.005
	(0.22)	(−0.14)	(0.16)
Freedom of International Movement	−0.019	−0.017	−0.002
	(−0.51)	(−0.43)	(−0.05)
Worker's Rights	−0.014	−0.047	0.012
	(−0.36)	(−1.08)	(0.27)
Quality of Government	0.350	0.486	0.266
	(1.58)	(1.86)	(1.07)
Globalization	−0.005	−0.006	−0.008
	(−1.25)	(−1.32)	(−1.76)
Polity Score	0.004	0.002	0.004
	(0.79)	(0.35)	(0.57)
Unemployment	0.005	0.007	0.002
	(1.20)	(1.47)	(0.62)
War	−0.018	−0.031	−0.001
	(−0.33)	(−0.50)	(−0.03)
Constant	0.842*	0.827	0.393
	(2.01)	(1.70)	(0.90)
R-Squared	0.16	0.16	0.16
Prob>F	0.000	0.000	0.000
N	622	622	622

T-Statistics in parentheses; *p>0.05, **p>0.01, ***p> 0.001
All models include yearly fixed effects; Standard errors clustered on state.

score a state's immigration and border security services, as well as its policy and its ability to reduce vulnerability of potential trafficking victims (UNODC, 2006: 12).

While contradictory to the stated hypotheses, these findings are perhaps to be expected. States are not necessarily passive in their responses to disasters, nor are citizens always unawares of the risks they assume living in certain areas. These can mitigate a strict causal relationship between disaster and vulnerability. In the next section, I address these contradictory results and place them along similar results that are becoming more common in the study of human trafficking.

DISCUSSION

These results, although counter to the literature supported hypotheses, are rather optimistic. They would suggest that states are sensitive to situations in which the opportunity for trafficking is increased and respond responsibly. Alternatively, these results could indicate a normatively less positive outcome. Unlike conflict, which can reduce the state's capacity to enforce laws, a natural disaster is short-term and can often be geographically isolated. The ability to rapidly mobilize and

TABLE 4

INCREASED EXPERIENCE OF NATURAL DISASTER ON A STATE'S ANTI-TRAFFICKING
RESPONSIBILITIES OVER TIME.

	Prevention	Prosecution	Protection
Year + 1	0.111**	0.120**	0.111**
	(2.59)	(2.76)	(2.62)
Year + 2	0.127**	0.127**	0.106*
	(2.79)	(2.75)	(2.38)
Year + 3	0.144**	0.139**	0.130**
	(2.87)	(2.79)	(2.62)
Year + 4	0.166**	0.195***	0.167**
	(3.03)	(3.36)	(2.97)
Year + 5	0.209**	0.191**	0.158*
	(3.21)	(2.91)	(2.39)
Year + 6	0.120	0.103	0.073
	(1.55)	(1.21)	(0.91)
Year + 7	0.084	0.017	0.002
	(0.76)	(0.13)	(0.01)

T-Statistics in parentheses; *$p>0.05$, **$p>0.01$, ***$p> 0.001$
All models performed with yearly fixed effects.

TABLE 5

EXPERIENCE OF NATURAL DISASTERS ON A STATE'S ANTI-TRAFFICKING RESPONSIBILITIES,
2002 – 2011

	Prevention	Prosecution	Protection
Logistic Regression	0.103***	0.064*	0.079**
	(3.79)	(2.33)	(2.86)
Robust Regression[5]	0.024***	–	0.020**
	(3.91)		(3.29)
OLS with standard errors clustered on state	0.021*	0.012	0.015
	(2.52)	(1.09)	(1.50)
N	913	913	913

T statistics in parentheses; *$p<0.05$, **$p<0.01$, ***$p<0.001$
All models include yearly fixed effects.

move personnel and material into hostile terrain also makes a state's military the most efficient body to turn to in the aftermath of an event, compared with civilian bodies.

In which case, any improvement in performance could be an externality of an increase in the presence and involvement of the state (via these forces) in these areas affected by natural disasters. It is not uncommon to find a securitized response to disasters that often takes the form of increased police and even armed forces. This was even the case in the United States whose response to Hurricane Katrina in 2005 included mobilizing its national guard to the city of New Orleans. The increased securitization of the federal and local response to fears of looting probably led to the shooting of civilians attempting to move from one part of the city to the other (BBC News, 2010).

Similarly, the 2015 earthquake in Nepal resulted in the mobilization of ninety per cent of that state's armed forces, and the inclusion of "[h]undreds of army personnel from different countries and 17,000 Armed Police Force officers" (*Kathmandu Post*, 2015). This type of response would at once increase both the ability of responders to reach into the rough mountain terrain, and decrease

the ease with which traffickers would be able to operate. Trafficking was a recognized fear following this event (Burke, 2015) and while an ever-present threat, the increased cost to traffickers (i.e. increased threat of capture) would inherently reduce the utility to traffickers of engaging in this practice (Wheaton, Schauer, and Galli, 2010).

Even where a state's responses to a natural disaster may not necessarily be securitized, or it is clear that the state's capacity to even respond to an event is weak, the ability of its people to be trafficked can be mitigated by other states. For instance, it is not uncommon for the United States and the Dominican Republic to respond to disasters in Haiti, like the 2010 earthquake, with increased scrutiny of Haitian migrants as they expect (and will seek to curb) increased migration (Ferris, 2014: 77). This too can reduce the movement of people who would otherwise be at risk of trafficking.

These results are then consistent with recent findings that have challenged some of the more common beliefs about trafficking. From situational relationships like international sporting events and trafficking (Bowersox, 2016; Hayes, 2010) to state characteristics like women's rights (Cho, 2015), one-to-one relationships between these variables and changes in levels of a state's commitment to confronting trafficking are being better understood; especially in terms of how a state can alter opportunity.

In the latter case, Cho (2015) found an almost reverse association between states with poor women's rights and increased trafficking. She theorized that these states probably reduce the mobility of their citizens thus, no matter how poor their respect for women's rights, a woman's ability to migrate (both legitimately and illegitimately) is greatly reduced. In the former case, international legal scholars like Hayes (2010), political scientists like Bowersox (2016), and public health scholars like Richter, Luchters, Ndloyu, Temmerman, and Cherisich (2012) have provided arguments against international sporting events inherently leading to increases in levels of human trafficking. The latter two studies note these events' highly securitized nature and the often heavy-handed police treatment of non-ticketed fans and sex workers.

Rhoda Howard-Hassmann (2012), discussing the differences between the human rights and human security dialogues, put forward just such a conclusion arising from these concepts' differing foci. As the human rights dialogue stressed the rights of individuals that states would need give up sovereignty to ensure, the human security dialogue returns this sovereignty as it asks that states ensure, not the rights of individuals, but the security of its people. The outcomes which these separate dialogues advocate can work at cross-purposes. For instance, while the social and economic freedom (including movement) of women is a positive result in the dialogue of human rights, it increases their *insecurity,* as they are more vulnerable to trafficking.

The above findings by no means delegitimize the arguments they test, but they do raise serious issues about how scholars theorize not just vulnerability but the state's conditioning of opportunity. Vulnerability, while it may certainly be related to the risk of experiencing a natural disaster, can be reduced by the presence of camps both to aid and increase the ability of those affected to cope, or to provide security to detain and restrict movement. There is a normative difference, however, between the camp meant to aid in coping and the camp meant to restrict and detain. What these findings suggest is that a state that has made an honest effort in reducing the vulnerability of its citizens per its responsibility to protect, is indistinct from a state that has reduced its citizens' vulnerability by restricting their movement.

As Cho (2015, 11) writes "[v]ulnerability does not have a straightforward relationship with human trafficking" and suggests that scholars refine their studies from state level indicators to the more specific internal measures of a state's structure. That too would be the suggestion emerging from this study, which seems to reveal the disaster itself may be less important to trafficking than the state's response to the event.

Subnational variances, such as federal versus centralized systems of government, could be a place to start. While the models presented above do control for a state's bureaucratic capacity

(ICRG), it does not control for structural variations between subnational units that could affect the response to a natural disaster. This is likely of greater consequence in those states where subnational political units have a great deal of autonomy when it comes to financing its own governance.

Another potential subnational aspect that could help scholars gain leverage over this issue is that of how a state's specialization of its capacity interacts with these events. For instance, it is likely that Himalayan nations like Nepal are more specialized in mountain rescue and dealing with the terrain than a non-Himalayan state. Yet, when it came to the rescue effort it was not terrain per se, but an externality of that terrain, landslides, which made rescue efforts all the more difficult (Rafferty, 2015). This would suggest there is a qualitative aspect to capacity that would distinguish it, not just as "high" and "low", but also its effectiveness.

CONCLUSIONS

This article has attempted to answer, quantitatively, whether or not a state's capacity to uphold its responsibilities in confronting trafficking are adversely affected by the occurrence of natural disasters. The academic literature that addresses this issue suggests that states would experience an increase in potential victims as homes, jobs, and support networks are lost. At the same time, a state's capacity to deal with trafficking as it confronts the increased needs and stretched resources a disaster response produces, would result in a poorer performance in terms of the protocols by which a state's response to the threat of trafficking is judged.

The results indicate that states are more likely to better meet their responsibilities under the Palermo Protocols when faced with increased natural disasters. I argue that this is because of the often highly centralized and securitized responses to natural disasters that states utilize. These measures can, while not necessarily reducing vulnerability (i.e. addressing those social variants that make a person vulnerable), either help individuals and groups to cope or reduce their ability to move. Thus, the opportunity to traffic or be trafficked is reduced.

These results are an important guidepost for activists, academics, and practitioners alike, as they can better help the allocation of resources in the continuing battle to end trafficking. They also suggest a further refinement of measures and the operationalization of concepts like vulnerability in our studies of human trafficking. For instance, while this study employed the ICRG measure of a state's quality of government, it cannot address those within state differences that exist for, say, a federal system in which variance across the subnational units can affect the type of response employed.

In the future, scholars working in this area should focus on, as Cho (2015) suggested above, a more refined focus of our quantitative studies. Top-down, national level variables may not provide the sort of leverage that sub-national, within state measures could. Particularly if the goal is to better understand what is inherently a *sub rosa* crime that targets and victimizes society's often voiceless and invisible citizens.

NOTES

1. For a discussion of the martial, international aspects of state capacity see Hendrix (2010); for an examination of a state's fiscal and legal, domestic capacity see Besley and Persson (2011).
2. Summary statistics for all variables available in the Appendix, Table 1.
3. Information on the coding and construct of this data, as well as its disaggregated constituent parts, are available from the PRS Group via purchase (see: https://www.prsgroup.com/about-us/our-two-methodologies/icrg). The combined data measure though is available via the QOG Institute (Teorell, Dahlber, Holmber, Rothstein, Hartmann, and Svensson, 2015).
4. This refers to the prevalence of Western pop culture present in a state (Dreher, 2006: 1093).

5. The robust regression of natural disasters on a state's prosecution of traffickers was unable to be computed.

REFERENCES

Akee, Randall K.Q., Arnab K. Basu, Nancy H. Chau, and Melanie Khanis.
    2010   *Migration and Culture: Frontiers of Economics and Globalization*, Vol. 8 Emerald Group Publishing, Bingley: 691–716.
BBC News
    2010   "Policce Charged Over Post-Katrina Bridge Shooting." http://www.bbc.com/news/10623960
Blaikie, P., T. Cannon, I. Davis, and B. Wisner
    1994   *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, Routledge, New York, NY.
Bowersox, Z.
    2016   "International Sporting Events and Human Trafficking: Effects of Mega-Events on a State's Capacity to Address Human Trafficking", *Journal of Human Trafficking*, 2(3): 201–220.
Burke, J.
    2015   "Nepal Quake Survivors Face Threat from Human Traffickers Supplying Sex Trade", *The Guardian*. URL: https://www.theguardian.com/world/2015/may/05/nepal-quake-survivors-face-threat-from-human-traffickers-supplying-sex-trade
Caprioli, M., V.M. Hudson, R. McDermott, C. Emmett, and B. Ballif-Spanvill
    2007   "Putting women in their place", *Baker Center Journal of Applied Public Policy*, 1(1): 12–22.
Cho, S.-Y.
    2015   "Modeling for determinants of human trafficking: an empirical analysis", *Social Inclusion*, 3(1): 2–21.
Cho, S.-Y., A. Dreher, and E. Neumayer
    2014   "The determinants of anti-trafficking policies - evidence from a new index", *Scandinavian Journal of Economics*.
Cingranelli, D.L., and D.L. Richards
    2010   "The Cingranelli and Richards (CIRI) Human Rights Data Project", *Human Rights Quarterly*, 32(2): 401–424.
Cingranelli, D.L., D.L. Richards, and C.K. Clay
    2014   "The CIRI Human Rights Dataset." http://www.humanrightsdata.com.
Claudio, A.
    2004   "The perverse politics of four-letter words: Risk and Pity in the securitisation of human trafficking", *Millenium. Journal of International Studies*, 33(2): 251–277.
Cullen-DuPont, K.
    2009   *Human Trafficking*, Infobase Publishing, New York, NY.
Czaika, M., and K. Kis-Katos
    2009   "Civil Conflict and Displacement: Village-Level Determinants of Force Migration in Aceh", *Journal of Peace Research*, 46(3): 399–418.
DiNicola, A.
    2007   "Research into human trafficking: issues and problems", in M. Lee (Ed.), *Human Trafficking*, Willan Publishing, Portland, OR: 49–72.
Dreher, A.
    2006   "Does Globalization Affect Growth? Evidence from a new Index of Globalization", *Applied Economics*, 38(10): 1091–1110.
Dreher, A., N. Gaston, and P. Martens
    2008   *Measuring Globalisation*, Springer, New York, NY.
Drury, A.C., and R.S. Olson
    1998   "Disasters and political unrest: an empirical investigation", *Journal of Contingencies and Crisis Management*, 6(3): 153–161.
Englehart, N.A.
    2009   "State capacity, state failure, and human rights", *Journal of Peace Research*, 46(2): 163–180.

Fariss, Christopher J.

2014   "Respect for Human Rights has Improved Over Time: Modeling the Changing Standard of Accountability", *American Political Science Review*, 108(2): 297–318.

Farrell, A., and S. Fahy

2009   "The problem of human trafficking in the U.S.: public frames and policy responses", *Journal of Criminal Justice*, 37: 617–626.

Ferris, E.

2014   "Recurrent Acute Disasters, Crisis Migration: Haiti has had it All", in Susan F. Martin, Sanjula Weerasinghe and Abbie Taylor (Ed.), *Humanitarian Crises and Migration: Causes, Consequences, and Responses*, Routledge, New York, NY: 77–96.

Frank, R. W.

2013   "Human trafficking indicators, 2000 - 2011: a new dataset". University of Sydney. URL: http://ssrn.com/abstract=2314157

Friman, H. R. Reich, and S. Reich

2007   "Human Trafficking and the Balkans", in H. R. Friman and S. Reich (Eds), *Human Trafficking, Human Security, and the Balkans*, University of Pittsburgh Press, Pittsburgh, PA: 1–19.

Gleditsch, N.P., P. Wallensteen, M. Eriksson, M. Sollenberg, and H. Strand

2002   "Armed Conflict 1946-2001: A New Dataset", *The Journal of Peace Research*, 39: 615–637.

Guha-Sapir, D., R. Below, and P. Hoyois

2009   "EM-DAT: The CRED/OFDA International Disaster Database." *Universit Catholique de Louvain: Brussel, Belgium*. URL: www.emdat.be

Gutauskas, A.

2009   "Trade in human beings in Lithuania", in A. Jonsson (Ed.), *Human Trafficking and Human Security*, Routledge, New York, NY: 140–161.

Hayes, V.

2010   "Human Trafficking for Sexual Exploitation at World Sporting Events", *Chicago-Kent Law Review* 85(3):1105–1146. URL: http://scholarship.kentlaw.iit.edu/cklawreview/vol85/iss3/8

Jonsson, A.

2009a   "Human trafficking and human security in the Baltic Sea region", in Human Trafficking and Human Security (Eds), *Anna Jonsson*, Routledge, New York, NY: 1–9.

2009b   "Human Trafficking in the Baltic Sea Region: Supply, Demand, and Organized Crime", in A. Jonsson (Ed.), *Human Trafficking and Human Security*, Routledge, New York, NY: 93–113.

Kangaspunta, K.

2003   "Mapping the inhuman trade: premliminary findings of the database on trafficking human beings", *Forum on Crime and Society*, 3(1&2): 81–103.

Kathmandu Post

2015   "Deadly earthquake: Death toll reaches 4,400". URL: http://kathmandupost.ekantipur.com/news/2015-04-28/deadly-earthquake-death-toll-reaches-4400.html

Lloyd, P., and B.A. Simmons

2015   *Transnational Legal Orders*, Cambridge University Press, New York, NY: 400–438.

Lozano-Gracia, N., G. o Piras, A. M. Ibanez, and G. J.D. Hewings

2010   "The journey to safety: conflict-driven migration flows in Colombia", *International Regional Science Review* 33(2):157–180.

Makarenko, T.

2009   "Organized crime or crime organized? Isolating and identifying actors in the human trafficking chain", in A. Jonsson (Ed.), *Human Trafficking and Human Security*, Routledge, New York, NY: 26–47.

Martin, S.F., S. Weerasinghe and A. Taylor (Eds),

2014   *Humanitarian Crises and Migration: Causes, Consequences, and Responses*, Routledge, New York, NY.

McAdam, J.

2014   "Conceptualizing "Crisis Migration": A Theoretical Perspective", in S.F. Martin, S. Weerasinghe and A. Taylor (Eds), *Humanitarian Crises and Migration: Causes, Consequences, and Responses*, Routledge, New York, NY: 28–49.

Morokvasic, M.
   1984   "Birds of Passage are also Women", *International Migration Review*, 18(4): 886–907.
Musto, J.L.
   2009   "What's in a name? Conflations and contradictions in contemporary U.S. discourses of human traf-
             ficking", *Women's Studies International Forum*, 32: 281–287.
Neumayer, E., and T. Pluemper
   2007   "The Gender Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in
             Life Expectancy, 1981-2002", *Annals of the Association of American Geographers*, 97(3): 551–
             556.
Osterdahl, I.
   2009   "International countermeasures against human trafficking", in A. Jonsson (Ed.), *Human Trafficking
             and Human Security*, Routledge, New York, NY: 67–92.
Paxton, P., and M.M. Hughes
   2007   *Women, Politics, and Power: A Global Perspective*, Pine Forge Press, Thousand Oaks, CA.
Pluemper, T., and E. Neumayer
   2006   "The unequal burden of war: the effect of armed conflict on the gender gap in life expectancy",
             International Organization, 60(3): 723–754.
Rafferty, J.P.
   2015   Nepal Earthquake of 2015. *Encyclopedia Britannica*. URL: https://www.britannica.com/topic/Nepal-
             earthquake-of-2015
Shelley, L.
   2009   "Human security and human trafficking", in A. Jonsson (Ed.), *Human Trafficking and Human
             Security*, Routledge, New York, NY: 10–25.
   2010   *Human Trafficking: A Global Perspective*, New York, NY, Cambridge.
Simmons, B.A., V. Charnysh, and P. Lloyd.
   2015   "Frames and Consensus Formation in International Relations: The Case of Trafficking in Persons",
             European Journal of International Relations.
Small, M., and J.D. Singer
   1982   *Resort to Arms: International and Civil Wars, 1816–1980*, Sage, Beverly Hills, CA.
Teorell, J., S. Dahlber, S. Holmber, B. Rothstein, F. Hartmann, and R. Svensson.
   2015   "The Quality of Government Standard Data Set". URL: http://qog.pol.gu.se
United Nations
   2000   "Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Chil-
             dren". URL: http://www.ohchr.org/EN/ProfessionalInterest/Pages/ProtocolTraffickingInPersons.aspx
UNODC
   2006   "Trafficking in Persons Global Patterns", *United Nations Office on Drugs and Crime* Vienna.
Wheaton, E.M., E.J. Schauer, and T.V. Galli
   2010   "Economics of Human Trafficking", *International Migrsation*, 48(4): 114–141.

APPENDIX

TABLE A1

SUMMARY STATISTICS

	Mean	Std. Dev.	Min	Max
Positive Change in Prevention	0.437	0.496	0	1
Positive Change in Prosecution	0.909	0.286	0	1
Positive Change in Protection	0.916	0.276	0	1
Increase in Natural Disasters	2.496	2.85	0.151	20.694
Log of Population	15.293	2.185	8.778	21.049
Log of Trade	4.231	−0.463	3.008	6.023
Log of GDP per capita	7.556	1.628	3.513	12.108
Women's Economic Rights	1.297	0.726	0	3
Freedom of International Movement	1.477	0.687	0	2
Worker's Rights	0.853	0.690	0	2
Quality of Government	0.525	0.197	0.145	1
Globalization	59.858	16.691	27.338	92.371
Polity Score	5.321	5.346	−10	10
Unemployment	8.204	4.981	1.2	37.6
War	0.176	0.429	0	1

TABLE A2

YEARLY FIXED EFFECTS, TABLE 1

	Prevention	Prosecution	Protection
2002	−0.159	0.046	−0.652
	(−0.45)	(0.14)	(−1.86)
2003	−1.387***	−0.340	−1.056**
	(−3.94)	(−1.02)	(−3.05)
2004	−0.888*	−1.221***	−1.389***
	(−2.57)	(−3.51)	(−3.96)
2005	−1.426***	−1.400***	−1.459***
	(−3.85)	(−3.74)	(−3.95)
2006	−1.846***	−1.365***	−1.954***
	(−5.01)	(−3.81)	(−5.26)
2007	−1.548***	−1.306***	−1.757***
	(−4.16)	(−3.50)	(−4.65)
2008	−1.293***	−1.867***	−1.835***
	(−3.48)	(−4.62)	(−4.79)

TABLE A3

YEARLY, FIXED EFFECTS, TABLE 2

	Prevention	Prosecution	Protection
2002	−0.033	0.018	−0.165*
	(−0.40)	(0.23)	(−1.98)
2003	−0.348***	−0.104	−0.281***
	(−4.26)	(−1.31)	(−3.41)
2004	−0.224**	−0.331***	−0.381***
	(−2.74)	(−4.17)	(−4.61)
2005	−0.354***	−0.366***	−0.393***
	(−4.14)	(−4.41)	(−4.55)
2006	−0.446***	−0.369***	−0.499***
	(−5.42)	(−4.62)	(−6.01)
2007	−0.391***	−0.348***	−0.453***
	(−4.58)	(−4.20)	(−5.26)
2008	−0.331***	−0.445***	−0.483***
	(−3.84)	(−5.33)	(−5.56)

TABLE A4

YEARLY FIXED EFFECTS, TABLE 3

	Prevention	Prosecution	Protection
2002	−0.032	0.009	−0.142*
	(−0.46)	(0.14)	(−2.25)
2003	−0.307***	−0.081	−0.235**
	(−5.05)	(−1.10)	(−3.31)
2004	−0.196**	−0.277***	−0.311***
	(−2.72)	(−4.31)	(−4.36)
2005	−0.315***	−0.309***	−0.324***
	(−4.67)	(−3.93)	(−4.35)
2006	−0.398***	−0.302***	−0.421***
	(−6.27)	(−4.02)	(−5.61)
2007	−0.342***	−0.289***	−0.385***
	(−4.48)	(−4.02)	(−5.07)
2008	−0.286***	−0.381***	−0.400***
	(−3.55)	(−4.88)	(−5.07)