

# Source Countries in International Human Trafficking: A Time Series Analysis

---

Bianca Jinete Mejia

## *Abstract*

Using the State Department Trafficking in Persons Report I construct the international human trafficking network for each year from 2001 to 2013. I classify source countries by the degree to which they exhibit export ties, and using a time series regression I identify the factors that explain the variation in the degree to which a country is a source state for human trafficking over time. I test whether GDP per capita, unemployment, literacy, and corruption, when combined with external shocks, cause a state to be embedded in the international network as a source country. My results contradict established theory of human trafficking.

### ***Research Question***

Viewed in simple supply and demand terms, states involved in the human trafficking problem can be classified as source, transit, or destination countries (Bales, 2005; Becker, 1968; Kyle and Dale, 2001; Miller, 2006; Monzini, 2004; Schloenhardt, 1999; Wheaton, Shauer, and Galli, 2010). Source states provide the supply of victims for the international human trafficking “market.” The victims are moved along routes through transit states to the destination countries that generate the demand for the international human trafficking “market.”

The literature on human trafficking is largely focused on identifying individuals who are vulnerable to trafficking (Aghatise, 2004; Bales, 2003, 2005; Baroud, 2009; Beyrer, 2001; Chuang, 2006; Demleitner, 2001; Ejalu, 2006; Flowers, 2001; Kelly, 2003; Kwong, 1997; Okonofua, Ogbomwan, Alutu, Kufre, and Eghosa, 2004). These individuals constitute the supply for the demand for human victims and as such are associated with source countries. Scholars have found that source countries are characterized by conditions of extreme poverty, rapid social and political change, a community under stress, and a territory undergoing modernization and economic growth (Bales, 2005; Belser and Danailova-Trainor, 2006; Di Nicola, Orfano, Cauduro, and Nicoletta, 2005; Hodge, 2008; Miller, 2006). The export of human victims is not likely to emerge as a major problem in countries where most of the population has a reasonable standard of living and some financial security (Bales, 2004; Miller, 2006; Roby, 2005). Supply is thus sustained by desperate populations, especially in developing and transitioning countries, susceptible to the promises made by recruiters of a better life in another place (Aghatise, 2004; Chuang, 2006; Hodge, 2008; Miller, 2006).

What has thus far been missing in the literature is a systemic approach. The international human trafficking market constitutes a system in which victims move from source countries through transit countries to destination countries. As such it constitutes a network.

I ask how we can explain variation in the degree to which countries serve as sources of supply to the international human trafficking market over time. I define human trafficking as the illegal recruitment, transportation, transfer or receipt of persons, by means of threat or use of force or other forms of coercion, abduction, fraud, and/or abuse of power for the purposes of commercial sexual exploitation, forced labor or services, slavery, servitude or the removal of organs (UNODC, 2009). I use social network analysis to map the network of relationships between countries involved in human trafficking. I analyze the structural properties of the network and identify variables that explain changes in that structure relative to an increase or decrease in countries' involvement in the supply side of the international human trafficking system. With the purpose of understanding the dynamics of this dark network, this paper focuses on source countries of human trafficking in the international system from 2001 to 2013.

Traffickers take their victims from countries with vulnerable populations. I hypothesize that the variation in the behavior of source countries over time as part of the growing international human trafficking problem is associated with wealth, job opportunities, literacy, duress, and corrupt elites in each of the states of the international system.

The argument of this paper unfolds as follows. In the next sections, I go through the literature on source countries and I analyze theories that have been proposed on the matter, such as modernization theory, state capture theory, and external shocks. Then, I develop my

hypotheses by taking elements from these theories and using them to quantify vulnerability in my study. These are GDP per capita, unemployment, literacy, corruption, natural disasters, participation in wars, and disease outbreaks. I introduce social network analysis (SNA) and the advantages of applying it to human trafficking; I clarify how SNA fits the time series regression I use to test my variables and I give details for the models I tested. Lastly, I explain how the direction of the significance of GDP per capita, literacy, corruption, wars and natural disasters contradict established theory of human trafficking, and I draw conclusions.

### ***Literature Review***

The issue of human trafficking emerged in the 1940s, but it has only recently gained the attention it deserves. The latest studies have focused on the various elements causing human trafficking, description of trends and the profiling of the victims (Bales, 2003, 2004, 2005; Chuang, 2006; Kelly, 2002; Miller, 2006). Often, these rely on inadequate data collection practices that result in an inaccurate estimate of the problem and in proposed remedies that are equally inappropriate (Dottridge, 2003).

Supply is not only provided by countries in extreme poverty (Feingold, 2005). Human trafficking as an economic and social phenomenon is a consequence of modernization and economic growth. Often, parents sell their daughters to traffickers when faced with the great pressure to buy consumer goods that were not available before. The profit earned by selling their children is seen as an opportunity to acquire goods that were previously out of their economic reach (Bales, 2004; Hodge, 2008), and today's market is perfect for parents who are willing to do this.

Demand does not only exist in wealthy nations (Feingold, 2005). In recently expanding economies, brothels have seen an increase in the demand for prostitutes (Anderson & Davidson, 2003). This occurs because the purchasing power of low class workers has increased. These individuals are now able to afford activities that they could not afford before, such as access to brothels. This creates a higher demand for prostitutes and strengthens the human trafficking business. Thus, the number of women needing to be trafficked continues to increase (Bales, 2004).

Nevertheless, it is important to note that issues such as illegal immigration and corruption are necessary social factors that affect the behavioral change of nations in the topic of human trafficking. A country serves as a destination for human trafficking when its demand for labor requires those (perhaps nonnative to the area, i.e immigrants) who are willing to leave their home country for better chances of employment. These potential slaves have to settle for forced labor because of the lack of employment opportunities available. Kevin Bales (2004) makes an analysis on these victims, and states that “being poor, homeless, a refugee, or abandoned can all lead to the desperation that opens the door to slavery [...], and when the slaves are kidnapped, they must lack sufficient power to defend themselves against that violent enslavement”.

In destination and transit countries, large-scale human trafficking operations also require the collaboration of officials (Bales, 2003; UNODC, 2011). Corruption facilitates the tasks of trafficking networks by helping negotiate transactions for the traffickers, holding trafficked workers in bondage and forced labor, and undermining efforts to prevent trafficking.

In regards to human trafficking literature, academics have had the tendency to focus on supply-side questions (Bales, 2004). Research has centered on the conditions that make

an individual or a group of individuals vulnerable to human trafficking. There has also been focus on the causes of this modern slavery phenomenon, and the factors that contribute to trafficking in origin countries. Questions on “who are the likely victims?” and, “who are the people supplying the demand?” have already been addressed. They suggest that a variety of factors, including extreme and increasing poverty, deteriorating living conditions, high rates of unemployment over a long period of time, conflicts, human deprivation, and hopelessness are the root causes that foster the environment for human trafficking to flourish in a region (Hodge, 2008; Salah, 2004). On the individual level, the literature has suggested that factors such as lack of access to education, unemployment, family disintegration and disease, make persons vulnerable to traffickers (Bales, 2004; ILO, 2003; Moore, 1994).

Scholars have focused on the supply and demand model of economics to explain the trends of source and destinations countries. The supply and demand model argues that transnational human trafficking is based on a market mechanism that balances the supply of victims from origin countries with the demand for victims in destination countries (Broderick, 2005; Pearce & Davis, 2000). Supply is provided by countries with high unemployment rates, causing victims to be easily enticed with false promises of employment (Hodge, 2008; Masci, 2006). On the other hand, in countries where labor is expensive, the need for cheaper labor creates a high demand of workers from other countries (Anderson & Davidson, 2003). Human trafficking grows best in extreme poverty and its labor is demanded by wealthy nations (Bales, 2003; Hughes and Denisova, 2001). These are *economic* preconditions (Bales, 2004) that the literature has been able to identify about human trafficking. Nevertheless, some consider that the literature lacks knowledge about the economics of modern slavery (Bales, 2004).

In recent years, the amount of research and data collection on the subject has grown significantly. These studies have been limited to mapping routes and identifying source and destination countries (Monzini, 2004; Protection Project, 2014; UNODC). Nevertheless, these paths have the potential of changing in the short term. What scholars have yet to ask is, how do we explain the variation in the degree to which a country is a source state for human trafficking over time? There is a need for long term studies that not only include mapping and identification of sources and destinations, but that also address the factors that truly affect the change in the degree to which a country is a supplier of human trafficking victims. My study is focused on the conditions that cause the supply side of this illegal market to flourish or deteriorate.

Many scholars will argue that a low quality of education available to the inhabitants, often times portrayed by illiterate populations, is the main factor that contributes to a country supplying victims for human trafficking (Belser and Danailova-Trainor, 2006). Some also say that wealth is a contributing factor as well (Sîle, 2006). Nevertheless, these and many other conditions have yet to be tested. This paper seeks to fill that gap.

### ***Hypothesis and Theory***

I draw my hypotheses from modernization theory, state capture theory and external shocks. Modernization theory states that social changes are set off by economic development (Lipset, 1959; Lipset, 1963). Socioeconomic development starts from technological advances that increase labor productivity. It then brings occupational specialization, rising education levels as well as income levels. It diversifies human interaction, shifting emphasis from authority relations toward bargaining relations. In the long run this brings about cultural changes, to include changing gender roles, the



empowerment of women, sexual norms, and more critical and less easily led publics (Inglehart and Welzel, 2005). Thus, in the long-run, a country that experiences modernization is more likely to become less vulnerable because its population is more educated, has higher salaries, lower unemployment, and higher GDP.

Modernization is a long process. The first stages of modernizing are marked by social changes which are not necessarily positive or progressive because societies in the throes of dramatic social and economic transformation tend to be unstable and violent (Huntington, 1968). As shown in Figure 1, countries that are just starting to experience socioeconomic development tend to have lower levels of education, low salaries, high unemployment, and lower GDP. Populations in these territories become more vulnerable than others and are more easily persuaded into the sex industry, where they end up as victims of human trafficking (Bales, 2005; Chuang, 2006).

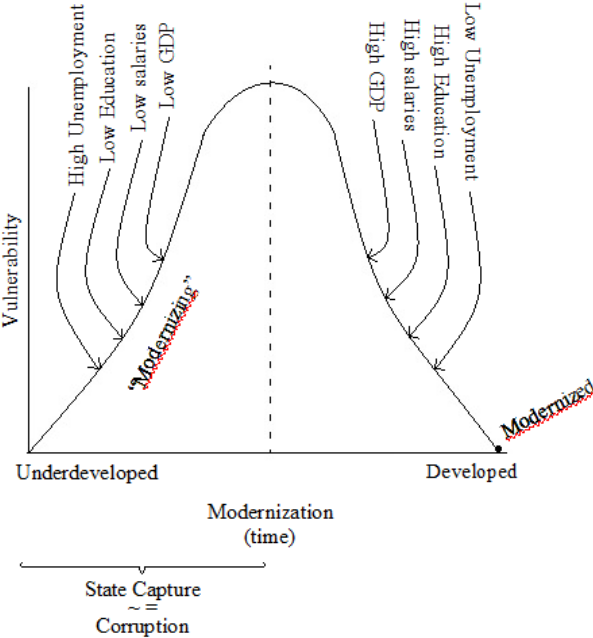


Figure 1

In the early stages of modernization, there are certain factors that hinder socioeconomic development. Corruption, for example, is a factor that has been proven to

slow economic growth (Ades and di Tella, 1994; Mauro, 1995, 1997; Murphy, Shleifer and Vishny, 1993; Rose-Ackerman and Stone, 1996; World Bank, 1997). There are different types of corruption that a state can engage in. State capture is one of them. It is a form of grand corruption witnessed in transition economies, where the oligarchs manipulate policy information and shape the emerging rules of the game to their own advantage (Hellman and Kaufmann, 2001). These elites provide illicit private gains to public officials who cooperate with their cause.

The state capture theory of corruption addresses the problem at its roots. Most types of corruption are directed toward bribing an official to abstain or ignore his task of implementing laws, rules or regulations. State capture, rather, refers to corrupt efforts to influence how those laws are formed (Hellman and Kaufmann, 2011). The capture economy rewards connections over competence and influence over innovation; it is fueled by private investments in politics that weaken the state and undermine the provision of basic public goods (Hellman and Kaufmann, 2011).

In nation-states facing state capture, the elites shape the policies that will rule the territory to their own advantage. Thus, populations that are not part of the elites are not benefitted by these policies. Without regulations to protect their interests and lack of resources to meet their basic needs, their quality of life is in jeopardy and they become vulnerable to traffickers.

Nation-states undergoing modernization and state capture are not the only countries vulnerable to become suppliers of human trafficking victims.

As depicted in Figure 2, communities under stress, that is, currently or recently facing spread of disease, a natural disaster, economic depression, and war, are likely to become suppliers of victims as well (Bales, 2005).

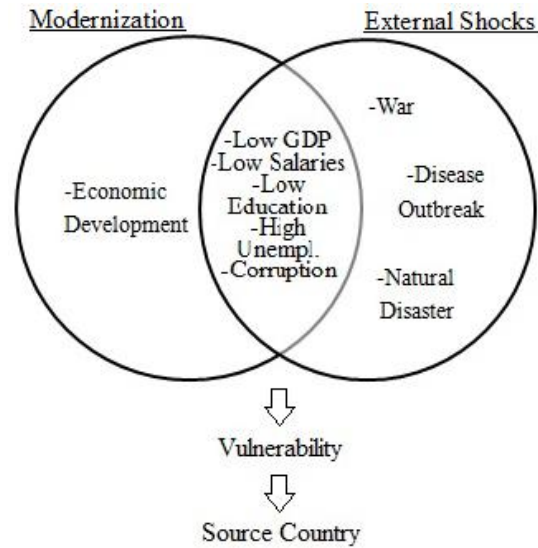


Figure 2

These countries, as well as countries undergoing the early stages of modernization, are also characterized by low education, low salaries, and high unemployment, as well as corruption by state capture. Thus, countries experiencing modernization and countries under stress tend to be more vulnerable and are more likely to become source countries, providing the supply of victims for human trafficking.

I take elements from modernization theory, state capture theory, and human trafficking literature to build my own theory on source countries. I argue that a country is more likely to become a source state in human trafficking if it has the characteristics that make its population vulnerable. A vulnerable population is one that exhibits low GDP per capita, low literacy, high unemployment, high corruption, and is experiencing external shocks.

I hypothesize that countries with higher levels of corruption, unemployment, and low levels of literacy and GDP per capita become more vulnerable and thus, more likely to be major source countries in the global human trafficking network. I also hypothesize that countries with these conditions and that have faced external shocks such as wars, major

disease outbreaks, and natural disasters, become more vulnerable to human trafficking as well.

### ***Data and Method***

I test two models using a time series regression explaining the change in human trafficking behavior of a source country over a period of ten years. The models test for the causal connections of vulnerability and human trafficking behavior of a source country. I test whether GDP per capita, unemployment, literacy, and corruption, when combined with external shocks, cause a state to be embedded in the international network as a source country.

Model 1 tests GDP per capita, unemployment, and literacy as explanatory variables; I control for corruption. This is also true for Model 2, which includes disease outbreaks, participation in wars, and natural disasters as explanatory variables.

I measure the dependent variable, the degree to which a country is a source state or out degree, with the State Department Trafficking in Persons Report (TIP). While this report has been criticized for its bias and questioned on its empirical basis (Baroud, 2009; Gallagher, 2011), it is the only publicly available report containing data on the role of each country in the international human trafficking network.

I quantify the TIP using Social Network Analysis (SNA). SNA is a mathematical method for connecting the relationships between actors using network theory. This allows researchers to map and measure complex human groups and organizations, including clandestine ones (Krebs, 2001; de Nooy, Mrvar and Batagelj, 2005). The main advantage of SNA is that it provides a way of systematically and empirically studying the causes and consequences of social structure (Degeenne, Alain, and Forse, 1999).

It does this by assuming that an actors' structural location has an influence in their social and organizational possibilities (Granovetter, 1973). This discipline began in sociology and has only recently been applied to problems in international relations, including illicit criminal networks (Arquilla and Ronfeldt, 2001; Sparrow, 1991). However, scholars have not yet attempted to apply SNA to dark networks in the international system, such as human trafficking. This paper seeks to fill this gap by modeling the international human trafficking network over a period of thirteen years. This will allow us to study the relationships between countries involved in the network, and to further analyze how external factors have an impact on the network's flow.

In order to do this, it is important to understand certain basic concepts in SNA when in the context of human trafficking. A network is defined as a set of actors and the relations between them, where actors are represented as nodes and their relationships, as links (Gruber, Palonen, Rehrl, & Lehtinen 2007; Wasserman and Faust 1994). The actors in the network are called nodes, which in this case will be the 191 nation-states of the international system whose human trafficking narratives are included in the State Department Report. A relationship between nodes is called an edge. A set of edges creates a path that facilitates flow. The network's flow is the movement of people along routes defined by social relations. This paper is concerned with the flow going from a source country to a transit or destination state.

In order to do get a measure of my dependent variable, I used a text analysis Java program created by Sophie Wagner. The program analyzes each narrative for every country in the State Department Trafficking in Persons Report from 2001 to 2013. It creates a 191 x 191 matrix for each year and gives a number one when there is an edge between two countries for human trafficking; otherwise it gives such tie a zero. This way, every possible

edge between two countries receives either a zero, representing no evidence of trafficking between countries, or a one, representing evidence of trafficking between countries. It is a directed matrix, where one country may traffic victims to a destination country but the destination country does not also traffic victims back to the source. My dependent variable is the out degree. Out degree, or the degree to which a state is a source country, is calculated by adding the number of edges going from one country to another for every year.

It is important to note that the out degree does not take into consideration edges coming from other countries, but only going to other countries, since this paper is concerned particularly with source states of human trafficking. It is also imperative to note that out degree measures the number of ties or countries to which a state is exporting victims to, not the amount of victims being trafficked.

Each matrix shows the out degree values for all countries of the international system (191 nation-states) that have narratives in the TIP. Each country has 13 different out degrees, one for each year analyzed. The out degree is an estimate of what the international human trafficking network looked like for each year analyzed, specifically for source countries.

The dependent variable ranges from zero to forty-seven. A country with an out degree of zero is not considered to be a source country for human trafficking. An example of this is the United States, which presented an out degree of zero for all thirteen years analyzed and thus is not a supplier of human trafficking victims. Countries with higher out degrees are considered source countries. The lower the out degree means that the country is a supplier of victims to a lower degree. The higher the out degree means that the country is a supplier of victims to a higher degree. Examples of this variation are Costa Rica and Niger. In 2013, Costa Rica presented an out degree of one, making it a source country to a

lower extent in comparison to Niger, which presented an out degree of forty-five, the highest for that year, and which is considered to be a source country to a much higher degree. See appendix 1 for total out degrees for all countries, range, mean, median, and standard deviation of out degree by year. In order to decrease redundancy, the out degree was normalized and then multiplied by 100 to maintain consistency of values for all the variables being tested.

Table 1 below lists the descriptive statistics for all the variables tested in the models. I use the World Development Indicators dataset published by the World Bank, specifically GDP per capita, unemployment, and literacy for both Models. This dataset includes information for all nation-states, regions, and type of country groupings (i.e. high income, heavily indebted poor countries, least developed countries, low income, middle income, small states, etc.) in the international system. I narrow down my analysis to actual nation-states since I am interested in the particularities of each and doing this will allow me to analyze my data in detail. Thus, I decrease the number of observations from 255 to 191 per year, ignoring all data for regions and groupings of countries.

**Table 1: Summary Statistics**

Variable	Observations	Mean	Std. Dev.	Min	Max
Out Degree	2483	4.7049	6.6137	0	47
GDP per capita	2329	8.1961	1.5976	4.682	11.626
Unemployment	1728	8.6393	5.9287	.3	38.7
Literacy	772	87.7486	18.2786	19.79	100
Disease	2470	.2259	.5083	0	3
War	1417	.5730	1.0618	0	7
Natural Disaster	2391	2.2551	3.9001	0	42
Corruption (Control variable)	1990	4.1540	2.1508	.4	9.9

The data are discrete, meaning that they can only take certain values. My unit of analysis is every state of the international system for which the TPI has a human trafficking narrative. I test the model taking into account years 2001 to 2013. There are a total of 14,058 observations.

The first independent variable is GDP Per Capita. This variable represents gross domestic product divided by midyear population for each country. Data are measured in US Dollars, where dollar figures for GDP are converted from domestic currencies using single year official exchange rates. The range of the GDP per capita depends on each country, but conceptually, it can range from zero to infinity. In this study, Burundi presented the lowest GDP per capita in 2003, with \$4.682. On the other hand, Luxembourg had the highest GDP per capita in 2008, with \$11.626.

The second independent variable is unemployment. I use the total rate of unemployment in each country, taken from the total percentage of population in the labor force for the thirteen years studied. The data are represented in percentages, and the range is zero to 100, with zero being no unemployment (every person looking for a job is employed) and 100 being full unemployment (every person looking for a job is unemployed). Examples of this variation are Qatar and Lesotho. In 2009, Qatar presented the overall lowest unemployment rate of .3%, showing much more job opportunities available to the population in comparison to Lesotho, which presented an unemployment rate of 38.7% in 2003, the highest for all years in comparison to all countries studied.

The third independent variable is literacy. I use the literacy rate in each country for the percentage of the population between the ages of 15 and 24, since human trafficking victims' ages usually lie in this range (Anderson & Davidson, 2003). It is represented in percentage of the population. This variable presents values from 19.79 to 100, where the



lower the literacy rate, the more illiterate the population is. On the other hand, values closer to 100 represent populations with higher literacy. Examples of this variation are Niger and Poland. Niger presented the overall lowest unemployment rate in 2001 with only 19.79% of its population being literate. On the other hand, 100% of Poland's population showed to be literate in 2012.

For Model 2, I use the same variables already described and I add external shocks. I measure external shocks with three different variables: disease outbreaks, participation in wars, and accounts of natural disasters.

My fourth independent variable is disease outbreaks. I use the World Health Organization (WHO) as my source. I was interested in the number of major disease outbreaks in each nation-state for each year studied. In order to compile this data, I analyze all press releases from the Global Alert and Response division of the WHO, specifically the Disease Outbreak News. Each major disease outbreak in a country received a "1" for the specific year of the occurrence, and I added those values in order to get a disease outbreak count for each country for all thirteen years. Thus, the higher the value of this variable, the more disease outbreak accounts. The range of this variable is zero to three. It is important to note that a disease outbreak is a rare occurrence, and thus my data is skewed because most countries did not present any epidemics. After totaling all disease outbreak accounts for every year, the Democratic Republic of Congo presented the highest number of outbreaks, with 22 epidemics varying from Meningococcal Disease to Cholera, Influenza, Typhoid fever, Plague, Ebola, among others.

My fifth independent variable is participation in wars. My data source is the Correlates of War Project. I specifically look at the number of militarized interstate disputes by country per year. This variable measures the number of interstate wars a country

engaged in during each year studied. The range of this variable is zero to seven, with higher values representing more accounts of war participation. Turkey presented the highest number of wars fought, seven, in 2001. It is important to note that participation in wars is also a rare event, which is why many countries presented a value of zero for this variable.

My sixth independent variable is natural disasters. I use the Centre for Research on the Epidemiology of Disasters as my source, specifically the International Disaster Database. This is a count variable, where the value presented corresponds to the number of natural disasters in such territory during each one of the thirteen years studied. Natural disasters range from severe floods to hurricanes, tornados, tsunamis and earthquakes. This variable does not represent the severity of the natural disaster, but only the event of it happening. The range is zero to forty-two. The highest account of natural disasters was presented by China in 2013, and Antigua and Barbuda barely faced any natural debacle during the thirteen years observed.

Finally, I use corruption as a control variable for both Models. My data source is Transparency International's Corruption Perceptions Index (CPI). Transparency International scores countries on how corrupt their public sectors seem to be. The index ranges from zero to ten. Zero indicates high levels of perceived corruption in government and public administration, while values closer to ten suggest very low levels of perceived corruption, thus higher transparency. Examples of this variation are Bangladesh and Finland. In 2001, Bangladesh presented a CPI of .4, while Finland's index was 9.9 for that same year.

I test for correlation in order to measure the relationship between my variables. This test allows me to analyze the levels of correlation between the independent variables and to test for multicollinearity. By observing the correlation coefficient I determine if there is a

linear dependence between my variables. Appendix 2 shows the levels of correlation between my variables. It is important to note the high correlation between corruption and GDP per capita, a value of 0.75.

I test my two hypotheses with two models. I use a time series OLS regression analysis, which I use to produce an equation that will predict my dependent variable (human trafficking behavior of a source country or out degree) using one or more independent variables (level of unemployment, education, income, GDP, disease outbreaks, war, natural disasters, and corruption) over time. This equation has the form  $y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + e$ , where  $y$  is out degree and  $x_1, x_2, x_3, x_4, x_5, x_6$  and  $x_7$  are the independent variables I am using to predict  $y$ .  $b_1, b_2, b_3, b_4, b_5, b_6$  and  $b_7$  are the coefficients that describe the size of the effect the independent variables are having on  $y$ .  $a$  is the value  $y$  is predicted to have when all independent variables are equal to zero, and  $e$  is the error term.

I expect higher levels of corruption and unemployment to have a positive relationship with out degree, and low levels of literacy and GDP per capita to have a negative relationship with out degree. I also expect higher values of disease outbreaks, wars, and natural disasters to have a positive relationship with a country's out degree of human trafficking. These are the variables that most accurately portray vulnerability to human trafficking in countries of the international system.

### ***Results and Conclusions***

This study seeks to explain the conditions that cause a source country to change its human trafficking behavior over time. Using social network analysis I determine the out degree, which is a measurement of the extent to which a country is a supplier of human

trafficking victims. I draw elements from human trafficking theory in order to measure vulnerability, and I find that unemployment is the only variable that supports my hypotheses.

The results of the correlation test show that the variables are not correlated to each other to the point where there could exist multicollinearity, and thus, the variables are not explaining the same phenomenon. I determine this by looking at the low levels of correlation between these variables. A 1.0000 correlation shows a perfect relationship, and a 0.0000 shows that there is no relationship. This analysis also shows the direction of the relationship (positive and negative signs) between my variables.

As presented in Table 2, I test two models using a time series regressions for a total of thirteen years.

**Table 2: Factors that Affect Out Degree of Human Trafficking from 2001-2013**

Variable	Model 1	Model 2
GDP Per Capita logged	5.5263*** (.5029)	4.8954*** (.6263)
Unemployment	.3456*** (.0754)	.3341*** (.0856)
Literacy	.2473*** (.0519)	.2835*** (.0558)
Disease	-	.2339 (.3551)
War	-	-.2339* (.3551)
Natural Disaster	-	-.2115* (.0902)
Corruption	-.3423 (.4003)	-.2552 (.5088)
N	679	467
R2	.2474	.2830

Constant	-61.2350*** (5.4027)	-56.3860*** (6.2758)
----------	-------------------------	-------------------------

Coefficients are reported with standard errors in parentheses

\* significant at < .05    \*\* significant at < .01    \*\*\* significant at < .001

Both models are significant, but the results are different from the ones expected. According to my models, the only variable that supports my theory is unemployment. Thus, countries with lower out degrees were generally those that provide more job opportunities for their populations.

GDP per capita and literacy are significant, but I expected a negative relationship instead of a positive one for both Models. The same is true for participation in wars and natural disasters. I also expected corruption to be statistically significant; to my surprise, it is not.

The direction of the relationship between out degree and GDP per capita could be explained by this independent variable's parabolic nature. This way, countries with low GDP per capita present low out degrees. This could be because, taking Madagascar as an example, traffickers don't look for victims from very poor countries since they lack world and appeal. On the other end of the spectrum, we have countries such the United States, which has a very high GDP per capita and zero out degree. This is probably because wealthy countries provide the demand and not the supply of victims since their populations are not vulnerable. In the middle we have countries such as Colombia, which is not a rich or a poor country and shows high out degree. This is probably because these victims are more appealing and come from backgrounds where they have been exposed to a multitude of situations that don't make them as dull or uninteresting as Madagascan victims. Those who consume the services of both prostitutes and domestic workers often have an interest

in the *person* of the worker, rather than simply the product of their labor. The worker's age, gender, race, nationality, caste, and/or ethnicity, as well as her/his appearance, demeanor and linguistic capacities can matter a great deal to those who buy sex or employ a domestic worker (Anderson & Davidson, 2003).

The future direction of this paper includes accounting for interaction effects between variables. It is also necessary to take into account the size of the population of each country in the network. The fact that corruption is not significant remains a mystery that we need to further study, as well as the direction of the relationships between variables such as GDP per capita, literacy, natural disasters, participation in wars and disease outbreaks.

### ***Works Cited***

Ades, A. and Di Tella, R. (1994) "Competition and Corruption" Oxford: Oxford University

Institute of Economics and Statistics Press.

Aghatise, E. (2004) "Trafficking for Prostitution in Italy" *Violence Against Women* 10:

1126-1156.

Akee, R., Basu, A., Bedi, A., and Chau, N. (2014) "Transnational Trafficking, Law

Enforcement, and Victim Protection: A Middleman Trafficker's Perspective."

*Journal of Law and Economics*. 57(2): 349-386.

Anderson, B., and Davidson, J. (2003) *Is Trafficking in Human Beings Demand Driven? A*

*Multi-Country Pilot Study*. Geneva: International Organization for Migration.

Arquilla, J. and Ronfeldt, D. (2001). *Networks and Netwars: The Future of Terror, Crime*

*and Militancy*. Santa Monica: RAND Corporation.

Bales, K. (2003) "Understanding the Demand Behind Human Trafficking" paper presented

at the National Institute of Justice. [info@freetheslaves.net](mailto:info@freetheslaves.net)

Bales, K. (2004) *Disposable People: New Slavery in the Global Economy*. Berkeley:

University of California Press.

Bales, K. (2005) *Understanding Global Slavery*. Berkeley: University of California Press.

Baroud, R. (2009) "Beyond Politics: People for Sale in a Hungry World." *Al Jazeera Magazine* available at: <http://english.aljazeera.com/news/articles/39/Beyond-politics-People-for-sale-inhungry-world.html>

Becker, G. (1968) "Crime and Punishment: An Economic Approach." *Journal of Political Economy*. 3: 169-217.

Belser, P., Danailova-Trainor, G. (2006) "Globalization and the Illicit Market for Human Trafficking: An Empirical Analysis of Supply and Demand." Geneva: International Labour Office.

Beyrer, C. (2001) "Shan Women and Girls and the Sex Industry in Southeast Asia: Political Causes and Human Right Implications." *Social Science and Medicine*. 53: 543-550.

Broderick, P. (2005) *Identifying Factors in Human trafficking*. Boca Raton: Dissertation.com

Chakrabarti, R. (2000) "A Theory of Corruption". *Computing in Economics and Finance 2000*. Edmonton: University of Alberta Press.

Chuang, J. (2006) "Beyond a Snapshot: Preventing Human Trafficking in the Global Economy." *Indiana Journal of Global Legal Studies* 13(1): 137-163.

de Nooy, Wouter, Andrej Mrvar, and Vladimir Batagelj. (2005) *Exploratory Social Network Analysis with Pajek, Structural Analysis in the Social Sciences*. Cambridge, UK: Cambridge University Press.



Degenne, Alain, and Forse. (1999) *Introducing Social Networks*. Translated by Arthur Borges. Thousand Oaks, CA: Sage Publications.

Demleitner, N. (2001) "The law at a crossroads: the construction of migrant women trafficked into prostitution." in D. Kyle and R. Koslowski (Eds), *Global Human Smuggling: Comparative Perspectives*. Baltimore: Johns Hopkins University Press. 257-293.

Di Nicola, A., Orfano, I., Cauduro, A. and Nicoletta C. (2005) "Study on Narostitution and the Trafficking in Women and Children", Milano: Transcrime.

Dottridge, M. (2003) *Deserving Trust: Issues of Accountbaility for Human Right NGOs*. Switzerland: International Council on Human Rights.

Ejalu, W. (2006) "From Home to Hell: The Telling Story of an African Woman's Journey and Stay in Europe." in K. Beeks and D. Amir (Eds), *Trafficking and the Global Sex Industry*. New York: Lexington Books.

Feingold, D. (2005) "Think Again: Human Trafficking" *Foreign Policy*. 150(32): 26-30.

Flowers, R. (2001) "The Sex Trade Industry's Worldwide Exploitation of Children" *Annals of the American Academy*. 575: 147-157.

Gallagher, A. (2011) "Improving the Effectiveness of the International Law of Human Trafficking: A Vision for the Future of the US Trafficking in Persons Reports."

*Human Rights Review* 12(3): 381-500.

Granovetter, M. S. (1973). "The Strength of Weak Ties." *The American Journal of Sociology*, 78, 1360-80

Gruber, H., Palonen, T., Rehl, M., & Lehtinen, E. (2007) "Understanding the nature of expertise: Individual knowledge, social resources and cultural context". In H. Gruber & T. Palonen (eds), *Learning in the workplace - new developments* (pp. 171-88). Turku: Finnish Educational Research Association (FERA).

Hellman, J., Jones, G. and Kaufman, D. (2000) "Seize the State, Seize the Day: State Capture, Corruption and Influence in Transition Economies" *World Bank Policy Research Working Paper No. 2444*. Washington D.C: World Bank Press.

Hellman, J., Kaufman, D. (2001) "Confronting the Challenge of State Capture in Transition Economies" *Finance and Development*. 38(3): 31-36.

Hodge, DR. (2008) "Sexual Trafficking in the United States: A Domestic Problem with Transnational Dimensions." *Social Work* 53(2): 143-152.

Hughes, D. (2004) *The Demand: Where Sex Trafficking Begins*. Rome: Pontifical Gregorian University Press.

Hughes, D., and Denisova, T. (2001) "The Transnational Political Criminal Nexus of Trafficking in Women from Ukraine." *Trends in Organized Crime*. 6: 43-67.

Huntington, S. (1986) "Political Order in Changing Societies" New Haven: Yale University Press.

Inglehart, R. and Welzel, C. (2005) "Modernization, Cultural Change, and Democracy"  
New York: Cambridge University Press.

ILO, International Labour Organization. (2003) *Trafficking in Human Beings: New Approaches to Combating the Problem: Special Action Programme to Combat Forced Labour*. Geneva: ILO.

Kanics, J., Reiter, G. (2001) *Significant Achievements in the Fight against Trafficking in Human Beings* 12 (2): 112-121.

Kelly, L. (2002) *Journeys of Jeopardy: A Review of Research on Trafficking in Women and Children in Europe*. London: University of North London Press.

Kelly, L. (2003) "The wrong debate: reflections on why force is not the key issue with respect to trafficking in women for sexual exploitation." *Feminist Review* 173:139-144.

Krebs, V. (2001) "Mapping Networks of Terrorist Cells." *Connections* 24 (3):43-52.

Kwong, P. (1997) *Forbidden Workers: Illegal Chinese Immigrants and American Labor*. New York: The New York Press.

Kyle, D., and Dale, J. (2001) "Smuggling the State Back In: Agents of Human Smuggling

- Reconsidered.” in D. Kyle and R. Koslowski (Eds), *Global Human Smuggling: Comparative Perspectives.* ” Baltimore: The John Hopkins University Press.
- Lipset, S.M. (1959) “Some Social Requisites of Democracy” *American Political Science Review.* 53(1): 69-105.
- Lipset, S.M. (1963) “Political Man: The Social Basis of Politics” Anchor Books: New York.
- Masci, D. (2006) *Human Trafficking and Slavery.* Thousand Oaks: SAGE Publications.
- Mauro, P. (1995) “Corruption and Growth” *Quarterly Journal of Economics.* 110(3): 681-712.
- Miller, J. (2006) “Slave Trade: Combating Human Trafficking” *Harvard International Review.* 27(4): 70-73.
- Monzini, R. (2004) “Trafficking in Women and Girls and the Involvement of Organized Crime in Western and Central Europe.” *International Review of Victimology* 11: 73-88.
- Moore, H. (1994) “Is there a crisis in the family?” Occasional Paper No. 3. Geneva: UNRISD.
- Murphy, K., Schleifer, A. and Vishny, R. (1993) “Why is Rent-Seeking So Costly to Growth?” *American Economic Review.* 83(2): 409-414

National Agency for the Prohibition of Traffic in Persons in Nigeria (NAPTIP). (2013)

*Database Analysis Report 2013*

Okonofua, F., Ogbomwan, S., Alutu, A., Kufre, O., and Eghosa, A. (2004) "Knowledge, Attitudes, and Experiences of Sex Trafficking by Young Women in Benin City, South-South Nigeria." *Social Science and Medicine*. 59: 1315-1327.

Pearce, D.; Davis, J. (2000) "The Role of the Non-Farm Rural Sector in the Reconstruction of the Balkans" *Economic Policy in Transition Economies* 10(2): 207-228  
Norwell: Kluwer Academic Publishers.

Piore, M.J. (1979) *Birds of passage: Migrant labor in industrial societies*. New York: Cambridge University Press.

Protection Project. (2014) *The Protection Project Review of the Trafficking in Persons Report 2014*. Washington DC: John Hopkins University Press.

Ravenstein, E. (1889) "The Laws of Migration" *Journal of the Statistical Society of London* 48(2): 167-225.

Richards, K. (2004) "The Trafficking of Migrant Workers: What Are the Links Between Labour Trafficking and Corruption?" *International Migration* 42(5): 147-168.

Roby, J. (2005) "Women and Children in the Global Sex Trade" *International Social Work*.

48: 136-147.

Rose-Ackerman, S., Stone, A. (1996) "The Costs of Corruption for Private Business:

Evidence from World Bank Surveys" Washington D.C.: The World Bank Press.

Salah, R. (2004) "Child Trafficking: A Challenge to Child Protection in Africa", paper

presented at the Fourth African Regional Conference on Child Abuse and Neglect,

Enugu.

Schloenhardt, A. (1999) *Organized Crime and the Business of Migrant Trafficking: An*

*Economic Analysis*. Canberra: Australian Institute of Criminology.

Síle, N. (2006) "Human Trafficking: A Twenty-First Century Slavery" *The Furrow*.

57(10): 528-537.

Sparrow, M. (1991) "The Application of Network Analysis to Criminal Intelligence: An

Assessment of the Prospects." *Social Networks* 13(3): 251–274.

United Nations Office on Drugs and Crime (UNODC). (2009) *Trafficking in Persons:*

*Analysis on Europe*. Vienna: UN Press.

UNODC. (2011) *The Role of Corruption in Trafficking in Persons*. Vienna: The United

Nations.

Wasserman, S., & Faust, K. (1994) *Social network analysis: Method and applications*.

Cambridge: Cambridge University Press.

Wheaton, E., Shauer, E., Galli, T. (2010) "Economics of Human Trafficking." *International Migration* 48(4): 114-141.

World Bank (1997) "The State in a Changing World" *World Development Report 2007*.

Oxford: Oxford University Press.