Final Report

Estimating Human Trafficking into the United States: Development of a Methodology

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810 Seventh Street, NW
Washington, DC 20531

Submitted by:
Caliber,
an ICF International Company
10530 Rosehaven Street
Suite 400
Fairfax, VA 22030-2840

AUTHORS:

Heather J. Clawson
Caliber, an ICF International Company

Mary Layne
Consultant

Kevonne Small
Consultant

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ESTIMATING HUMAN TRAFFICKING INTO THE UNITED STATES: DEVELOPMENT OF A METHODOLOGY

1. INTRODUCTION

The purpose of this study was to develop and fully document methods to estimate the number of females and males trafficked for the purposes of sexual and labor exploitation from eight countries (Colombia, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Peru, and Venezuela) into the United States at the southwest border. The decision to limit the regions of interest for this study to the eight countries of origin and to one entry point into the United States was based on reported trafficking activity in the eight countries of origin, data limitations, and the need to focus the scope of work to a demonstration project. This research represents the first phase of a two-phase project and

- Provides a conceptual framework for identifying potential data sources to estimate the number of victims at different stages in trafficking
- Develops statistical models to estimate the number of males and females *at risk* of being trafficked for sexual and labor exploitation from the eight countries, and the number of males and females actually trafficked for sex and labor
- Incorporates into the estimation models the transit journey of trafficking victims from the eight countries to the southwest border of the United States
- Designs the estimation models such that they are highly flexible and modular so that they can evolve as the body of data expands
- Utilizes open source data as inputs to the statistical model, making the model accessible to anyone interested in using it[1]
- Presents preliminary estimates that illustrate the use of the statistical methods
- Illuminates gaps in data sources.

The second phase of the research will incorporate enhancements (based, in large part, on peer responses to this report) to the methods and data sources described in this report and expand the scope to other countries (Eastern and Central Europe) and to other points of entry into the United States. Phase II research will also develop methods that describe movement of victims once in the United States.

[1] If an agency has classified data it would like to incorporate, we will share the SAS programming code used to generate estimates.

Many of the limitations of the methods stem from the lack of data for trafficking, requiring the use of plausible assumptions when specific data are missing. There are even less data available for labor trafficking than for sex trafficking, leaving us with little confidence in preliminary estimates from the labor model. The labor estimates should be viewed as illustrative of the modeling process. Both model estimates can be made more robust as more data become available.

Background and Scope of the Problem

The United States is widely regarded as a destination country for trafficking in persons, yet the exact number of human trafficking victims within the United States has remained largely undetermined since passage of the Trafficking Victims Protection Act (TVPA) in 2000. Initial estimates cited in the TVPA suggested that approximately 50,000 individuals are trafficked into the United States each year. This number was reduced to 18,000–20,000 in the U.S. Department of State's June 2003 *Trafficking in Persons Report.* In its 2005 report, the Department of State's Office to Monitor and Combat Trafficking in Persons cites 14,500–17,500 individuals annually. These shifting figures call into question the reliability of estimates and have potential consequences for the availability of resources to prevent human trafficking, prosecute traffickers, and protect and serve victims of this crime.

Due to the covert nature of the crime, accurate statistics on the nature, prevalence, and geography of human trafficking are difficult to calculate. Trafficking victims are closely guarded by their captors, many victims lack accurate immigration documentation, trafficked domestic servants remain "invisible" in private homes, and private businesses often act as a "front" for a back-end trafficking operation, which make human trafficking a particularly difficult crime to identify and count. A method to obtain valid and reliable estimates of this inherently hidden problem is critical for planning and assessing national and international interdiction and prevention initiatives.

This report is organized in six sections. The next section presents results of a literature review and features a review of relevant prosecuted legal cases. Sections three and four describe the qualitative and quantitative methods used to develop the estimation models. Section five discusses the data used in each of the models while section six presents estimates from the models, as well as estimates of trafficking *out* of the United States, to test the validity of the models. Section seven provides a summary of the research, limitations of the models, and recommendations for improving them.

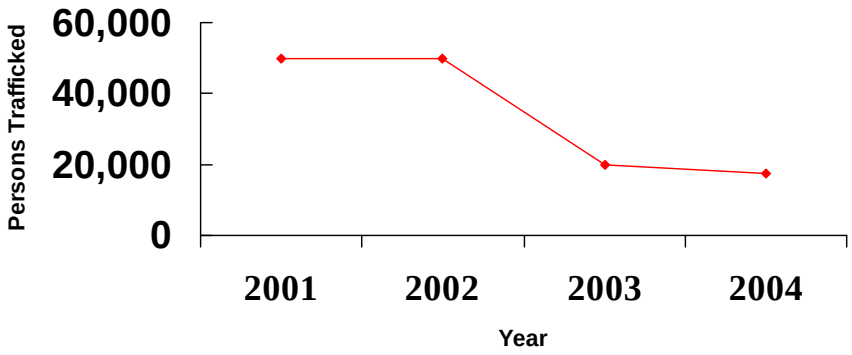
1. LITERATURE REVIEW

Reported estimates of the prevalence of human trafficking worldwide, and specifically into the United States, were reviewed to assess the state of knowledge of the field. The research team reviewed published and unpublished papers, Web sites of Federal agencies and nongovernmental organizations (NGOs), and prosecuted legal cases that involved acts of human trafficking. This information is presented in four parts: the prevalence of human trafficking into the United States, international research studies, barriers to estimating the prevalence of human trafficking, and a review of prosecuted legal cases.

2.1 Reports on the Prevalence of Human Trafficking into the United States

The *Trafficking in Persons Report*, which is published annually, shows considerable fluctuation in official yearly estimates of human trafficking into the United States, as illustrated in Exhibit 1.[2]

EXHIBIT 1
***TRAFFICKING IN PERSONS REPORT* YEARLY ESTIMATES OF HUMAN TRAFFICKING INTO THE UNITED STATES**



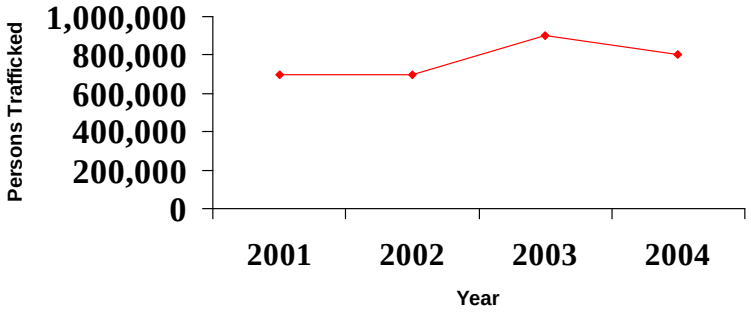
According to the 2001 *Trafficking in Persons Report*, there were between 45,000 and 50,000 persons trafficked into the United States in 2000 (reported estimates are for the previous year's activity). The 2002 report stated that 50,000 females were trafficked into the United States for sexual exploitation, the first year the estimate clearly indicated it did not include labor trafficking or adult males. In earlier reports, no distinction was made between those trafficked for sex or labor or whether these persons were men or women. In 2003, the *Trafficking in*

[2] "Official" as used here refers to estimates that are provided by the United States government and widely cited in many papers, reports, and conference presentations.

Persons Report estimate of persons trafficked into the United States significantly dropped to between 18,000 and 20,000. The number dropped again in 2004 when the *Trafficking in Persons Report* estimated between 14,500 and 17,500 persons were trafficked into the country. Estimates were not updated in the 2005 or 2006 *Trafficking in Persons Report*.

The 2001 and 2002 *Trafficking in Persons* reports estimated worldwide trafficking to be 700,000, which increased to a range of 800,000 to 900,000 in the 2003 report then decreased to a range of 600,000–800,000 in 2004. Exhibit 2 shows that worldwide estimates of human trafficking have remained essentially constant, while U.S. estimates declined 66 percent between 2001 and 2004. International estimates were not updated in the 2005 or 2006 *Trafficking in Persons Report*.

EXHIBIT 2
***TRAFFICKING IN PERSONS REPORT* YEARLY ESTIMATES OF WORLDWIDE HUMAN TRAFFICKING**



Although the *Trafficking in Persons Report* is considered to be the most comprehensive anti-trafficking review issued by any single government (Laczko and Gramegna, 2003), its greatest contribution to research methods for studies on the magnitude of human trafficking is its description of data collection activities. The Federal government has employed various data collection activities to generate the estimates presented here, and Exhibit 3 details these methods by year of implementation.

EXHIBIT 3
U.S. DATA COLLECTION ACTIVITIES

Year	Interviews	Document review	Focus groups	Panel discussion	E-mail	ACCESS database	Regional site visits
2001	X	X	X				
2002	X	X	X	X	X		
2003	X	X	X	X	X	X	X
2004	X	X			X	X	X

Beginning in 2001, U.S. data collection methods primarily included interviews, document review, and focus groups. The Department of State requested information from 186 U.S. embassies and consulates. The embassy reports reflected discussions with host governments, local NGOs, immigration officials, police, journalists, and victims. Documents reviewed included government, press, and NGO reports. Also consulted were reports from the Department of State's Bureau of International Narcotics and Law Enforcement Affairs; the Bureau of Democracy, Human Rights, and Labor; the regional bureaus; the intelligence community; the Office of the Legal Advisor; UNICEF; United Nations High Commissioner for Refugees; International Organization for Migration; Human Rights Watch; Amnesty International; Protection Project; and the media.

In 2002, panel discussion was added to data collection activities and an electronic mail account was established to assist with collecting data. The panel was staffed from the *Trafficking in Persons Report* office, the intelligence community, and other U.S. government agencies and departments such as the Department of Justice (DOJ); Department of Health and Human Services (DHHS); Bureau of Democracy, Human Rights, and Labor; Bureau of Population, Refugees, and Migration; and Office of the Legal Advisor. The Department of State created a special e-mail account for NGOs and other organizations to report their experience with human trafficking cases.

In 2003, the Department of State added regional site visits to its data collection activities and established a Microsoft ACCESS trafficking database. The database contained reports of specific trafficking incidents, numbers of repatriated victims, estimates for victims worldwide, and victim demographics derived from analysis of information from news media, governments, NGOs, international organizations, and academic reports from 2000 to 2003.

Data collection activities were further refined in 2004, yet no substantive explanation of how estimates are generated were provided. In 2004, the U.S. government reported that Monte Carlo simulation technique was used to help generate estimates (U.S. Department of Justice, 2004), but provided no further elucidation on the specifics of the model or the data employed in it. A recent GAO report calls into question U.S. government estimates, stating "The accuracy of the estimates is in doubt because of methodological weaknesses, gaps in data, and numerical discrepancies." (GAO, 2006, pg. 2) While researchers conducting studies on the magnitude of human trafficking are provided with explanations for how data are collected, they are not provided a detailed description of methods for calculating estimates.

To find additional estimates of the prevalence of human trafficking into the United States, the research team reviewed various literature accessible from Federal agency Web sites (e.g.,

Department of State, DOJ Criminal Section, and DHHS Office of Refugee Resettlement), nongovernmental Web sites (e.g., International Organization for Migration, Free the Slaves, Polaris Project, and University of Pennsylvania School of Social Work), and the United Nations. In this literature, the reported estimates generally cited the *Trafficking in Persons Report* as their source, or cited work that relied on *Trafficking in Persons Report* estimates. Therefore, the official *Trafficking in Persons Report* estimates are the only estimates currently available, and few prominent studies have added to this body of literature.

The Department of State recently hosted a Seminar on Trafficking in Persons Research attended by experts in human trafficking research from international organizations, NGOs, academic institutions, and government agencies (U.S. Department of State, 2005a). The purpose of the seminar was to discuss existing data and methods, challenges, data gaps, and ways to measure success in combating human trafficking. This seminar demonstrated that researchers are beginning to document data collection activities and report statistical methods for estimating the prevalence of human trafficking. As a consequence, the literature related to human trafficking is expected to grow. A brief summary of key meeting findings can be accessed at http://www.state.gov/g/tip/rls/fs/2005/59133.htm.

2.2 International Research Studies

Trafficking research has been undertaken for most major regions of the world, with 44 percent of regional studies based in Europe, 35 percent in the Asia-Pacific area, 13 percent in Africa, 7 percent in the Americas, and 1 percent in the Middle East (Laczko and Gozdziak, 2005). International trafficking estimates dominate internal country estimates and only the Netherlands and Germany provide national trend estimates over several years. The data used to generate these estimates are limited to cases of trafficking in women for prostitution (Laczko and Gozdziak, 2005).

Relatively few of the international research studies describe issues related to methods and data collection techniques for this hard-to-reach population. One notable exception is research by Brunovskis and Tyldum (2004) in which they used capture-recapture techniques to estimate the number of Eastern and Central Europe prostitutes in Oslo, Norway. The capture-recapture technique is used to arrive at estimates of the size of an unknown population of mobile individuals. An initial sample of the population in question is measured (with a sample survey or via observation). A second sample is taken and if the same individuals are observed on both the first and second occasions, it is assumed the actual population is not much different than the total number of observed individuals. If there is little overlap between the first and second observation points, researchers can assume there is a significant unobserved population. Statistical weights are generated to determine the size of the total population. The primary

limitation to the capture-recapture technique is the assumption that all samples are independent, with each individual having the same probability of being observed. When the individuals counted during the first sampling period (capture) re-mix with their own community, they have the same probability of being re-sampled (recaptured) during the second sample period (Khan, Bhuiya, and Uddin, 2004).

Estimates for other hidden populations, such as illicit drug users, also provide a wealth of detail about methods. These studies (Rhodes, Layne, and Johnston, 1999) often rely on national data that are routinely collected by the U.S. Government and widely available to researchers. They also employ large-scale sample surveys of known drug users (Rhodes, Layne, and Johnston, 1999). These methods are less relevant for estimating human trafficking because of the paucity of human trafficking data available.

2.3 Barriers to Estimating the Prevalence of Human Trafficking

A review of the literature on measuring the prevalence of human trafficking both into the United States and worldwide reveals that researchers are faced with numerous challenges that make the generation of estimates an extremely difficult task. What follows are some of the known barriers to collecting and reporting reliable data on human trafficking. This discussion is not meant to be exhaustive.

Data Are Frequently Program-Specific and Duplicates

Human trafficking data obtained from victim service organizations are often non-comparable and contain duplicate counts. Furthermore, service organizations use varying definitions in determining who is a victim of human trafficking, report data only for those victims who have received trafficking services, and report data for varying time periods (Kangaspunta, 2003; Laczko and Gramegna, 2003). Multiple organizations may also serve and report data for the same victim. For example, if Program A offers services to Client X, then Client X also receives services from Program B, both Programs A and B will count Client X as a victim of human trafficking. If these data are then reported to a Federal agency, it is likely Client X's data will be duplicated.

Researchers relying on data from government agencies risk using data that are not consistently captured across agencies and may include duplicate counts. However, some argue that program data are the best data available on this hidden crime (Laczko and Gramegna, 2003). The Federal government is working to improve data collection activities by requiring agencies such as the Office for Victims of Crime (OVC) and the Office for Refugee Resettlement (ORR) to report data collected from their trafficking services grantees. OVC and ORR are working

together to streamline data collection activities and reduce some of the error commonly found in program data. These data help inform the DOJ annual report, *Assessment of U.S. Activities to Combat Trafficking in Persons* (U.S. DOJ, 2003, U.S. DOJ, 2004; U.S. DOJ, 2005). As data collection activities improve, better quality data will be available to generate estimates.

Estimates Only Include Women and Children for Sexual Exploitation

Estimates on the number of persons being trafficked often only include data on women and children who are being sexually exploited. Data on men, boys, persons who are trafficked for other work (e.g., agriculture, sweat shops, domestic work, servile marriage), and those who are trafficked within borders are excluded. Focusing only on women and children who are sexually exploited fails to account for the larger number of persons likely to be trafficked, and does not bring enough attention to helping these victims (Bales, 2005; U.S. Department of State, 2005a). For example, a study found that 10,000 men, women, and children are laboring against their will as prostitutes, farm and sweatshop laborers, and domestic workers in the United States (Tuller, 2005).

A common misconception is that males migrate and females are trafficked, yet trafficking applies to both males and females. Males often face abusive and exploitative labor conditions once in the United States, while females are identified more often as trafficking victims because of their increased vulnerability to sexual and physical abuse. The journey can be dangerous for both males and females, but because of the social role of females, they are often forced into positions that males are not. For example, *The New York Times* (Thompson and Ochoa, 2004) reported on a bleak sea voyage from Ecuador to Guatemala. While both men and women were subjected to overcrowding, poor sanitation, and little or no food, many of the women were forced to provide sexual favors to crew members.

Smuggling versus Trafficking

People who are smuggled are traveling voluntarily, whereas people who are trafficked are coerced in some way, either taken by force or deceived. Deception is the most prevalent form of trafficking, with traffickers often posing as brokers offering to find legitimate work in the United States for young females. Upon arrival, victims discover that they are expected to provide sex and often are brutalized in transit by traffickers to ensure their acquiescence.

Smugglers, by contrast, facilitate entry into the United States by providing transportation or supplying false passports. Often, both men and women are forced into some type of servitude once in the United States to pay the debt incurred in the smuggling process (Tuller, 2005). Another common misconception is that females are trafficked (or smuggled) only for the sex

industry. Women are forced into servitude work that includes prostitution, domestic work, sweatshops and factories, strip clubs, and mail order brides (Bales, 2004). In contrast, servitude work for men usually involves labor only, typically in agriculture, restaurants, and the service industry (Bales, 2004).

Human Trafficking Is an Underreported Crime

Many cases of human trafficking go undiscovered and unreported, which can be attributed to the low priority many countries give to combating human trafficking (Laczko and Gramegna, 2003). Many countries have inadequate or no legislation, witnesses who are unwilling to testify, or law enforcement personnel who are not motivated or trained to investigate human trafficking cases. The United States is regarded as a leader in the area of human trafficking legislation, with the TVPA viewed as model legislation. However, studies have yet to be conducted on the impact of the TVPA (Is it being utilized? Has it led to an increase in prosecutions and convictions?), and law enforcement personnel still need training in how to identify and investigate cases of human trafficking. Unless a crime of human trafficking is reported somewhere in the criminal justice system, it may never become part of the official record (Kelly, 2002).

Inconsistent Definition of Human Trafficking

Until recently, there has been little agreement on how to precisely define human trafficking (Richard, 1999). Prior to the 1990s, trafficking was generally viewed as a form of human smuggling and a type of illegal migration (Laczko and Gramegna, 2003; Vayrynen, 2003). Today, the United Nations Protocol to Prevent, Suppress, and Punish Trafficking in Persons has defined trafficking distinctly from smuggling. However, many practitioners in the field (e.g., law enforcement, service providers, and prosecutors) still debate the terminology for classifying people whose experience did not initially begin or end as a trafficking experience (Kangaspunta, 2003). Also, some acts of trafficking involve both sex and labor components. For example, a domestic worker who is forced into an involuntary work situation may also be made to engage in sexual conduct. Problems associated with defining someone as a victim of human trafficking, and then as a victim of sex trafficking versus labor trafficking, result in data being inconsistently recorded.

Limited Access to Traffickers

Trafficking is illegal and often associated with organized crime; therefore, gaining access to traffickers and information about routes, key persons involved, and practices is severely limited, if not impossible (Kelly, 2002). Information is supplied primarily by victims who,

because of their traumatic experience (e.g., isolation, mental torture, and physical abuse), may not remember information accurately, or may not have been privy to the inner workings of the trafficking operation. Methods to adequately study traffickers (e.g., ethnographies, undercover operations) pose dangers for researchers and, as a result, are rarely undertaken (Kelly, 2002).

Reluctance to Share Data

There is reluctance on the part of agencies within countries and between countries to share trafficking data (Richard, 1999). Because the U.S. government publishes the *Trafficking in Persons Report*, ranking countries based on their efforts to combat human trafficking, some countries may have political reasons for their unwillingness to share data or to be selective in the data they choose to share. Within the United States, some law enforcement and prosecution agencies and service organizations may be reluctant to share data because of privileged communications, victim confidentiality concerns, or an unwillingness to share sensitive strategies and practices. Some countries may simply be unwilling to share data because they do not wish to open themselves to public scrutiny over their efforts to combat trafficking.

Inability to Obtain U.S. Government Data

There are rich sources of data within U.S. government agencies (e.g., Immigration and Customs Enforcement [ICE]) that are unavailable to researchers. Obtaining these data requires a strong advocate for the research within the agency (Layne, Rhodes, and Chester, 2000) and extensive Memoranda of Understanding, which can be time-consuming to obtain. Researchers must rely instead on published reports and secondary data analysis. These data are not detailed enough, and frequently are only point estimates, to be of much use. Being able to analyze primary data from government agencies would increase the precision of research studies.

Technical and Financial Assistance Is Needed for Data Collection and Standardization

Organizations, especially those in developing countries, need technology and funding to develop data collection protocols, hire staff to collect the data, and establish statistical systems to store data. Furthermore, a mechanism to coordinate and standardize various indicators of human trafficking and data collection systems is needed (Laczko and Gramegna, 2003). Surveys are often used to collect local, national, and international data; therefore, to incorporate and analyze these disparate survey data, surveys need to adopt similar methods (e.g., sampling technique, common instrument development) (Ruwanpura and Pallavi, 2004).

The development of methods for research on human trafficking remains in its infancy as data on human trafficking are based primarily on overviews, commentaries, and data from service providers rather than well-designed sociological studies (Kelly, 2002). This lack of strong research is particularly problematic as policy responses to human trafficking are developing rapidly.

3. QUALITATIVE METHODS

Our approach moved from the general to the specific, starting with a literature review and input from advisors and culminating with development of a method that is illustrative of the problems inherent in modeling human trafficking. The approach included four key steps:

1. The team conducted a targeted literature review of human trafficking estimates, including existing models that have been used to estimate the prevalence of human trafficking, and human trafficking indicators (discussed in Section four).
2. The team conducted an extensive review of prosecuted trafficking cases into the United States. Information from the literature review and review of prosecuted cases generated a preliminary list of data variables and sources for the study.
3. The team presented this information to the Technical Advisory Group (TAG), whose feedback was used to refine the literature review, the variables of interest, and the regions included in the study.
4. The team collected additional data from key stakeholder interviews in San Diego, California, and Tijuana, Mexico.

Using the information gathered, we developed four estimation models for each of the eight countries(trafficking for sexual exploitation and labor exploitation, separately for males and females) and generated preliminary estimates. A detailed description of the models and the initial estimates are presented in Sections 5 and 6 of this report.

3.1 Review of Prosecuted Legal Cases

To inform and lend support for the assumptions built into the estimation model, a review of published legal cases that involved acts of human trafficking was conducted. To obtain these cases, the research team searched the Internet, the LexisNexis legal database, and the DOJ Civil Rights Division Web site. Nineteen cases were selected for final review, based primarily on information the case provided on trafficking routes from the countries of interest and feedback from the National Institute of Justice and the research team's Technical Advisory Group (TAG).

Additionally, data on the trafficking route, type of trafficking case, identification of the victim's gender, and stakeholders involved in the investigation and prosecution of the case were reviewed, as shown in Exhibit 4.

Of the 19 cases reviewed, data were most available on Mexico, sex trafficking, and female victims. Sixteen cases identified Mexico either as a source or transit zone country, 11 cases involved sex trafficking, and 12 cases clearly identified the victims as female only. These findings support the assertion made by researchers that what is most known about human trafficking involves females and sexual exploitation. Also, these findings suggest that open source data from Mexico are more readily accessible.

Information on key stakeholders involved in a case was documented to highlight the various agencies and organizations that can, and likely do, track human trafficking data. Data from these entities would have been extremely useful when developing the study estimation model, and would be useful for researchers studying the magnitude of this crime in the future. However, because multiple stakeholders handle an individual case, efforts should be made to ensure data are shared across agencies, data systems are compatible, human trafficking indicators are standardized, and no duplicate counts exist.

EXHIBIT 4
REVIEW OF PROSECUTED LEGAL CASES

Case	Route	Case Type	Gender	Stakeholders
U.S. v. Burgos	Mexico --> New Jersey	Sex	Female	Not specified
U.S. v. Cadena	Mexico --> Florida	Sex	Female	Mexican Consulate, local law enforcement, FBI, Immigration and Naturalization Service (INS), NGOs
U.S. v. Carreto	Mexico --> New York	Sex	Female	U.S. embassy in Mexico City, ICE, local law enforcement
U.S. v. Cuello	Mexico --> Arizona --> Florida	Labor	Mix	NGO, Federal agents, Border Patrol, local law enforcement
"Emilio"	Argentina --> Chicago --> Indiana	Labor	Male	NGO, FBI
Flores, et al.	Guatemala --> Mexico --> Arizona, Florida, South Carolina	Labor	Mix	Local law enforcement, NGO, DOJ, Border Patrol, Department of Labor, FBI
U.S. v. Jimenez-Calderon	Mexico --> New Jersey	Sex	Female	Local law enforcement, ICE, NGOs
U.S. v. Lopez-Torres	Mexico --> Texas	Sex	Female	Immigration and Customs Enforcement (ICE)
U.S. v. Luisa Medrano, et al.	Honduras --> Mexico --> Texas --> New Jersey	Labor	Female	Not specified
U.S. v. Martinez-Uresti and DeHoyos	Mexico --> Texas	Sex	Children	Not specified
"Operation Fallen Angel"	Guatemala --> Texas	Sex	Female	Local law enforcement, FBI, INS
U.S. v. Paoletti	Mexico --> New York, Chicago, North Carolina	Labor	Mix	Citizen, local law enforcement, INS, FBI, NGOs
U.S. v. Ramos	Mexico --> Arizona --> Florida	Labor	Mix	U.S. Border Patrol, local law enforcement, Mexican Consulate, DHHS, NGOs
U.S. v. Reyes Rojas	Mexico --> Georgia	Sex	Female	Not specified
U.S. v. Salazar-Juarez	Mexico --> California	Sex	Female	Not specified
U.S. v. Soto	Mexico --> Texas	Domestic servitude, sex	Female	Local law enforcement, DOJ, U.S. Attorney's Office, ICE, FBI, NGOs
U.S. v. Tecum	Guatemala --> Mexico --> Arizona --> SW Florida	Domestic servitude	Female	Local law enforcement, Child and Family Services, INS, FBI, NGO
U.S. v. Valle-Maldonado, et al.	Mexico --> California	Sex	Female	ICE
U.S. v. Zavala	Peru --> New York via illegally obtained visas (transit countries not mentioned)	Labor	Mix	Not specified

3.2 Feedback from the TAG

A TAG was formed to provide insight into the development of a conceptual framework for this project. TAG members were from academic institutions and leading NGOs that work on human trafficking. Throughout the course of the project, the TAG provided the research team with information on literature related to human trafficking estimates and on research methods used for similar studies, and helped identify human trafficking indicators and possible data sources. Overall, the TAG agreed:

- An estimation model for human trafficking that produces valid and reliable estimates is timely and useful so legislation and policies can be data-driven.
- An estimation model must be publicly vetted so it can be refined based on a collective knowledge of human trafficking activity currently taking place in local communities.
- Estimation models used in migration research and other "hidden crimes" research may help inform a human trafficking estimation model, or at least demonstrate barriers to be overcome.
- Most published and unpublished literature reports that the development of human trafficking estimation models are in the infancy stage and that data needed to refine and test these models are generally not collected or accessible to the public.
- Most human trafficking estimates are reported without explanation about how the data were collected and, more importantly, analyzed.
- Barriers to the development of a human trafficking estimation model include political and ideological issues.

The TAG also provided feedback on the types of data that should be collected and possible data sources for each stage of the estimation model. Using what was learned from a review of the literature, a preliminary test of the estimation model, and feedback from the TAG, the research team made considerable attempts to collect additional data and refine assumptions for the estimation model.

3.3 San Diego Site Visit

To collect additional data, the research team conducted a site visit with the Bilateral Safety Corridor Coalition (BSCC) located in San Diego, California, and Tijuana, Mexico. The team observed trafficking activity in "hot spots" with law enforcement officers and service providers to gain a richer understanding of the status of human trafficking in this area.

On a guided trip to Tijuana's prostitution area (prostitution is legal in Tijuana, but it is largely confined to the three-block red-light district), the research team observed that women of many nationalities (e.g., Guatemalan and Salvadoran), not just Mexican women, were prostitutes. The guide pointed out surveillance cameras in a particular area and indicated that the cameras were trained on the woman as a form of intimidation, possibly indicating the women were trafficking victims. He reported that many of the customers are American males who cross the California border to engage in sex acts in Mexico, creating holding points between countries of origin and destination where trafficking activity may take place.

BSCC staff currently is working with local universities to map trafficking routes from Mexico into the United States and showed the research team their maps and explained their data collection methods[3]. BSCC staff visit suspected hot spots and conduct interviews with service providers, advocates, and law enforcement in the suspected areas to better understand the flow of trafficking. This information is recorded in detail by BSCC staff. The research team used the maps BSCC developed to inform the modeling about the possible routes trafficked females may take from their home country.

The site visit to San Diego and Tijuana proved invaluable for obtaining additional data on the region. Observing the activity and meeting with those who are conducting studies to increase understanding of trafficking in this area "brought to life" the data retrieved from the literature. The work BSCC and others are conducting should be continued as research methods and human trafficking indicators improve to increase the volume of available data. In the interim, additional site visits can contribute to shaping assumptions for an estimation model.

4. QUANTITATIVE ESTIMATION METHODS

The following section describes the methods employed for estimating the number of females and males trafficked into the United States for the purpose of sexual and labor exploitation. We limited our model to eight countries of origin (Colombia, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Peru, and Venezuela) and to one entry point into the United States (the southwest border). However, the model can be adapted to include victims from other countries of origin and additional entry points into the United States, as well as for destination countries other than the United States.

[3] Please contact BSCC staff directly for details.

4.1 Trafficking Zones

Trafficking is organized into four *zones* or phases:

- Recruitment from the eight countries of origin (source countries)
- Transit journey
- Arrival at southwest border of the United States
- Transport from southwest border to markets within the United States.[4]

There is a separate model for each phase (Layne, Rhodes, and Johnston, 1999), as well as different data sources, assumptions, and circumstances in the specific zones, as depicted in Exhibit 5. The orange ovals in the exhibit denote source countries and the pink arrows represent the transit journey, which can involve various modes of conveyance (e.g., boat, truck, on foot) in one transit experience. Females, in particular, are held in various transit countries to serve internal sex markets and may never arrive at the southwest border United States. A transit journey may take weeks, months, or up to a year to complete.

Tyldum, Tveit, and Brunovskis (2005) detail distinctions between the states that a victim can occupy in relation to the trafficking process, which are persons at risk of being trafficked, current victims of trafficking, and former victims of trafficking. Due to the paucity of data for the second two states, our model estimates the number of persons *at risk* of being trafficked in each of the eight countries.[5]

[4] This phase is not considered in the current estimation model, but will be investigated in future National Institute of Justice research.

[5] We explored the possibility of estimating U.S. demand for trafficking victims, but there were not enough data available (in the form of sample surveys or arrest data) to accomplish this estimate.

EXHIBIT 5
TRAFFICKING ZONES

The model hypothesized that risk comprises country-specific and age-specific factors (see Appendix A for additional detail). Once the population at risk has been estimated, we calculated the number of females and males who actually are trafficked.

Trafficking victims are vulnerable to promises of greater opportunity, higher income, and a chance to help their families. We attempted to find data that captured the various *push factors* in each source country that would help quantify the risk associated with a particular country. Push factors include disparate economic growth, breakdown of economic systems, and increase in war and armed conflict, environmental degradation, natural disasters, and family violence. We created two different models, one for females and one for males, to account for their different risk factors.

For females, country-specific factors are captured in a composite measure created from the Gini Index (UNDP, 2005), Corruption Perceptions Index (CPI) (Transparency International,

2005), the Gender-related Development Index (GDI) (UNDP, 2005), and the percent of the country that is urban (U.S. Census Bureau, 2005; HIV InSite, 2005). For men, country-specific factors are captured in a composite measure created from the Gini Index, CPI (International Labour Organization, 2005), male unemployment rates (International Labour Organization, 2005), and the Consumer Price Index (International Labour Organization, 2005). The age-specific risk (population data in each of the eight countries of origin are available for 5-year age groups, or 17 age groups in all) is modeled with a Weibull probability distribution (see Appendix A), which is specified differently for males and females. The age-specific risk curve for females rises quickly and peaks at ages 15–19, with risk falling fairly quickly afterward, indicating that risk declines sharply as females marry and create families. The age-specific risk curve for males does not rise as quickly and peaks at 20–24. The curve falls off more slowly, supporting the notion that males of all ages are at risk for trafficking.

Calculating the number of males and females at risk for being trafficked in each of the eight countries overstates those who are *actually* trafficked. We used the country-specific Tier ratings from the *Trafficking in Persons Report* as a crude multiplier to generate the number of males and females trafficked from the at-risk population (see section 5.1 for details).

The Transit Zone Model supplements the Source Zone Model. Because a victim may journey through many transit countries, the model estimates the number of victims who:

- Die in each transit country
- Escape or are rescued in the transit country
- Remain in the transit country for internal use
- Are trafficked to a country other than the United States
- Proceed along to the next transit country.

Exhibit 6 shows, for each source country, what countries we assume victims are trafficked through (except for a small percentage who we assume are flown directly to the United States). For example, a victim who originates in Venezuela may transit through Colombia, Panama, Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, and Mexico, eventually arriving at the United States. We assume a certain percentage of victims who are sent by boat from South America to various countries in Central America, thus bypassing other transit countries.

EXHIBIT 6
TRANSIT COUNTRIES

		Source Countries							
		Peru	**Ecuador**	**Colombia**	**Venezuela**	**Nicaragua**	**El Salvador**	**Guatemala**	**Mexico**
Transits Through	**Peru**								
	Ecuador	X							
	Colombia	X	X		X				
	Venezuela								
	Panama	X	X	X	X				
	Costa Rica	X	X	X	X				
	Nicaragua	X	X	X	X				
	Honduras	X	X	X	X	X			
	El Salvador	X	X	X	X	X			
	Guatemala	X	X	X	X	X	X		
	Mexico	X	X	X	X	X	X	X	

The numbers of victims who cross the southwest border into the United States are at the end point of the Transit Zone Model. Based on observations during our site visit to San Diego, we know that many trafficked females are kept in Mexico in border towns such as Tijuana. These females are not trafficked into the United States per se, but they serve U.S. citizens.

4.2 Statistical Methods

After we reviewed the literature on various methods used to measure hidden populations, we used Monte Carlo (MC) simulation as the basis for estimating the risk, for each of the seventeen age groupings, of being trafficked from each of the eight countries to the southwest border of the United States. Monte Carlo methods allowed us to generate estimates without having to observe the specific process, which is particularly germane to this research because other standard methods, such as conducting sample surveys, are much more difficult with hidden populations.

Monte Carlo simulation is categorized as a sampling method because estimates are generated from probability distributions (e.g., a normal distribution, or bell-shaped curve: height follows a normal distribution) to simulate the process of sampling from an actual population. The key is choosing a distribution for the estimates that most closely matches data you already have, or best represents the current state of knowledge. For determining the risk of being trafficked for specific ages, the distribution that we obtain samples from (using MC methods) is skewed (or shifted) to the left because it is likely that younger females are at a higher risk of being trafficked than older females.

We also employed Monte Carlo simulation in the Transit Zone Model, as transit decision points were reached, to calculate the number of victims who are rescued or escape as they move through each transit country. Appendix A provides the technical detail for the models.

5. DATA SOURCES

This section discusses data sources used in the models. Where there were no data, we made assumptions based on what little information was available. Any of the data or assumptions can be easily changed to generate sensitivity analyses or, as new data become available, inputs can be altered.

5.1 Source Zone Model

This model incorporates two components for the estimated risk of being trafficked—country-specific and age-specific risk. To characterize country-specific risk, we created a measure of vulnerability to trafficking that included as many of the push factors for which we could gather consistent data. We identified three categories of variables:

- Economic indicators—earned income, unemployment, Consumer Price Index (CPI), female labor force participation, external migration, percentage of population living in urban areas, and measures of poverty (earned income, income from public assistance, and poverty threshold values)
- Quality of life (QOL) indicators—level of domestic violence, environmental degradation, and education level
- Crime indicators—drug use, presence of organized crime, human rights violations.

Ideally, the Source Zone Model would incorporate each of the indicators to capture country-specific risk. However, many of these data are unavailable, spotty, or inconsistent from country to country.

Economic Indicators

For females, employment measures are spotty and inconsistent across the eight countries. There are some employment data for males, but it was not available for all eight countries. For both genders, external migration and measures of poverty are either completely missing or impossible to construct. The only two economic indicators we were able to obtain consistent data for the eight countries was the Consumer Price Index and percentage living in urban areas.

Quality of Life (QOL) Indicators

For females, education level is either unavailable and or inconsistently reported among the eight countries (e.g., the few countries for which it is available, education is aggregated into different categories). We used the GDI as a proxy for QOL for females. There are some education data for males, but is aggregated differently for the countries for which it is available, and unavailable for other countries. For both genders, other QOL measures are unavailable.

Crime Indicators

None of the crime indicators were available. We used the Corruption Perception Index to approximate the amount of organized crime and corruption in the eight countries.

Country-Specific Risk Indices for Females

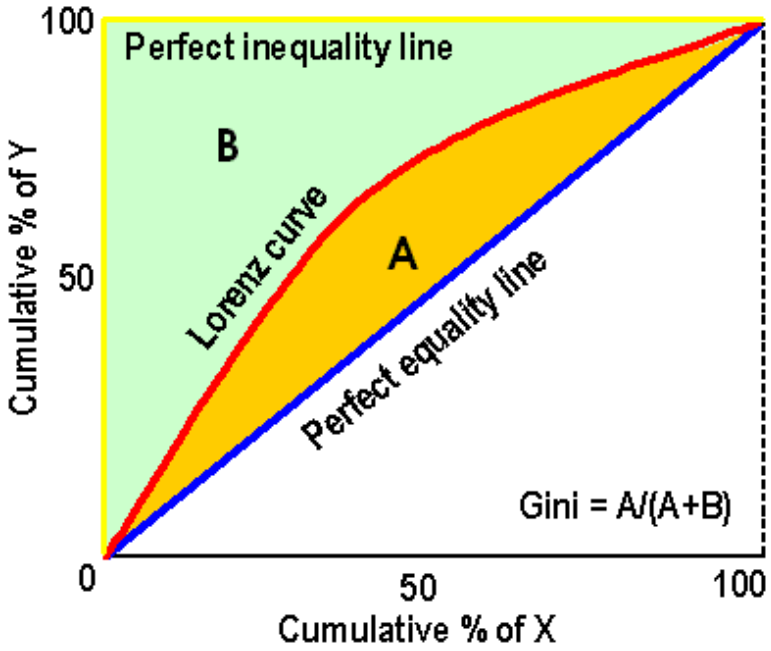
This section presents data used to generate country-specific risk for females. The data discussed here were available for all the source countries.

The Gini Index

The Gini Index measures the extent to which the distribution of income (or consumption) among individuals or households within a country deviates from a perfectly equal distribution. The Gini Index is the primary economic indicator and is the difference between a Lorenz curve and a hypothetical line of absolute equality. A perfectly equal income distribution in a society would be one in which every person has the same income. The lower *n* percent of society would always have *n* percent of the income. Thus, a perfectly equal distribution can be depicted by the straight line $y = x$; this line is the line of perfect equality or the 45 degree line. A perfectly unequal distribution, by contrast, would be one in which one person has all the income and everyone else has none. In that case, the curve would be at $y = 0$ for all $x < 100$, and $y = 100$ when $x = 100$. This curve is the line of perfect inequality. Exhibit 7 shows each of these lines, a Lorenz curve, and the Gini coefficient.

The Gini coefficient ranges from a minimum value of zero, when all individuals are equal, to a theoretical maximum of one in a population in which every individual except one has a size of zero.

EXHIBIT 7
GINI INDEX



Corruption Perception Index (CPI)

The CPI provides data on perceptions of corruption within countries and is the best measure of organized crime that is consistently available for all the source countries. It is a composite index that surveys business people and assessments by country analysts. Each source is considered credible and uses diverse sampling frames and different methods. The index is standardized by experts (Lambsdorff, 2005) and enhances understanding of the real levels of corruption from country to country. The scale starts at zero, which indicates a highly corrupt country, and ranges to a value of 10, which indicates a highly clean country.

Gender-Related Development Index (GDI)

The GDI adjusts the Human Development Index, which measures average achievement, to reflect the inequalities between males and females in various dimensions: a long and healthy life, as measured by life expectancy at birth; knowledge, as measured by the adult literacy rate and the combined primary, secondary, and tertiary gross enrollment rate; and a decent standard of living, as measured by earned income (UNDP, 2005). A value of one denotes complete equality and zero denotes complete inequality.

Country-Specific Risk Indices for Males

For men, we used a slightly different formulation of country-specific risk. In addition to the Gini Index, CPI, and percent urban, we added the percentage of males unemployed in the country, and the Consumer Price Index, which is the economic indicator and a proxy for a cost-of-living index. As the most widely used measure of inflation, the Consumer Price Index is an indicator of the effectiveness of government policy. The base year is 2000 (value=100) and the index year is 2004.

Index Standardization

We created a composite index from all the indices that relate to risk. Each index is drawn from a different distribution and comprises significantly different ranges, which require standardization. Without standardization, the composite index would be biased toward variables with high ranges, and meaningful changes in a value would significantly affect the composite index. We used the Linear Scaling Technique to standardize each index and created the composite index by performing a linear transformation (Salzman, 2003). We used power averaging to create a composite and employ an alpha value that gives greater weight to the index that expresses the most significant degree of risk.[6] Exhibits 8 and 9 detail the female and male indices in their published form and show the composite index is used in the source zone estimation. These exhibits report only the indices for the eight source countries and the United States; however, the standardization was performed for all countries for which data were available. Appendix B specifies the indices for all countries included in the calculation.

The Source Zone Model used the value of 1-composite index as the country-specific multiplier to age-specific risk (see Appendix A for details). Exhibit 8 illustrates that the country-specific risk for females is highest in Ecuador and lowest in Mexico. The mean of the country-specific risk for non-U.S. countries is 0.405 and the country-specific risk for the United States is 0.204.

[6] The formula for creating the power average is as follows:
Composite = $[1/4\ (I(1)^a + I(2)^a + I(3)^a + I(4)^a +]^{1/a}$
Where:
I(1) = index 1 (e.g., Gini Index)
I(2) = index 2
etc.
a = 4

EXHIBIT 8
FEMALE INDICES USED TO DEFINE COUNTRY-SPECIFIC RISK

Country	CPI 0=highly corrupt, 10=highly clean	GDI 0=unequal, 1=equal	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Composite Index	Country-Specific Risk: 1-Composite Index
Colombia	4.0	0.780	57.6	63.6%	0.660	0.340
Venezuela	2.3	0.765	49.1	73.1%	0.643	0.357
Ecuador	2.5	0.751	43.7	18.0%	0.508	0.492
Peru	3.5	0.745	49.8	65.1%	0.602	0.398
El Salvador	4.2	0.715	53.2	39.5%	0.546	0.454
Guatemala	2.5	0.649	48.3	69.0%	0.572	0.458
Nicaragua	2.6	0.683	55.1	55.0%	0.570	0.430
Mexico	3.5	0.804	54.6	75.0%	0.692	0.308
United States	7.6	0.942	40.8	75.2%	0.796	0.204

Exhibit 9 shows the composite index created to estimate country-specific risk for men. Males from Ecuador are at a substantially higher risk than any other country and El Salvador has the second highest country-specific risk. The mean of the country-specific risk for non-U.S. countries is 0.487 and the country-specific risk for the United States is 0.351.

EXHIBIT 9
MALE INDICES USED TO DEFINE COUNTRY-SPECIFIC RISK

Country	CPI 0=highly corrupt, 10=highly clean	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Male Unemployment Rate	Consumer Price Index	Composite Index	Country-Specific Risk: 1-Composite Index
Colombia	4.0	57.6	63.6%	0.106	132.46	0.582	0.418
Venezuela	2.3	49.1	73.1%	0.123	219.89	0.569	0.431
Ecuador	2.5	43.7	18.0%	0.066	171.73	0.296	0.704
Peru	3.5	49.8	65.1%	0.094	108.33	0.523	0.477
El Salvador	4.2	53.2	39.5%	0.087	112.73	0.463	0.537
Guatemala	2.5	48.3	69.0%	0.075	131.79	0.538	0.462
Nicaragua	2.6	55.1	55.0%	0.069	127.31	0.521	0.479
Mexico	3.5	54.6	75.0%	0.023	122.27	0.612	0.388
United States	7.6	40.8	75.2%	0.056	109.70	0.649	0.351

Proportion of At-Risk Population Who Are Trafficked

Definitive data indicating the proportion of males and females *at risk* for trafficking who are actually trafficked are not available. We used each country's tier rating from the 2005 *Trafficking* in *Persons Report* (U.S. Department of State, 2005) as a proxy for the country's protective factors against trafficking. Protective factors include interventions aimed at reducing trafficking, such as public awareness campaigns, increased opportunities for economic development, and level of foreign assistance and aid. In the *Trafficking in Persons Report*, tier

levels are assigned based upon a country's efforts to combat trafficking and compliance with the minimum standards for the elimination of trafficking, as delineated in the TVPA (see Appendix C for full text). A Tier 1 rating is assigned to countries that fully comply with the TVPA's minimum standards; Tier 2 (Special Watch List) rating is assigned to countries that do not fully comply with minimum standards but are making efforts to bring themselves into compliance; and Tier 3 rating is assigned to countries that do not fully comply with minimum standards and are making no significant efforts to do so.

For Tier I countries, we multiplied the at-risk population by 0.1 to obtain the number of males and females who were actually trafficked. For Tier II countries we used a multiplier of 0.2 and for Tier III countries the multiplier was 0.3. Exhibit 10 lists the tier ratings and multipliers for each of the eight source countries and the United States.

EXHIBIT 10
MULTIPLIERS FOR TRAFFICKING

Country	Tier	Multiplier
Colombia	I	0.1
Venezuela	III	0.3
Ecuador	III	0.3
Peru	II	0.2
El Salvador	II	0.2
Guatemala	II	0.2
Nicaragua	II	0.2
Mexico	II	0.2
United States	I	0.1

Percent Trafficked for Sex versus Labor

This report distinguishes between trafficking for sex and labor, while other researchers place sex work under the rubric of labor exploitation (Bales, 2004). While there are cases of individuals, in particular women and children, who are trafficked for both sex and labor, separate models were developed for this study following the TVPA definitions for sex trafficking and labor trafficking.

Finding estimates for the percent of females who are trafficked into the sex industry or for labor exploitation (e.g., domestic labor, sweatshops) is very difficult as there are widely varying numbers in the literature. Kangaspunta (2003) asserts that two percent of females are trafficked for the sex industry and 98 percent for labor. Bales (2004, p. 14) states that "prostitution is the sector in which the largest amount of forced labor occurs in the United States." Bales's research is based on qualitative and quantitative methods and includes a telephone survey of service providers, a survey of newspaper articles, interviews with key

informants, and case studies. Based on Bales's research, we estimated 75 percent of females are trafficked for the sex industry and 25 percent for forced labor. In the model, the 25 percent of females who are trafficked for labor are included with the trafficked males for the transit journey. Additionally, for purposes of developing the methods presented here, the model assumes that all of the males who are trafficked are forced into labor exploitation.

Population Data

Exhibits 11 and 12 provide 2005 population data for the selected countries in each of 17 age categories. Fifty percent of the female population is younger than 25 years old and 52 percent of the male population is younger than 25 years old. Mexico has the largest population, with the population of Colombia (the next highest) being less than half of Mexico's. There are roughly 55 million females and 54.6 million males in the South American study countries, while 67.5 million females and 65.8 million males reside in the Central American countries. Exhibit 13 plots the population for females and men, by age categories.

EXHIBIT 11
FEMALE POPULATION BY AGE CATEGORIES (2005)

Age Category	Country								Total
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico	
0-4	2,167,840	1,152,097	736,874	1,387,942	425,460	1,128,614	324,049	5,351,893	**12,674,769**
5-9	2,189,357	1,210,056	747,969	1,438,359	404,834	1,018,171	326,875	5,386,260	**12,721,881**
10-14	2,159,174	1,305,805	711,099	1,497,055	368,295	887,162	348,302	5,431,358	**12,708,250**
15-19	1,941,902	1,196,460	675,486	1,363,991	347,398	779,126	311,895	5,245,757	**11,862,015**
20-24	1,832,783	1,155,685	624,837	1,198,090	323,600	656,615	277,704	4,872,106	**10,941,420**
25-29	1,693,580	1,101,664	579,659	1,182,468	285,821	563,415	241,721	4,634,356	**10,282,684**
30-34	1,710,268	987,777	507,049	1,100,614	250,589	458,635	203,066	4,377,345	**9,595,343**
35-39	1,718,305	893,707	442,070	984,455	217,067	373,292	166,290	3,904,366	**8,699,552**
40-44	1,537,966	818,368	380,316	851,401	181,437	312,682	133,874	3,399,205	**7,615,249**
45-49	1,297,314	708,645	315,588	701,013	145,782	265,239	110,085	2,884,106	**6,427,772**
50-54	1,022,270	596,324	259,046	574,673	120,447	222,648	86,490	2,182,663	**5,064,561**
55-59	785,086	442,595	194,694	454,453	98,348	168,513	60,077	1,759,405	**3,963,171**
60-64	603,351	308,374	151,351	365,185	80,651	128,819	46,815	1,444,784	**3,129,330**
65-69	467,994	247,528	116,003	296,667	64,597	99,733	36,625	1,137,962	**2,467,109**
70-74	351,993	180,355	88,047	220,742	50,853	79,962	27,263	847,798	**1,847,013**
75-79	236,144	135,633	64,724	142,589	37,258	49,235	17,766	590,483	**1,273,832**
80+	175,442	146,841	82,047	109,689	38,377	35,494	12,716	682,603	**1,283,209**
Total	**21,890,769**	**12,587,914**	**6,676,859**	**13,869,386**	**3,440,814**	**7,227,355**	**2,731,613**	**54,132,450**	**122,557,160**

Source: U.S. Bureau of the Census, International Database

For females, in particular, we made extensive use of country narratives in the *Trafficking in Persons Report* to assist in identifying where females are trafficked. For example, the narrative for Colombia states, "Young Colombian women and girls are principally trafficked to Spain, Japan, Hong Kong, Panama, Chile, and Ecuador…. Internal trafficking of women and children for sexual exploitation from rural to urban areas remains a serious problem." (U.S.

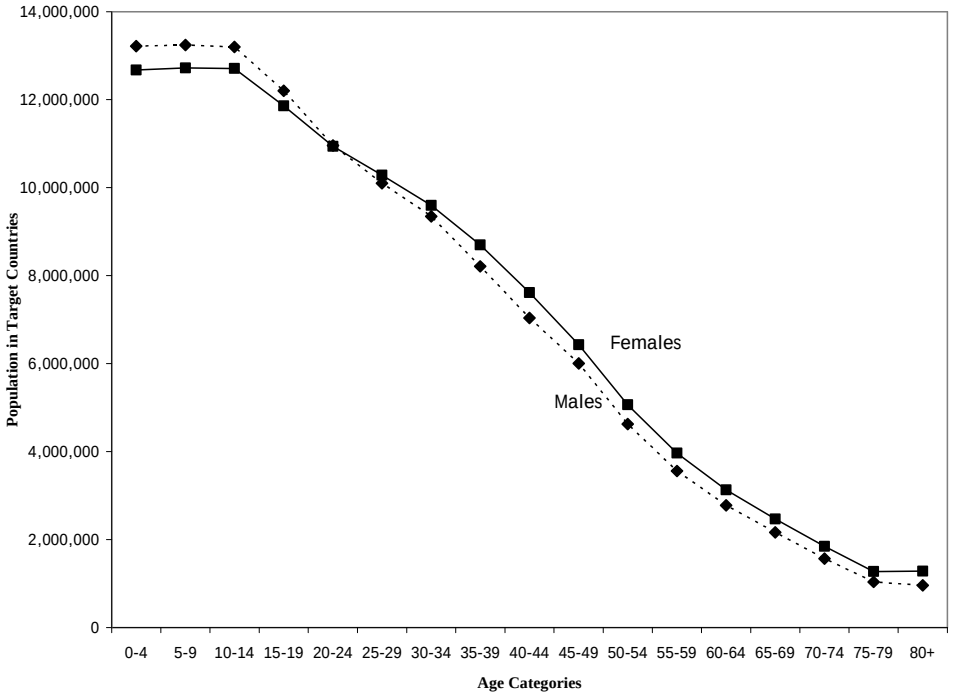
Department of State, 2005, p. 84). The report does not specify exact numbers or percentages, so it was necessary to form assumptions.

EXHIBIT 12
MALE POPULATION BY AGE CATEGORIES (2005)

Age Ranges	Country								Total
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico	
0-4	2,222,292	1,229,414	765,747	1,442,350	444,289	1,184,675	337,427	5,591,297	**13,217,491**
5-9	2,240,709	1,289,025	776,237	1,490,246	422,715	1,069,515	338,989	5,615,114	**13,242,550**
10-14	2,207,949	1,391,437	740,268	1,546,682	383,897	930,847	360,071	5,637,989	**13,199,140**
15-19	1,977,040	1,271,960	699,268	1,401,904	352,993	816,033	321,716	5,360,143	**12,201,057**
20-24	1,838,483	1,216,709	640,799	1,222,784	320,128	686,389	283,951	4,748,335	**10,957,578**
25-29	1,657,908	1,144,054	579,864	1,202,715	275,012	588,236	242,599	4,411,013	**10,101,401**
30-34	1,652,155	1,008,923	488,557	1,116,640	220,885	474,209	202,629	4,182,781	**9,346,779**
35-39	1,640,608	887,826	414,736	997,445	171,929	382,235	163,516	3,551,533	**8,209,828**
40-44	1,446,188	794,234	359,754	861,161	144,601	314,649	129,072	2,989,056	**7,038,715**
45-49	1,193,806	683,373	309,060	707,238	120,208	261,849	100,361	2,628,733	**6,004,628**
50-54	904,470	569,248	255,941	576,123	101,183	215,163	80,791	1,921,364	**4,624,283**
55-59	638,722	421,328	195,638	450,609	84,731	160,703	56,877	1,549,453	**3,558,061**
60-64	475,053	289,600	150,529	355,166	68,414	119,586	41,553	1,278,632	**2,778,533**
65-69	379,683	222,584	112,222	279,771	52,848	90,132	31,854	992,127	**2,161,221**
70-74	284,411	155,185	81,598	199,801	41,284	66,888	20,934	717,086	**1,567,187**
75-79	181,706	108,328	56,941	121,920	29,785	41,517	12,766	483,176	**1,036,139**
80+	122,327	104,139	59,575	83,687	29,216	28,208	8,381	522,621	**958,154**
Total	**21,063,510**	**12,787,367**	**6,686,734**	**14,056,242**	**3,264,118**	**7,430,834**	**2,733,487**	**52,180,453**	**120,202,745**

Source: U.S. Bureau of the Census, International Database

EXHIBIT 13
MALE AND FEMALE TOTAL POPULATION BY AGE CATEGORIES (2005)



5.2 Transit Zone Model

As a victim makes the journey through the transit zone, they could:

- Die in a transit country
- Escape or be rescued in a transit country
- Remain in a transit country for internal use
- Be trafficked to a country other than the United States
- Proceed to the next transit country.

Some of these experiences may not be applicable to men, who usually are victims of forced labor once they reach the United States. For the purposes of our model, we assume that males are not likely to be kept for internal use in a transit country, nor are they as vulnerable to being trafficked to another country other than the United States. The notion of "staying" in a transit country is different for males than females. Because males are not as closely held as females victims, and trafficking for them usually happens once they are forced into labor camps, they may stay in a transit country of their own volition.

Exhibit 14 details the transit zone journey for females who are trafficked into the sex industry and outlines various scenarios for each source country. For example, in Peru, a woman is trafficked for internal use, sent to Western Europe, or proceeds toward the United States. The word "***Assume***" before a percentage indicates an assumption was made about percentages for these outcomes. We vetted our assumptions with the TAG and others (members of NGOs, victim providers, and law enforcement) and, absent any hard data, seemed at least plausible and within the realm of possibilities. In every transit country, we assumed that two percent of those who pass through the country die, and that a half of a percent escape or are rescued. Countries can be sources, transits, or destinations for females.

A probability for each outcome is drawn from a uniform distribution. If a woman draws a probability greater than .02 (she does not die), another probability is drawn for her rescue, and so on. Multiple probabilities are drawn for each individual to simulate the vagaries of life.

In Exhibit 14, the box labeled "Mexico as Transit and Source" displays the assumption for how many females actually cross the border into the United States. Of all of the females who have been trafficked to Mexico and who originate in Mexico, in addition to those who die and escape, we assumed that 33 percent are sent to Mexico City, 33 percent are sent to the Yucatan region, 10 percent are forced to stay in Mexican border towns, and 21.5 percent cross the U.S. border.

Exhibit 15 depicts a transit zone journey for males and females who are trafficked for labor. We assume the transit journey for males is more straightforward and trafficking does not occur until they arrive in the United States and are forced into labor to pay off transit debt. The labor model is particularly weak, because there is no document similar to the *Trafficking in Persons Report* to give an idea of the flow. Although the Transit Zone model is based largely on assumptions, it is illustrative of the use of open source data in the modeling. Better data would make this part of the model more robust.

For both the labor and sex models, we didn't assume any attrition (death, etc.) occurs while in the source country. In both exhibits, where a box is labeled "*Country* as Source", the usual attrition percentages are not applied to that population entering the transit stream.

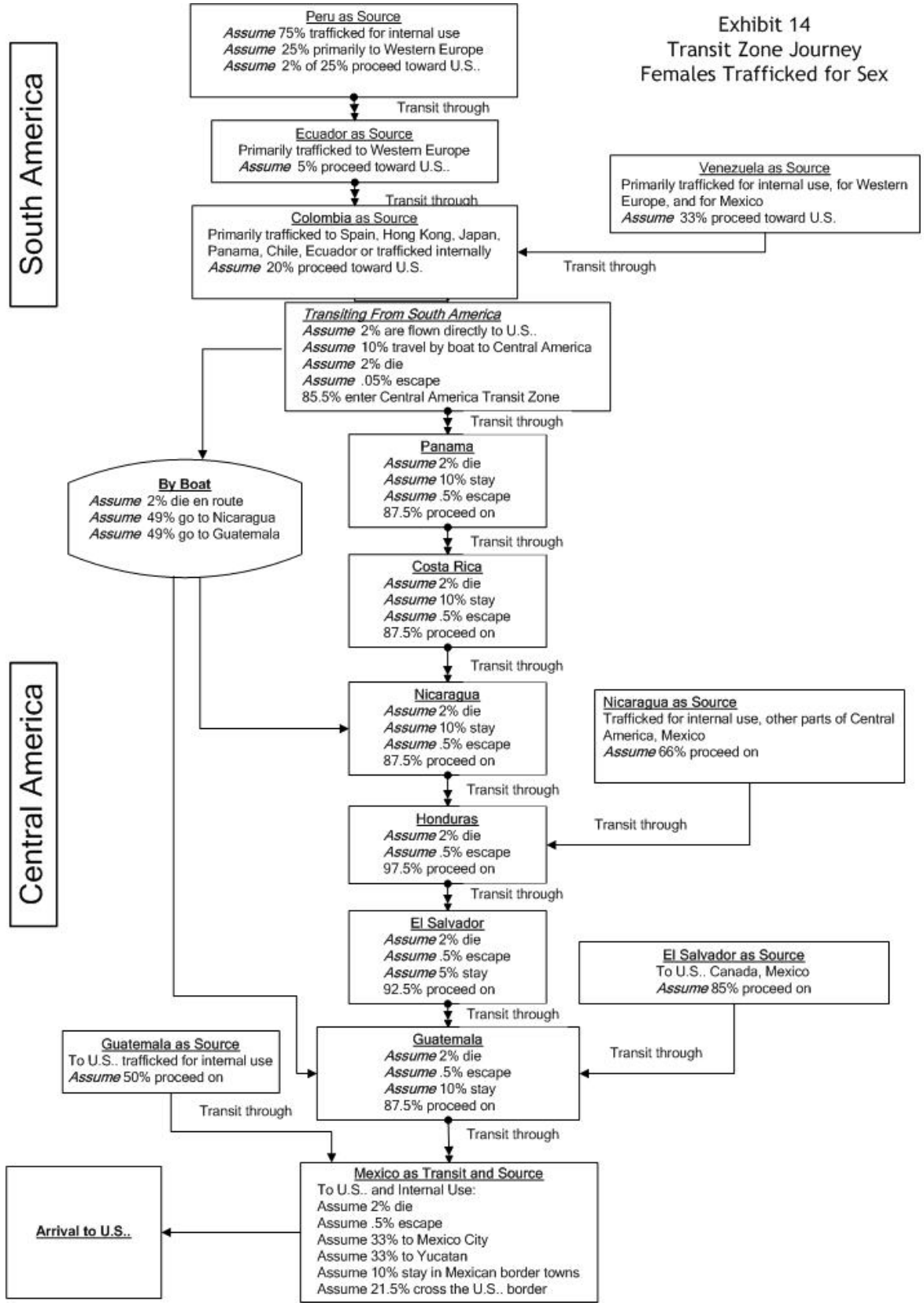
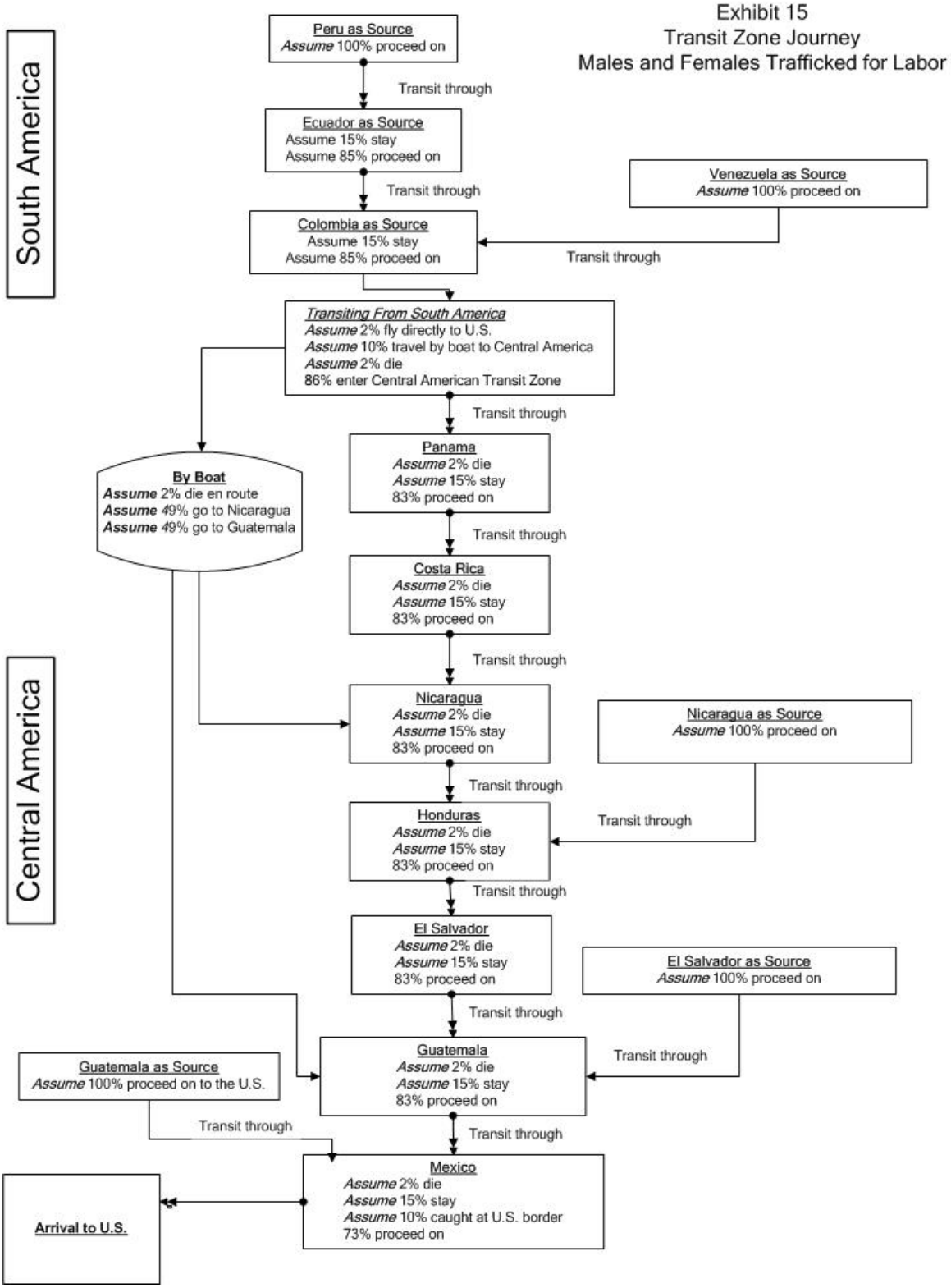


Exhibit 15
Transit Zone Journey
Males and Females Trafficked for Labor



6. FINDINGS

The following section presents preliminary estimates for females from the eight countries that are trafficked for sex into the United States at the southwest border. We also detail preliminary estimates for males and females who are trafficked for labor into the United States at the southwest border. To check the credibility of model developed for the eight countries, we estimated the number of females trafficked for sex substituting the United States as a source country; we would expect number to be much lower than for those of the source zone countries. Finally, we performed a sensitivity analysis of the model by altering how the Tier rating is incorporated into the model.

6.1 Preliminary Estimates of Sex Trafficking

Exhibit 16 details preliminary estimates of the number and percentage of total population of females at risk of being trafficked for both sex and labor from the eight countries, by age categories. Exhibit 17 presents preliminary estimates of the number and percentage of total population of females from the at-risk group who actually are trafficked for sex from the eight countries.

The estimates show that:

- Risk peaks at ages 15–19 and declines sharply at ages 25–29
- Three and one half percent of females in the 15–19 age range are at risk and nearly three percent of females in the 20–24 age range are at risk
- Females in Guatemala are at the highest risk, while females in Colombia have the lowest risk
- Overall, less than one percent of females in the eight countries are at risk of being trafficked
- Females in Ecuador have the highest likelihood of being trafficked, once at risk. A little more than one tenth of a percent (129,899 females) are trafficked from the source zone.

Exhibit 18 provides a plot of females at risk versus the number who actually are trafficked for sex from the eight countries.

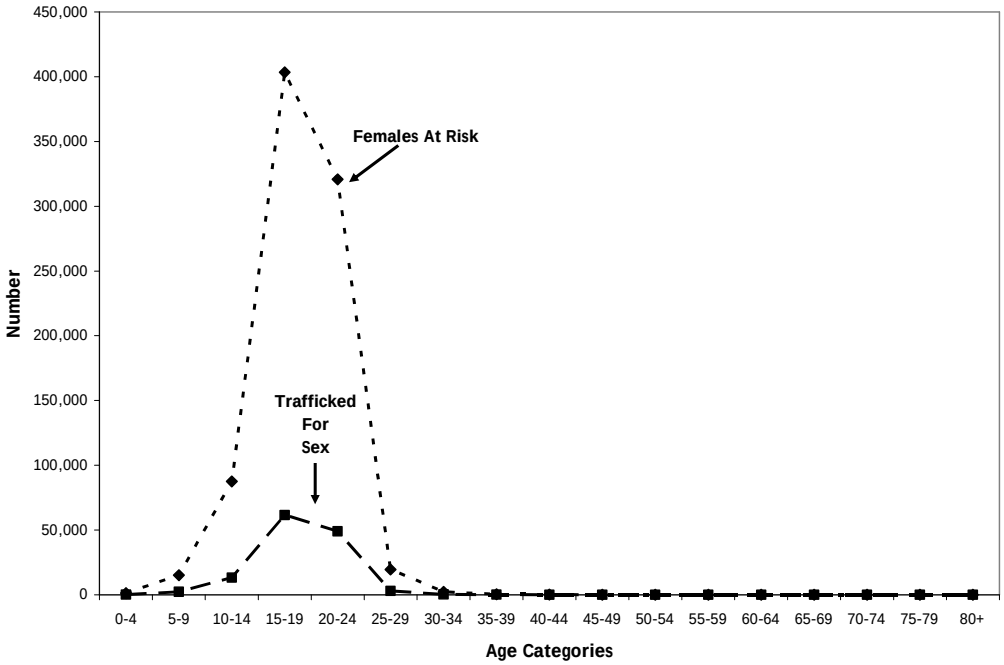
EXHIBIT 16
FEMALES AT RISK OF BEING TRAFFICKED FOR SEX AND LABOR IN SOURCE ZONE

Age Ranges	Country								Total	% of Total Pop.
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico		
0-4	187	137	78	145	47	137	36	560	**1,328**	**0.01%**
5-9	2,215	1,582	1,014	1,890	495	1,564	426	5,874	**15,059**	**0.12%**
10-14	12,917	9,733	5,878	11,433	2,715	8,104	2,637	34,060	**87,476**	**0.69%**
15-19	58,198	44,292	27,473	51,539	12,703	34,891	11,717	162,623	**403,435**	**3.40%**
20-24	47,470	36,883	21,808	39,017	10,231	25,351	9,078	130,968	**320,806**	**2.93%**
25-29	2,847	2,300	1,318	2,463	593	1,424	516	8,033	**19,492**	**0.19%**
30-34	366	251	151	307	66	154	55	932	**2,283**	**0.02%**
35-39	87	57	29	60	13	27	9	195	**477**	**0.01%**
40-44	21	13	7	14	3	7	2	38	**104**	**0.00%**
45-49	7	5	3	4	1	2	1	16	**38**	**0.00%**
50-54	1	2	1	1	0	1	0	5	**12**	**0.00%**
55-59	1	0	0	1	0	0	0	2	**4**	**0.00%**
60-64	0	0	0	0	0	0	0	1	**2**	**0.00%**
65-69	0	0	0	0	0	0	0	0	**1**	**0.00%**
70-74	0	0	0	0	0	0	0	0	**0**	**0.00%**
75-79	0	0	0	0	0	0	0	0	**0**	**0.00%**
80+	0	0	0	0	0	0	0	0	**0**	**0.00%**
Total	**124,316**	**95,255**	**57,760**	**106,874**	**26,867**	**71,663**	**24,476**	**343,307**	**850,518**	
% of Total Pop.	**0.57%**	**0.76%**	**0.87%**	**0.77%**	**0.78%**	**0.99%**	**0.90%**	**0.63%**	**0.69%**	

EXHIBIT 17
FEMALES TRAFFICKED FOR SEX FROM SOURCE ZONE

Age Ranges	Country								Total	% of Total Pop.
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico		
0-4	14	34	19	20	7	25	5	80	**204**	**0.00%**
5-9	172	358	229	274	72	237	65	874	**2,281**	**0.02%**
10-14	969	2,170	1,340	1,725	417	1,198	391	5,097	**13,307**	**0.10%**
15-19	4,350	9,976	6,198	7,739	1,952	5,286	1,764	24,362	**61,627**	**0.52%**
20-24	3,526	8,294	4,954	5,881	1,540	3,778	1,384	19,702	**49,059**	**0.45%**
25-29	219	518	290	370	94	212	78	1,190	**2,971**	**0.03%**
30-34	30	56	39	44	9	22	9	143	**352**	**0.00%**
35-39	6	14	8	9	3	5	2	29	**76**	**0.00%**
40-44	1	2	2	3	1	1	0	6	**16**	**0.00%**
45-49	1	1	0	0	0	0	0	3	**5**	**0.00%**
50-54	0	1	0	0	0	0	0	0	**1**	**0.00%**
55-59	0	0	0	0	0	0	0	0	**0**	**0.00%**
60-64	0	0	0	0	0	0	0	0	**0**	**0.00%**
65-69	0	0	0	0	0	0	0	0	**0**	**0.00%**
70-74	0	0	0	0	0	0	0	0	**0**	**0.00%**
75-79	0	0	0	0	0	0	0	0	**0**	**0.00%**
80+	0	0	0	0	0	0	0	0	**0**	**0.00%**
Total	**9,288**	**21,424**	**13,079**	**16,065**	**4,095**	**10,764**	**3,698**	**51,486**	**129,899**	
% of Total Pop.	**0.04%**	**0.17%**	**0.20%**	**0.12%**	**0.12%**	**0.15%**	**0.14%**	**0.10%**	**0.11%**	

EXHIBIT 18
FEMALES AT RISK AND TRAFFICKED



Applying the Model to Females in the United States

We ran the exact same model for the eight source countries, but made the United States the source country by substituting female U.S. population, country-specific risk data, and an assumed a tier rating of I (see Exhibits 8 and 10). This was not an attempt to estimate the number of females trafficked in the United States, but rather we did this as a reasonability check of the existing model[7]. We expected much lower percentages of females trafficked using the U.S. as the source country. If the model had estimated the same or higher percentages, then that would have been an indication that there was something amiss in the model specification.

[7] Because there are more push factor data (country-specific risk) available for the U.S., the current model is probably under-specified for the U.S.

Exhibit 19 presents the results for females at risk and trafficked, with the United States substituted in the current model as the source country. The substitution estimates that approximately

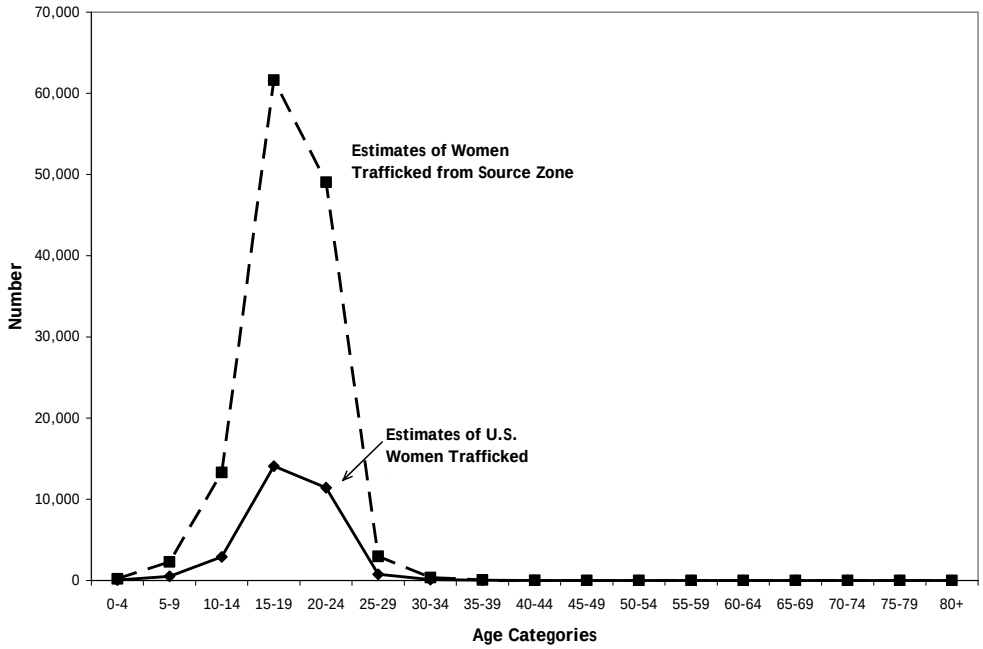
- .28 percent (397,502, versus 850,518 in source zone) of females in the United States are at risk of being trafficked, which is less than half of the lowest percentage (Colombia, .57%) in the source zone
- The estimated number of females who are trafficked for sex from the at-risk group is .021 percent, versus .11 percent in the eight countries.

Exhibit 20 plots estimates for the United States and the source zone. Estimates for the United States are much lower, which was the expected result.

EXHIBIT 19
FEMALES AT RISK AND TRAFFICKED—
UNITED STATES AS THE SOURCE COUNTRY

Age Ranges	At Risk	% of Total Population	Trafficked for Sex	% of Total Population
0-4	533	0.006%	42	0.000%
5-9	6,546	0.065%	502	0.005%
10-14	38,141	0.381%	2,894	0.029%
15-19	187,075	1.903%	14,087	0.143%
20-24	152,801	1.647%	11,434	0.123%
25-29	10,459	0.109%	761	0.008%
30-34	1,462	0.014%	109	0.001%
35-39	321	0.003%	24	0.000%
40-44	102	0.001%	8	0.000%
45-49	36	0.000%	4	0.000%
50-54	14	0.000%	1	0.000%
55-59	7	0.000%	1	0.000%
60-64	2	0.000%	0	0.000%
65-69	1	0.000%	0	0.000%
70-74	0	0.000%	0	0.000%
75-79	0	0.000%	0	0.000%
80+	0	0.000%	0	0.000%
Total	**397,502**	**0.277%**	**29,867**	**0.021%**

EXHIBIT 20
COMPARISON OF ESTIMATES FOR TRAFFICKED FEMALES—SOURCE ZONE COUNTRIES VERSUS THE UNITED STATES



Preliminary Estimates of Females Trafficked Across the Southwest Border

Exhibit 23 shows the Source Zone Model and Transit Zone Model estimates of trafficked females from the eight countries who enter into the United States at the southwest border. The Transit Zone Model generates estimates for each point in a victim's journey to the United States, as described in Exhibit 14.

Based on the model, our preliminary estimates indicate that

- 12,513 females are trafficked to Mexico from the other seven countries and another 51,486 females originate in Mexico, for a total of 63,999 females who have the potential to enter the U.S. at the southwest border (see the box titled "Mexico as Transit and Source" in Exhibit 14)
- Of the 63,999 females, we assume that 1,196 die, 33 escape, 20,749 are trafficked to Mexico City, 13,668 are trafficked to the Yucatan region, 2,888 females are forced to stay in Mexican border towns, and 25,465 are trafficked into the United States
- 182 females are flown directly from South America
- A total of 25,647 (or 0.02 percent of the total source zone female population) females are trafficked from the eight countries into the United States at the southwest border.

EXHIBIT 21
FEMALES TRAFFICKED FOR SEX ACROSS THE SOUTHWEST BORDER

Age Ranges	Country								Total	% of Total Pop.
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico		
0-4	0	2	1	1	2	5	2	38	**51**	**0.00%**
5-9	6	23	12	7	16	53	6	342	**465**	**0.00%**
10-14	27	112	41	5	128	238	42	1,974	**2,567**	**0.02%**
15-19	150	483	33	0	628	1,038	200	9,625	**12,157**	**0.10%**
20-24	99	381	1	0	452	743	157	7,887	**9,720**	**0.09%**
25-29	3	23	0	0	31	46	5	498	**606**	**0.01%**
30-34	0	3	0	0	3	3	0	52	**61**	**0.00%**
35-39	1	0	0	0	0	1	0	13	**15**	**0.00%**
40-44	0	1	0	0	0	0	0	2	**3**	**0.00%**
45-49	0	0	0	0	0	0	0	2	**2**	**0.00%**
50-54	0	0	0	0	0	0	0	0	**0**	**0.00%**
55-59	0	0	0	0	0	0	0	0	**0**	**0.00%**
60-64	0	0	0	0	0	0	0	0	**0**	**0.00%**
65-69	0	0	0	0	0	0	0	0	**0**	**0.00%**
70-74	0	0	0	0	0	0	0	0	**0**	**0.00%**
75-79	0	0	0	0	0	0	0	0	**0**	**0.00%**
80+	0	0	0	0	0	0	0	0	**0**	**0.00%**
Total	**286**	**1,028**	**88**	**13**	**1,260**	**2,127**	**412**	**20,433**	**25,647**	
% of Total Pop.	**0.00%**	**0.01%**	**0.00%**	**0.00%**	**0.04%**	**0.03%**	**0.02%**	**0.04%**	**0.02%**	

Sensitivity Analysis: Nonlinear Tier Multiplier

In the above model specification, we assumed a linear relationship (or constant slope) between tier ratings to derive the multiplier for the number of females at risk who are then actually trafficked. This formulation assumed that the difference between a tier I and a tier II country is the same as that for tier II and III countries. For this sensitivity analysis, we postulated a nonlinear (exponential) relationship between the tier multipliers.

Exhibit 22 shows the difference between the two formulations of the tier multiplier. The nonlinear specification shows a much higher risk difference between a tier II and tier III country than between tier I and tier II countries. The risk difference between a tier I and tier III country is markedly higher for the nonlinear multiplier than the linear formulation. For the linear formulation, there is a 33% difference in the multiplier for a tier I and tier III country. For the nonlinear formulation, there is a 63% difference, putting women in tier III countries at a much higher risk than those in tier I countries.

Exhibit 23 presents the resulting difference in the estimates produced by incorporating a nonlinear specification for the tier multiplier into the model. For tier I and II countries, the nonlinear relationship estimates lower amounts of females trafficked than the linear multiplier.

For tier III countries, the nonlinear specification produces higher estimates of females trafficked than the linear multiplier. The nonlinear multiplier method estimates that a total of 16,459 females are trafficked across the southwest border from the eight source countries, versus 25,647 for the linear multiplier method; or a 56% reduction. This difference highlights the sensitivity of the model to the tier rating and the need for the development of a protective factor index that is well understood.

EXHIBIT 22
SENSITIVITY ANALYSIS:
LINEAR AND NONLINEAR TIER MULTIPLIER

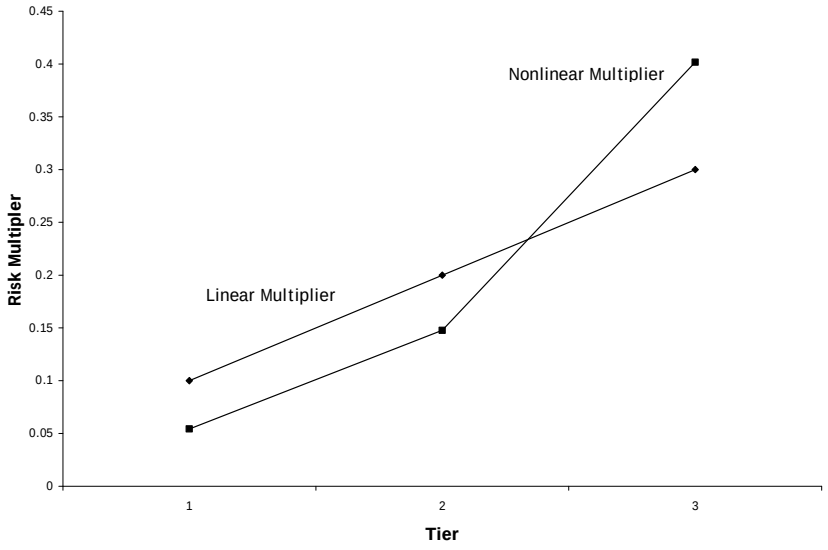


EXHIBIT 23
ESTIMATES FOR SENSITIVITY ANALYSIS: NONLINEAR TIER MULTIPLIER

Country	Tier	Trafficked	Entering U.S.
Columbia	I	4,844	140
Venezuela	III	23,112	1,068
Ecuador	III	17,776	117
Peru	II	10,526	6
El Salvador	II	3,116	911
Guatemala	II	6,431	1,276
Nicaragua	II	2,575	307
Mexico	II	31,812	12,634
Total		**100,192**	**16,459**

6.2 Preliminary Estimates of Labor Trafficking

The estimates for labor trafficking apply to both males and females from the eight countries. Exhibit 24 displays the number and percentage of the total male population who are at risk of being trafficked. For this report, we assumed all males are trafficked for the purpose of labor exploitation; however, we know this is not strictly the case because boys are trafficked into the sex industry. The exhibit shows that males are most likely to be trafficked from Ecuador (.98% of total male population), with El Salvador second most likely (.75%). Exhibit 25 shows the males from the at-risk pool who actually are trafficked. To obtain these numbers, we used the multipliers based on country tier level. A total of 144,318 males are trafficked from the eight countries, or .12 percent of the total male population of the eight countries.

Exhibit 16 gives estimates of females who are at risk of being trafficked, including for sex and labor, from the eight countries. Exhibit 26 provides estimates for the number of females trafficked for labor from the eight countries. The combined number of females trafficked for sex and labor is 172,976, or .014 percent of the total female population in the eight countries. Exhibit 27 combines the numbers of males and females to yield estimates of the total number of persons trafficked for labor from the eight countries.

Exhibit 28 presents results from the Transit Zone Model for the number of males and females trafficked from the eight countries into the United States at the southwest border. The labor trafficking estimate is much higher than the estimate of the number trafficked for sex. This result is contrary to what others have estimated, i.e., that the total for sex trafficking is higher than that for labor trafficking. This is most likely an artifact of the lack of data for our estimation.

EXHIBIT 24
MALES AT RISK OF BEING TRAFFICKED IN SOURCE ZONE

Age Ranges	Country								Total	% of Total Population
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico		
0-4	4	2	3	3	1	3	1	11	**28**	**0.00%**
5-9	113	68	66	85	27	58	19	262	**698**	**0.01%**
10-14	1,037	676	587	823	233	480	193	2,440	**6,470**	**0.05%**
15-19	7,243	4,814	4,329	5,871	1,659	3,320	1,354	18,175	**46,766**	**0.39%**
20-24	59,251	40,457	34,798	44,930	13,251	24,400	10,469	141,878	**369,433**	**3.38%**
25-29	43,439	30,969	25,526	35,882	9,239	16,968	7,272	107,278	**276,572**	**2.69%**
30-34	945	594	469	724	161	297	133	2,238	**5,562**	**0.06%**
35-39	65	37	28	47	9	17	8	136	**347**	**0.00%**
40-44	8	5	3	5	1	2	1	16	**41**	**0.00%**
45-49	2	1	1	1	0	0	0	3	**8**	**0.00%**
50-54	0	0	0	0	0	0	0	1	**2**	**0.00%**
55-59	0	0	0	0	0	0	0	0	**0**	**0.00%**
60-64	0	0	0	0	0	0	0	0	**0**	**0.00%**
65-69	0	0	0	0	0	0	0	0	**0**	**0.00%**
70-74	0	0	0	0	0	0	0	0	**0**	**0.00%**
75-79	0	0	0	0	0	0	0	0	**0**	**0.00%**
80+	0	0	0	0	0	0	0	0	**0**	**0.00%**
Total	**112,107**	**77,623**	**65,810**	**88,373**	**24,583**	**45,544**	**19,449**	**272,437**	**705,927**	
% of Total Pop.	**0.53%**	**0.61%**	**0.98%**	**0.63%**	**0.75%**	**0.61%**	**0.71%**	**0.52%**	**0.59%**	

EXHIBIT 25
MALES TRAFFICKED FOR LABOR FROM SOURCE ZONE

Age Ranges	Country								Total	% of Total Population
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico		
0-4	0	1	1	1	0	1	0	2	**6**	**0.00%**
5-9	11	20	20	17	5	12	4	52	**142**	**0.00%**
10-14	104	203	176	165	47	96	39	488	**1,317**	**0.01%**
15-19	724	1,444	1,299	1,174	332	664	271	3,635	**9,543**	**0.08%**
20-24	5,925	12,137	10,439	8,986	2,650	4,880	2,094	28,376	**75,487**	**0.69%**
25-29	4,344	9,291	7,658	7,176	1,848	3,394	1,454	21,456	**56,620**	**0.55%**
30-34	94	178	141	145	32	59	27	448	**1,124**	**0.01%**
35-39	7	11	8	9	2	3	2	27	**69**	**0.00%**
40-44	1	1	1	1	0	0	0	3	**8**	**0.00%**
45-49	0	0	0	0	0	0	0	1	**2**	**0.00%**
50-54	0	0	0	0	0	0	0	0	**0**	**0.00%**
55-59	0	0	0	0	0	0	0	0	**0**	**0.00%**
60-64	0	0	0	0	0	0	0	0	**0**	**0.00%**
65-69	0	0	0	0	0	0	0	0	**0**	**0.00%**
70-74	0	0	0	0	0	0	0	0	**0**	**0.00%**
75-79	0	0	0	0	0	0	0	0	**0**	**0.00%**
80+	0	0	0	0	0	0	0	0	**0**	**0.00%**
Total	**11,211**	**23,287**	**19,743**	**17,675**	**4,917**	**9,109**	**3,890**	**54,487**	**144,318**	
% of Total Pop.	**0.05%**	**0.18%**	**0.30%**	**0.13%**	**0.15%**	**0.12%**	**0.14%**	**0.10%**	**0.12%**	

EXHIBIT 26
FEMALES TRAFFICKED FOR LABOR FROM SOURCE ZONE

Age Ranges	Country								Total	% of Total Population
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico		
0-4	5	7	5	9	2	2	2	32	**64**	**0.00%**
5-9	50	117	75	104	27	76	20	301	**770**	**0.01%**
10-14	323	750	423	562	126	423	136	1,715	**4,458**	**0.04%**
15-19	1,470	3,312	2,044	2,569	589	1,692	579	8,163	**20,418**	**0.17%**
20-24	1,221	2,771	1,588	1,922	506	1,292	432	6,492	**16,224**	**0.15%**
25-29	66	172	106	123	25	73	25	417	**1,007**	**0.01%**
30-34	7	19	6	17	4	9	2	43	**107**	**0.00%**
35-39	3	3	1	3	0	0	0	10	**20**	**0.00%**
40-44	1	2	1	1	0	0	0	2	**7**	**0.00%**
45-49	0	1	0	0	0	0	0	1	**2**	**0.00%**
50-54	0	0	0	0	0	0	0	0	**0**	**0.00%**
55-59	0	0	0	0	0	0	0	0	**0**	**0.00%**
60-64	0	0	0	0	0	0	0	0	**0**	**0.00%**
65-69	0	0	0	0	0	0	0	0	**0**	**0.00%**
70-74	0	0	0	0	0	0	0	0	**0**	**0.00%**
75-79	0	0	0	0	0	0	0	0	**0**	**0.00%**
80+	0	0	0	0	0	0	0	0	**0**	**0.00%**
Total	**3,146**	**7,154**	**4,249**	**5,310**	**1,279**	**3,567**	**1,196**	**17,176**	**43,077**	
% of Total Pop.	**0.01%**	**0.06%**	**0.06%**	**0.04%**	**0.04%**	**0.05%**	**0.04%**	**0.03%**	**0.04%**	

EXHIBIT 27
TOTAL MALES AND FEMALES TRAFFICKED FOR LABOR FROM SOURCE ZONE

Age Ranges	Country								Total	% of Total Population
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico		
0-4	5	8	6	10	2	3	2	34	**70**	**0.00%**
5-9	61	137	95	121	32	88	24	353	**912**	**0.00%**
10-14	427	953	599	727	173	519	175	2,203	**5,775**	**0.02%**
15-19	2,194	4,756	3,343	3,743	921	2,356	850	11,798	**29,961**	**0.12%**
20-24	7,146	14,908	12,027	10,908	3,156	6,172	2,526	34,868	**91,711**	**0.42%**
25-29	4,410	9,463	7,764	7,299	1,873	3,467	1,479	21,873	**57,627**	**0.28%**
30-34	101	197	147	162	36	68	29	491	**1,231**	**0.01%**
35-39	10	14	9	12	2	3	2	37	**89**	**0.00%**
40-44	2	3	2	2	0	0	0	5	**15**	**0.00%**
45-49	0	1	0	0	0	0	0	2	**4**	**0.00%**
50-54	0	0	0	0	0	0	0	0	**0**	**0.00%**
55-59	0	0	0	0	0	0	0	0	**0**	**0.00%**
60-64	0	0	0	0	0	0	0	0	**0**	**0.00%**
65-69	0	0	0	0	0	0	0	0	**0**	**0.00%**
70-74	0	0	0	0	0	0	0	0	**0**	**0.00%**
75-79	0	0	0	0	0	0	0	0	**0**	**0.00%**
80+	0	0	0	0	0	0	0	0	**0**	**0.00%**
Total	**14,357**	**30,441**	**23,992**	**22,985**	**6,196**	**12,676**	**5,086**	**71,663**	**187,395**	
% of Total Pop.	**0.03%**	**0.12%**	**0.18%**	**0.08%**	**0.09%**	**0.09%**	**0.09%**	**0.07%**	**0.08%**	

EXHIBIT 28
TOTAL MALES AND FEMALES TRAFFICKED FOR LABOR ENTERING THE UNITED STATES

Age Ranges	Country								Total	% of Total Population
	Colombia	Venezuela	Ecuador	Peru	El Salvador	Guatemala	Nicaragua	Mexico		
0-4	1	2	1	2	1	1	1	9	**17**	**0.00%**
5-9	15	34	24	30	8	22	6	88	**228**	**0.00%**
10-14	107	238	150	182	43	130	44	551	**1,444**	**0.01%**
15-19	549	1,189	836	936	230	589	212	2,950	**7,490**	**0.06%**
20-24	1,787	3,727	3,007	2,727	789	1,543	631	8,717	**22,928**	**0.21%**
25-29	1,102	2,366	1,941	1,825	468	867	370	5,468	**14,407**	**0.14%**
30-34	25	49	37	40	9	17	7	123	**308**	**0.00%**
35-39	2	4	2	3	0	1	0	9	**22**	**0.00%**
40-44	0	1	0	1	0	0	0	1	**4**	**0.00%**
45-49	0	0	0	0	0	0	0	0	**1**	**0.00%**
50-54	0	0	0	0	0	0	0	0	**0**	**0.00%**
55-59	0	0	0	0	0	0	0	0	**0**	**0.00%**
60-64	0	0	0	0	0	0	0	0	**0**	**0.00%**
65-69	0	0	0	0	0	0	0	0	**0**	**0.00%**
70-74	0	0	0	0	0	0	0	0	**0**	**0.00%**
75-79	0	0	0	0	0	0	0	0	**0**	**0.00%**
80+	0	0	0	0	0	0	0	0	**0**	**0.00%**
Total	**3,589**	**7,610**	**5,998**	**5,746**	**1,549**	**3,169**	**1,271**	**17,916**	**46,849**	
% of Total Pop.	**0.02%**	**0.06%**	**0.09%**	**0.04%**	**0.05%**	**0.04%**	**0.05%**	**0.03%**	**0.04%**	

7. SUMMARY AND RECOMMENDATIONS

This research developed methods to estimate human trafficking, utilizing open source data as inputs. The Source Zone Model estimates the numbers of females and males in the eight countries *at risk* of being trafficked and from those at risk, the number who are then trafficked.

The second model, the Transit Zone Model, is based on descriptions of possible journeys that victims might take from their country of origin to the southwest border of the United States. The model provides estimates at each point in the journey. It also estimates the number of victims from the eight countries who are ultimately trafficked across the southwest border into the United States.

This model considers eight countries of origin in the source zone (Colombia, Ecuador, El Salvador, Guatemala, Mexico, Nicaragua, Peru, and Venezuela) and one entry point to the United States, the southwest border (Arrival Zone), from the transit zone. We limited the scope of the source zone and transit zone to provide a detailed description of the model and examine the credibility of the results. The methods were developed to be flexible and reusable so it can

be adapted to include victims from other countries of origin and additional entry points into the United States, as well as for destination countries other than the United States.

7.1 Summary of Source Zone Model

The Source Zone Model estimates the number of persons *at risk* of being trafficked in each of the eight countries. The risk of being trafficked comprises country-specific factors and age-specific influences. The country-specific risk factor comprises *push factors* (indicators of a country's economic health, the quality of life for its citizens, and the level of crime), which differ for males and females. Age-specific risk considers the likelihood that being trafficked varies with age; i.e., individuals are less likely to be trafficked at age 50 than at age 20. We used Monte Carlo simulation techniques to estimate the probability, by age, of being trafficked from the eight countries. Separate models were formulated for males and females, assuming there are differences in push factors and age-specific influence.

The Source Zone Model for females from the eight countries estimates that

- 850,518 (0.69% of total source zone population) females are at risk of being trafficked for sex and labor
- 129,899 of the at-risk population (.11% of total population in the eight countries and 15% of at-risk population) are trafficked for sex
- 43,077 (.04% of total population in the eight countries and 5% of at-risk population) are trafficked for labor.

The Source Zone Model for males from the eight countries estimates that

- 705,927 (.59% of total population in the eight countries) males are at risk of being trafficked for labor
- 144,318 (.12% of total source zone population and 20% of at-risk population) are then trafficked for labor
- The total of males and females who are trafficked for labor from the eight countries is 187,395.

7.2 Summary of Transit Zone Model

The Transit Zone Model details various possible journeys to the southwest border of the United States for victims trafficked from the source zone. Different models for sex and labor trafficking were developed because the *Trafficking in Persons Report* provides some information on sex trafficking routes for the source countries studied. A site visit to San Diego also provided

data on specific sex trafficking routes in Mexico. Information on labor trafficking routes was largely unavailable. The model provides estimates at each point in the journey and estimates the number of victims trafficked across the southwest border into the United States (Arrival Zone). The model takes sequential random draws from the uniform distribution to estimate the probability of each outcome in the transit zone.

The Transit Zone Model estimates that

- 25,647 females from the eight countries are trafficked for sex into the United States across the southwest border
- 46,849 males and females from the eight countries are trafficked across the southwest border for labor.

The number of women trafficked for sex is higher than official U.S. estimates (U.S. DOJ, 2004; U.S. DOJ, 2005). Because details of the methods for developing the official Government estimates were unavailable, it is difficult to explain the differences but, most likely, they arise from the differing methods and data employed. The labor trafficking estimates should be considered illustrative of the modeling process rather than as realistic estimates.

7.3 Study Limitations

The primary limitation of this study is lack of data, particularly data that describe push factors in the source zone. For example, there is no consistent data for quality of life and while education data for males are available, they are frequently missing for females. The model would be improved with a richer set of push factors to define the at-risk population. Country tier rates from the *Trafficking in Persons Report* was used as a proxy for protective factors and as multipliers to estimate the number of males and females actually trafficked from the at-risk population. A more rigorous development of protective factors would enhance the model.

The Source Zone Model is narrowly formulated and currently assumes that risk is fully described by push factors and age making it dependent on how these two functions are developed. As more data are identified, the formulation of risk can be expanded.

The Transit Zone Model for sex trafficking is somewhat better specified than the labor model because of information available in the *Trafficking in Persons Report*. Regardless, many assumptions were made throughout the model, therefore it should be considered illustrative at best.

Given the limitations of the models, the estimates for sex trafficking are plausible and coincide with other estimates. The sensitivity analysis done for the United States provided a level of confidence in the model.

7.4 Recommendations

The methods developed in this research provide a good starting point for helping countries understand their vulnerability as a source, transit, or destination point and the use of open source data as inputs makes the methods highly accessible. To capitalize on the results of this study, we recommend the following activities:

- Wide dissemination of the methods to interested parties in this field of research so it may be examined, critiqued, and improved for future use that mines untapped, rich data sources.
- Application of the model to a broader group of source, transit, and destination countries to improve the model and highlight strengths and weaknesses.
- A study to estimate the demand for trafficked sex and labor in the United States as a check against estimates derived from the current methods, which begins at source countries.

Overall, there is a need for better and more standardized data collection and tracking, as well as improved data sharing across government and non-government agencies within and outside the United States. The limited availability and access to important information (e.g., number of illegal border crossings, number of false documents recovered, number of missing persons, number of suspected trafficking operations) present challenges to verifying assumptions and refining estimates.

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APPENDIX A: STATISTICAL METHODS

This appendix details the statistical methods used in the female and male risk models.

1. Calculating Risk in Source Zone Countries

The model estimates the population at risk for being trafficked from each of the eight source countries. Individual risk comprises country-specific factors and age-specific risk factors. For women, the country-specific factor is captured in a composite index created from the Gini Index, CPI, and GDI. For men, the country-specific factor is captured in a composite index created from the Gini Index, CPI, and labor force indicators (unemployment rates and consumer price indicators). The age-specific risk (population data in each of the eight countries of origin are available for 5-year age groups, 17 age groups in all) is captured in a Weibull probability distribution and is different for men and women.

1.1 General Model

The general Source Zone Model is thus specified as:

$$AtRisk_{ij} = (1-CR_i) * [(slope_{ij}/scale) * (age_j/scale)^{slope(j)-1} * e^{-(age(j)/scale) ** slope(ij)}]$$

This characterization combines country-specific risk, CR_i , with age-specific risk, as defined by the Weibull probability distribution function (pdf) in brackets. The subscript *j* refers to each of the eight countries and the subscript *i* references each of the 17 age groups. The other terms in the equation are defined as:

$AtRisk_{ij}$ - the percentage of the female and male population at risk for being trafficked, for each $country_i$ and each $age\ group_j$.

CR_i - country-specific risk, as computed by a composite index.

$Slope_{ij}$ – the shape parameter (or slope) in the Weibull function.

Age_j - the mean value of each age category.

Scale – a parameter of the Weibull pdf that determines the spread of the distribution.

The Weibull pdf is used to model a variety of life behaviors and is described by two parameters:

- B = shape parameter (slope)
- n= scale parameter.

The shape parameter defines the slope of the curve; i.e., how steeply it rises or falls. The scale parameter has the same effect on the distribution as a change of the abscissa scale. Increasing the value of the scale parameter, while holding the shape parameter constant, has the effect of stretching out the pdf. The peak of the pdf curve will decrease with an increase in the scale parameter.

We estimate the slope of the Weibull pdf by postulating that age-specific risk resembles a lognormal distribution. To simulate the slope parameter of the Weibull function, the model randomly draws 50,000 values from a lognormal distribution, with a set mean and standard deviation, for each age category (thus, 17*50,000 unique slope values were drawn). The 50,000 random slope values for each age category were used to calculate the age risk in the Weibull function. The total risk was calculated (50,000 times per age category) as one minus the country-specific risk times the age-specific risk characterized by the Weibull function. Mean risk values for each age category were used to generate the summary tables in the Findings section.

Exhibit 29 depicts the lognormal pdf (with mean of 2.0 and standard deviation of 0.5) used to draw random slope values in the female model. The curve rises steeply and peaks at ages 12–19, with risk falling off fairly quickly after that, indicating that risk declines sharply as women age, marry, and create families.

Exhibit 30 illustrates the lognormal pdf used to draw random slope values in the male model, with mean of 2.6 and standard deviation of 0.5. The curve does not rise as quickly, peaks at 20–24, and falls off more slowly than the female distribution. Exhibit 31 compares the lognormal pdfs for men and women.

EXHIBIT 29
LOGNORMAL DISTRIBUTION FOR FEMALES
MEAN=2.0, STD=.5

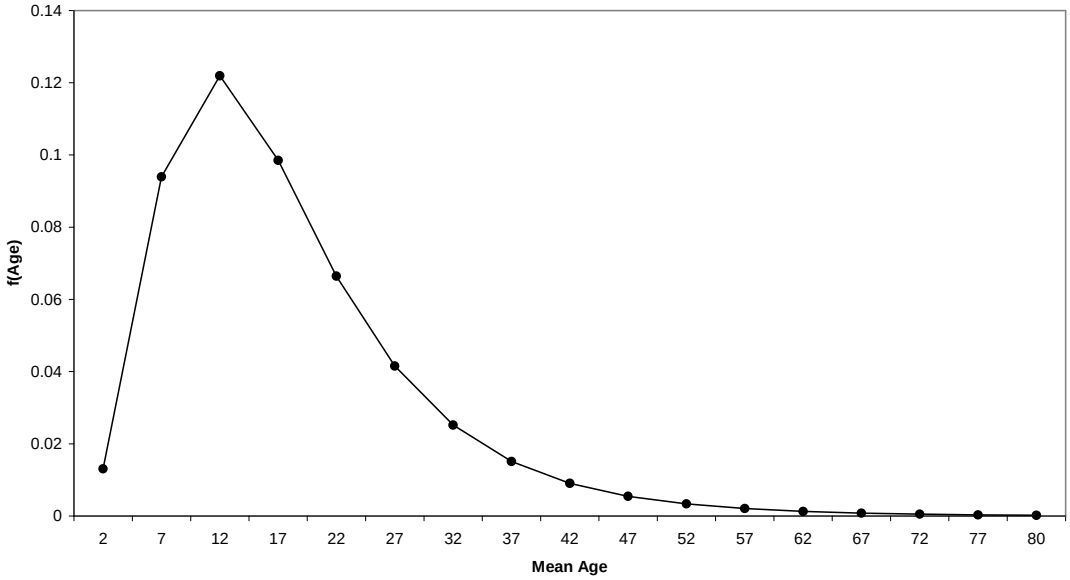


EXHIBIT 30
LOGNORMAL DISTRIBUTION FOR MALES
MEAN=2.6, STD=.5

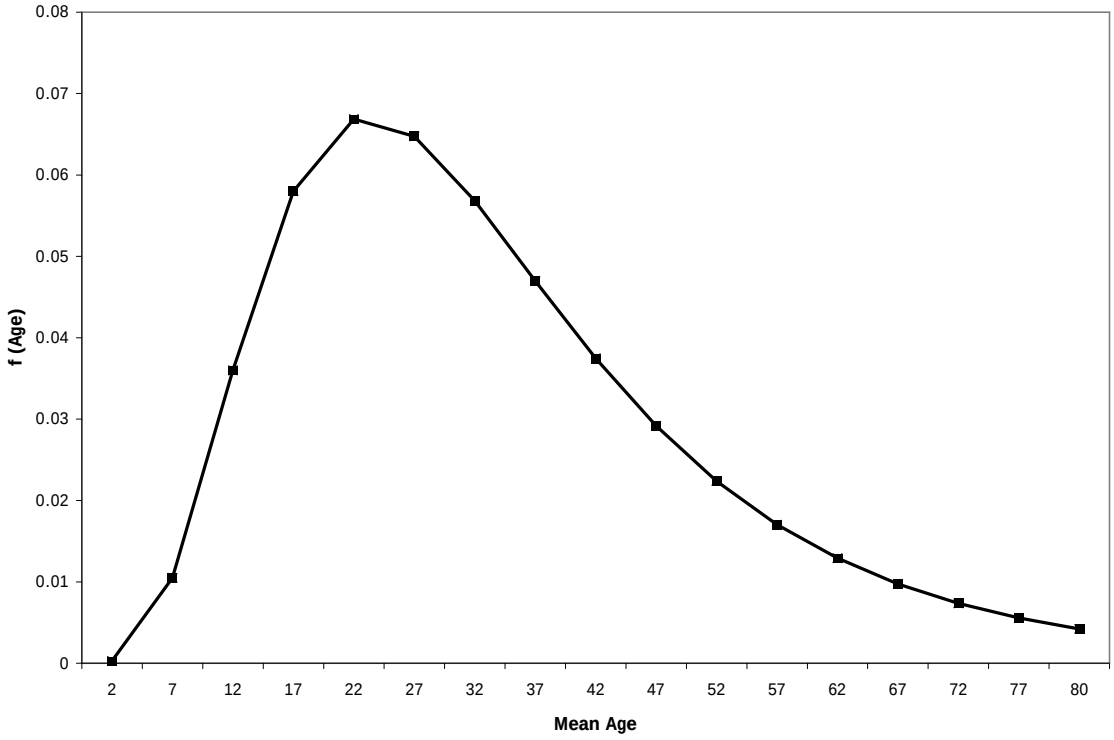
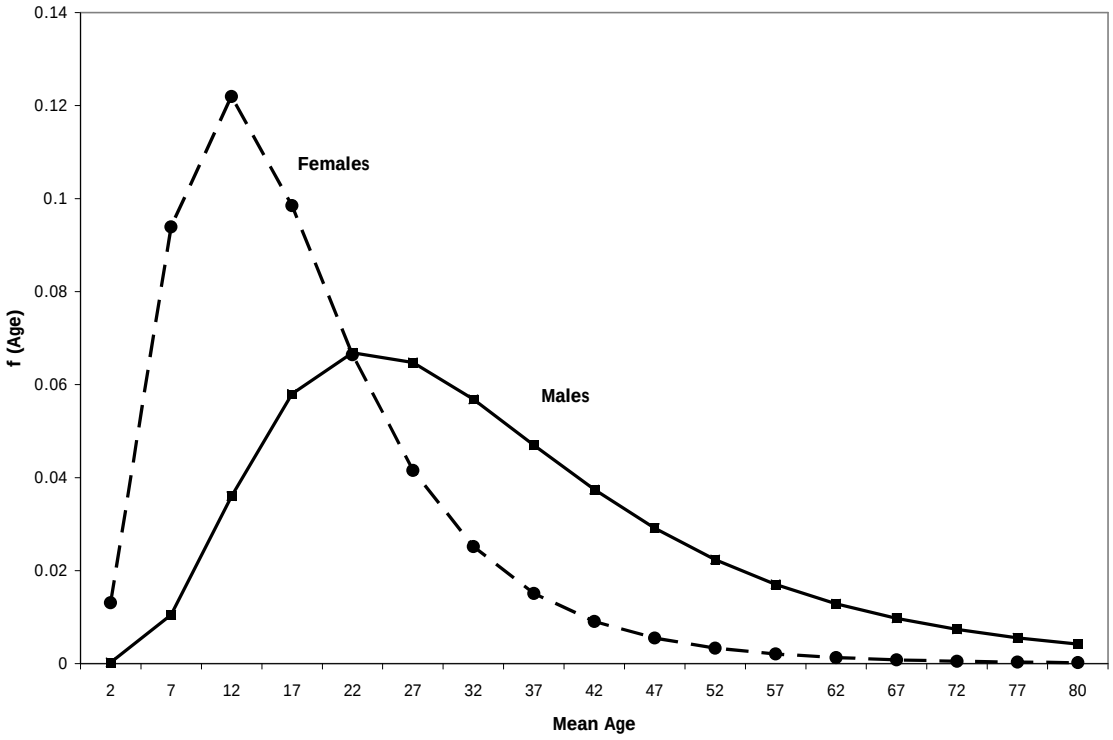


EXHIBIT 31
LOGNORMAL DISTRIBUTION FOR MALES AND FEMALES



APPENDIX B:
COMPOSITE INDICES FOR ALL COUNTRIES

EXHIBIT 30
COUNTRY-SPECIFIC RISK INDICES USED IN FEMALE SOURCE ZONE MODEL

Country	CPI 0=highly corrupt, 10=highly clean	GDI 0=unequal, 1=equal	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Composite Index
Albania	2.4	0.776	28.2	0.338	0.523
Algeria	2.8	0.706	35.3	0.406	0.466
Argentina	2.8	0.854	52.2	0.676	0.686
Armenia	2.9	0.756	37.9	0.544	0.544
Australia	8.8	0.954	35.2	0.857	0.869
Austria	8.7	0.926	30.0	0.549	0.787
Azerbaijan	2.2	0.725	36.5	0.650	0.562
Bangladesh	1.7	0.514	31.8	0.152	0.253
Belarus	2.6	0.785	30.4	0.635	0.594
Belgium	7.4	0.941	25.0	0.946	0.858
Bolivia	2.5	0.679	44.7	0.417	0.467
Botswana	5.9	0.559	63.0	0.170	0.621
Brazil	3.7	0.786	59.1	0.700	0.691
Bulgaria	4.0	0.807	31.9	0.635	0.612
Burkina Faso	3.4	0.311	48.2	0.091	0.366
Burundi	2.3	0.373	33.3	0.040	0.147
Cambodia	2.3	0.567	40.4	0.103	0.332
Canada	8.4	0.946	33.1	0.757	0.823
Chile	7.3	0.846	57.1	0.860	0.802
China	3.2	0.754	44.7	0.264	0.516
Colombia	4.0	0.780	57.6	0.636	0.660
Costa Rica	4.2	0.829	46.5	0.395	0.599
Cote d'Ivoire	1.9	0.403	45.2	0.324	0.337
Croatia	3.4	0.837	29.0	0.540	0.609
Czech Republic	4.3	0.872	25.4	0.775	0.711

Country	CPI 0=highly corrupt, 10=highly clean	GDI 0=unequal, 1=equal	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Composite Index
Denmark	9.5	0.938	24.7	0.826	0.880
Dominican Republic	3.0	0.739	47.4	0.397	0.523
Ecuador	2.5	0.751	43.7	0.180	0.508
El Salvador	4.2	0.715	53.2	0.395	0.546
Ethiopia	2.2	0.355	30.0	0.123	0.107
Finland	9.6	0.940	26.9	0.721	0.862
France	7.5	0.935	32.7	0.730	0.781
Gambia	2.7	0.464	38.0	0.159	0.244
Germany	8.2	0.926	28.3	0.800	0.816
Ghana	3.5	0.517	30.0	0.313	0.288
Greece	4.3	0.907	35.4	0.700	0.711
Guatemala	2.5	0.649	48.3	0.690	0.572
Guyana	2.5	0.716	43.2	0.360	0.483
Hong Kong, China (SAR)	8.3	0.912	43.4	0.921	0.857
Hungary	5.0	0.860	24.4	0.589	0.647
India	2.9	0.586	32.5	0.233	0.330
Indonesia	2.2	0.691	34.3	0.350	0.443
Iran	2.9	0.719	43.0	0.470	0.503
Ireland	7.4	0.939	35.9	0.556	0.750
Israel	6.3	0.911	35.5	0.800	0.763
Italy	5.0	0.928	36.0	0.670	0.723
Jamaica	3.6	0.736	37.9	0.4141	0.499
Japan	7.3	0.937	24.9	0.759	0.785
Jordan	5.7	0.749	36.4	0.860	0.702
Kazakstan	2.6	0.759	31.3	0.570	0.551
Kenya	2.1	0.472	44.5	0.151	0.322
Korea, Rep. of	5.0	0.896	31.6	0.5725	0.674
Krygyzstan	2.3	0.700	29.0	0.350	0.450
Lao People's Rep.	3.3	0.540	37.0	0.186	0.297
Latvia	4.2	0.834	32.4	0.680	0.648

Country	CPI 0=highly corrupt, 10=highly clean	GDI 0=unequal, 1=equal	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Composite Index
Lesotho	3.4	0.487	63.2	0.0463	0.596
Lithuania	4.8	0.851	31.9	0.670	0.660
Luxembourg	8.5	0.944	30.8	0.6786	0.808
Macedonia	2.7	0.794	28.2	0.590	0.585
Madagascar	2.8	0.483	47.5	0.163	0.366
Malawi	2.8	0.396	50.3	0.0848	0.397
Malaysia	5.1	0.791	49.2	0.342	0.580
Mali	2.9	0.323	50.5	0.1684	0.400
Mexico	3.5	0.804	54.6	0.750	0.692
Moldova	2.9	0.668	36.2	0.450	0.445
Mongolia	3.0	0.677	44.0	0.51	0.487
Mozambique	2.8	0.365	39.6	0.1318	0.236
Namibia	4.3	0.621	70.7	0.249	0.721
Nepal	2.5	0.511	36.7	0.04	0.265
Netherlands	8.6	0.939	32.6	0.884	0.863
New Zealand	9.6	0.929	36.2	0.835	0.883
Nicaragua	2.6	0.683	55.1	0.550	0.570
Niger	2.4	0.271	50.5	0.210	0.400
Nigeria	1.9	0.439	50.6	0.440	0.436
Norway	8.9	0.960	25.8	0.7017	0.838
Pakistan	2.1	0.508	33.0	0.340	0.287
Panama	3.5	0.800	56.4	0.4757	0.630
Papua New Guinea	2.3	0.518	50.9	0.1312	0.420
Paraquay	2.1	0.742	56.8	0.540	0.609
Peru	3.5	0.745	49.8	0.651	0.602
Philippines	2.5	0.755	46.1	0.480	0.543
Poland	3.4	0.856	31.6	0.601	0.640
Portugal	6.5	0.900	38.5	0.2615	0.678
Romania	3.0	0.789	30.3	0.530	0.564
Rwanda	3.1	0.447	28.9	0.0451	0.191
Senegal	3.2	0.449	41.3	0.343	0.308

Country	CPI 0=highly corrupt, 10=highly clean	GDI 0=unequal, 1=equal	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Composite Index
Sierra Leone	2.4	0.279	62.9	0.2762	0.589
Slovakia	4.3	0.847	25.8	0.560	0.625
Slovenia	6.1	0.901	28.4	0.510	0.682
South Africa	4.5	0.652	59.3	0.559	0.606
Spain	7.0	0.922	32.5	0.642	0.739
Sri Lanka	3.2	0.747	34.4	0.215	0.491
Swaziland	2.7	0.485	60.9	0.152	0.561
Sweden	9.2	0.947	25.0	0.831	0.873
Switzerland	9.1	0.946	33.1	0.571	0.820
Tajikistan	2.1	0.650	34.7	0.270	0.396
Tanzania	2.9	0.414	38.2	0.1329	0.226
Thailand	3.8	0.774	43.2	0.173	0.530
Trinada and Tobago	3.8	0.796	40.3	0.29	0.548
Tunisia	4.9	0.743	39.8	0.5283	0.541
Turkey	3.5	0.742	40.0	0.650	0.576
Uganda	2.5	0.502	43.0	0.079	0.314
Ukraine	2.6	0.763	29.0	0.680	0.597
United Kingdom	8.6	0.937	36.0	0.800	0.836
United States	7.6	0.942	40.8	0.752	0.796
Uruguay	5.9	0.836	44.6	0.930	0.783
Uzbekistan	2.2	0.692	26.8	0.370	0.445
Venezuela	2.3	0.765	49.1	0.7307	0.643
Vietnam	2.6	0.702	36.1	0.2011	0.446
Yemen	2.7	0.448	33.4	0.333	0.255
Zambia	2.6	0.383	52.6	0.399	0.449
Zimbabwe	2.6	0.493	56.8	0.168	0.501

Sources:

1. United Nations Development Program. 2005. Human Development Report.
2. Transparency International. 2005.
3. U.S. Bureau of the Census, International Database
4. International Labour Organization
5. HIV InSite. 2005. Center for HIV Information, University of California San Francisco, http://hivinsite.ucsf.edu/InSite

EXHIBIT 31
COUNTRY-SPECIFIC INDICES USED IN MALE SOURCE ZONE MODEL

Country	CPI 0=highly corrupt, 10=highly clean	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Unemployment Rate	Consumer Price Index	Composite Index
Albania	2.4	28.2	0.338	0.124	114.00	0.233
Algeria	2.8	35.3	0.406	0.175	114.53	0.295
Argentina	2.8	52.2	0.676	0.111	147.488041	0.553
Armenia	2.9	37.9	0.544	0.052	116.256158	0.401
Australia	8.8	35.2	0.857	0.055	113.08	0.758
Austria	8.7	30.0	0.549	0.045	108.10	0.651
Azerbaijan	2.2	36.5	0.650	0.013	113.85	0.479
Bangladesh	1.7	31.8	0.152	0.025	118.35	0.122
Belarus	2.6	30.4	0.635	0.016	348.34	0.465
Belgium	7.4	25.0	0.946	0.076	108.03	0.751
Bolivia	2.5	44.7	0.417	0.080	110.65	0.360
Botswana	5.9	63.0	0.170	0.238	134.42	0.613
Brazil	3.7	59.1	0.700	0.099	141.69	0.623
Bulgaria	4.0	31.9	0.635	0.125	123.41	0.469
Cambodia	2.3	40.4	0.103	0.025	107.88	0.245
Canada	8.4	33.1	0.757	0.075	109.78	0.691
Chile	7.3	57.1	0.860	0.069	110.27	0.736
China	3.2	44.7	0.264	0.200	104.53	0.320
Colombia	4.0	57.6	0.636	0.106	132.46	0.582
Costa Rica	4.2	46.5	0.395	0.054	149.30	0.383
Cote d'Ivoire	1.9	45.2	0.324	0.130	112.71	0.335
Croatia	3.4	29.0	0.540	0.012	110.40	0.393
Czech Republic	4.3	25.4	0.775	0.083	109.70	0.578
Denmark	9.5	24.7	0.826	0.058	108.30	0.785
Dominican Republic	3.0	47.4	0.397	0.105	221.17	0.383
Ecuador	2.5	43.7	0.180	0.066	171.73	0.296
El Salvador	4.2	53.2	0.395	0.087	112.73	0.463
Ethiopia	2.2	30.0	0.123	0.158	105.80	0.093

Country	CPI 0=highly corrupt, 10=highly clean	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Unemployment Rate	Consumer Price Index	Composite Index
Finland	9.6	26.9	0.721	0.087	105.30	0.758
France	7.5	32.7	0.730	0.09	108.02	0.630
Germany	8.2	28.3	0.800	0.115	106.20	0.699
Ghana	3.5	30.0	0.313	0.200	217.72	0.230
Greece	4.3	35.4	0.700	0.106	114.09	0.522
Guatemala	2.5	48.3	0.690	0.075	131.79	0.538
Guyana	2.5	43.2	0.360	0.091	119.97	0.322
Hong Kong, China (SAR)	8.3	43.4	0.921	0.078	92.56	0.770
Hungary	5.0	24.4	0.589	0.061	128.53	0.451
India	2.9	32.5	0.233	0.099	109.77	0.172
Indonesia	2.2	34.3	0.350	0.109	141.26	0.251
Iran	2.9	43.0	0.470	0.112	165.60	0.373
Ireland	7.4	35.9	0.556	0.042	115.96	0.555
Israel	6.3	35.5	0.800	0.089	107.22	0.626
Italy	5.0	36.0	0.670	0.079	110.47	0.509
Jamaica	3.6	37.9	0.4141	0.081	143.57	0.316
Japan	7.3	24.9	0.759	0.049	98.10	0.635
Jordan	5.7	36.4	0.860	0.125	108.93	0.656
Kazakstan	2.6	31.3	0.570	0.07	130.46	0.414
Kenya	2.1	44.5	0.151	0.4	133.47	0.307
Korea, Rep. of	5.0	31.6	0.5725	0.039	114.70	0.440
Krygyzstan	2.3	29.0	0.350	0.057	115.50	0.243
Latvia	4.2	32.4	0.680	0.106	114.20	0.505
Lesotho	3.4	63.2	0.0463	0.45	135.48	0.593
Lithuania	4.8	31.9	0.670	0.114	101.60	0.504
Luxembourg	8.5	30.8	0.6786	0.049	109.32	0.668
Macedonia	2.7	28.2	0.590	0.367	108.25	0.430
Malaysia	5.1	49.2	0.342	0.036	105.90	0.424
Mali	2.9	50.5	0.1684	0.146	105.62	0.400
Mexico	3.5	54.6	0.750	0.023	122.27	0.612
Moldova	2.9	36.2	0.450	0.1	145.34	0.329

Country	CPI 0=highly corrupt, 10=highly clean	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Unemployment Rate	Consumer Price Index	Composite Index
Mongolia	3.0	44.0	0.51	0.033	122.10	0.403
Mozambique	2.8	39.6	0.1318	0.21	106.23	0.235
Namibia	4.3	70.7	0.249	0.35	162.74	0.710
Nepal	2.5	36.7	0.04	0.42	115.18	0.189
Netherlands	8.6	32.6	0.884	0.065	111.20	0.760
New Zealand	9.6	36.2	0.835	0.035	109.68	0.795
Nicaragua	2.6	55.1	0.550	0.069	127.31	0.521
Nigeria	1.9	50.6	0.440	0.029	157.18	0.433
Norway	8.9	25.8	0.7017	0.049	107.39	0.703
Pakistan	2.1	33.0	0.340	0.066	118.70	0.240
Panama	3.5	56.4	0.4757	0.094	100.40	0.516
Papua New Guinea	2.3	50.9	0.1312	0.8	143.93	0.405
Paraquay	2.1	56.8	0.540	0.160	141.27	0.537
Peru	3.5	49.8	0.651	0.094	108.33	0.523
Philippines	2.5	46.1	0.480	0.104	120.60	0.402
Poland	3.4	31.6	0.601	0.182	112.19	0.440
Portugal	6.5	38.5	0.2615	0.073	114.21	0.439
Romania	3.0	30.3	0.530	0.09	212.50	0.384
Senegal	3.2	41.3	0.343	0.48	105.84	0.298
Slovakia	4.3	25.8	0.560	0.173	129.20	0.416
Slovenia	6.1	28.4	0.510	0.057	127.40	0.453
South Africa	4.5	59.3	0.559	0.235	123.80	0.578
Spain	7.0	32.5	0.642	0.082	109.90	0.562
Sri Lanka	3.2	34.4	0.215	0.06	143.03	0.187
Swaziland	2.7	60.9	0.152	0.4	133.47	0.558
Sweden	9.2	25.0	0.831	0.059	107.04	0.768
Switzerland	9.1	33.1	0.571	0.039	103.09	0.687
Tajikistan	2.1	34.7	0.270	0.120	109.70	0.202
Thailand	3.8	43.2	0.173	0.0162	106.96	0.301
Trinada and Tobago	3.8	40.3	0.29	0.08	118.30	0.280
Tunisia	4.9	39.8	0.5283	0.135	111.50	0.419

Country	CPI 0=highly corrupt, 10=highly clean	Gini 0=perfect equality, 100=perfect inequality	Percent Urban	Unemployment Rate	Consumer Price Index	Composite Index
Turkey	3.5	40.0	0.650	0.105	310.13	0.485
Ukraine	2.6	29.0	0.680	0.089	129.41	0.500
United Kingdom	8.6	36.0	0.800	0.05	109.62	0.721
United States	7.6	40.8	0.752	0.056	109.70	0.649
Uruguay	5.9	44.6	0.930	0.125	154.99	0.715
Venezuela	2.3	49.1	0.7307	0.123	219.89	0.569
Vietnam	2.6	36.1	0.2011	0.0186	115.04	0.190
Yemen	2.7	33.4	0.333	0.35	156.61	0.237
Zambia	2.6	52.6	0.399	0.5	212.50	0.449

Sources:

1. United Nations Development Program. 2005. Human Development Report.
2. Transparency International. 2005.
3. U.S. Bureau of the Census, International Database
4. International Labour Organization
5. HIV InSite. 2005. Center for HIV Information, University of California San Francisco, http://hivinsite.ucsf.edu/InSite

APPENDIX C: TRAFFICKING VICTIMS PROTECTION ACT— MINIMUM STANDARDS FOR THE ELIMINATION OF TRAFFICKING IN PERSONS

TRAFFICKING VICTIMS PROTECTION ACT OF 2000, DIV. A OF PUB. L. NO. 106-386, § 108, AS AMENDED.

(A) MINIMUM STANDARDS

FOR PURPOSES OF THIS CHAPTER, THE MINIMUM STANDARDS FOR THE ELIMINATION OF TRAFFICKING APPLICABLE TO THE GOVERNMENT OF A COUNTRY OF ORIGIN, TRANSIT, OR DESTINATION FOR A SIGNIFICANT NUMBER OF VICTIMS OF SEVERE FORMS OF TRAFFICKING ARE THE FOLLOWING:

(1) THE GOVERNMENT OF THE COUNTRY SHOULD PROHIBIT SEVERE FORMS OF TRAFFICKING IN PERSONS AND PUNISH ACTS OF SUCH TRAFFICKING.

(2) FOR THE KNOWING COMMISSION OF ANY ACT OF SEX TRAFFICKING INVOLVING FORCE, FRAUD, COERCION, OR IN WHICH THE VICTIM OF SEX TRAFFICKING IS A CHILD INCAPABLE OF GIVING MEANINGFUL CONSENT, OR OF TRAFFICKING WHICH INCLUDES RAPE OR KIDNAPPING OR WHICH CAUSES A DEATH, THE GOVERNMENT OF THE COUNTRY SHOULD PRESCRIBE PUNISHMENT COMMENSURATE WITH THAT FOR GRAVE CRIMES, SUCH AS FORCIBLE SEXUAL ASSAULT.

(3) FOR THE KNOWING COMMISSION OF ANY ACT OF A SEVERE FORM OF TRAFFICKING IN PERSONS, THE GOVERNMENT OF THE COUNTRY SHOULD PRESCRIBE PUNISHMENT THAT IS SUFFICIENTLY STRINGENT TO DETER AND THAT ADEQUATELY REFLECTS THE HEINOUS NATURE OF THE OFFENSE.

(4) THE GOVERNMENT OF THE COUNTRY SHOULD MAKE SERIOUS AND SUSTAINED EFFORTS TO ELIMINATE SEVERE FORMS OF TRAFFICKING IN PERSONS.

(B) CRITERIA

IN DETERMINATIONS UNDER SUBSECTION (A)(4) OF THIS SECTION, THE FOLLOWING FACTORS SHOULD BE CONSIDERED AS INDICIA OF SERIOUS AND SUSTAINED EFFORTS TO ELIMINATE SEVERE FORMS OF TRAFFICKING IN PERSONS:

(1) WHETHER THE GOVERNMENT OF THE COUNTRY VIGOROUSLY INVESTIGATES AND PROSECUTES ACTS OF SEVERE FORMS OF TRAFFICKING IN PERSONS, AND CONVICTS AND SENTENCES PERSONS RESPONSIBLE FOR SUCH ACTS, THAT TAKE PLACE WHOLLY OR PARTLY WITHIN THE TERRITORY OF THE COUNTRY. AFTER REASONABLE REQUESTS FROM THE DEPARTMENT OF STATE FOR DATA REGARDING INVESTIGATIONS, PROSECUTIONS, CONVICTIONS, AND

SENTENCES, A GOVERNMENT, WHICH DOES NOT PROVIDE SUCH DATA, CONSISTENT WITH THE CAPACITY OF SUCH GOVERNMENT TO OBTAIN SUCH DATA, SHALL BE PRESUMED NOT TO HAVE VIGOROUSLY INVESTIGATED, PROSECUTED, CONVICTED OR SENTENCED SUCH ACTS. DURING THE PERIODS PRIOR TO THE ANNUAL REPORT SUBMITTED ON JUNE 1, 2004, AND ON JUNE 1, 2005, AND THE PERIODS AFTERWARDS UNTIL SEPTEMBER 30 OF EACH SUCH YEAR, THE SECRETARY OF STATE MAY DISREGARD THE PRESUMPTION CONTAINED IN THE PRECEDING SENTENCE IF THE GOVERNMENT HAS PROVIDED SOME DATA TO THE DEPARTMENT OF STATE REGARDING SUCH ACTS AND THE SECRETARY HAS DETERMINED THAT THE GOVERNMENT IS MAKING A GOOD FAITH EFFORT TO COLLECT SUCH DATA.

(2) WHETHER THE GOVERNMENT OF THE COUNTRY PROTECTS VICTIMS OF SEVERE FORMS OF TRAFFICKING IN PERSONS AND ENCOURAGES THEIR ASSISTANCE IN THE INVESTIGATION AND PROSECUTION OF SUCH TRAFFICKING, INCLUDING

> PROVISIONS FOR LEGAL ALTERNATIVES TO THEIR REMOVAL TO COUNTRIES IN WHICH THEY WOULD FACE RETRIBUTION
> OR HARDSHIP, AND ENSURES THAT VICTIMS ARE NOT INAPPROPRIATELY INCARCERATED, FINED, OR OTHERWISE
> PENALIZED SOLELY FOR UNLAWFUL ACTS AS A DIRECT RESULT OF BEING TRAFFICKED.

(3) WHETHER THE GOVERNMENT OF THE COUNTRY HAS ADOPTED MEASURES TO PREVENT SEVERE FORMS OF TRAFFICKING IN PERSONS, SUCH AS MEASURES TO INFORM AND EDUCATE THE PUBLIC, INCLUDING POTENTIAL VICTIMS, ABOUT THE CAUSES AND CONSEQUENCES OF SEVERE FORMS OF TRAFFICKING IN PERSONS.

(4) WHETHER THE GOVERNMENT OF THE COUNTRY COOPERATES WITH OTHER GOVERNMENTS IN THE INVESTIGATION AND PROSECUTION OF SEVERE FORMS OF TRAFFICKING IN PERSONS.

(5) WHETHER THE GOVERNMENT OF THE COUNTRY EXTRADITES PERSONS CHARGED WITH ACTS OF SEVERE FORMS OF TRAFFICKING IN PERSONS ON SUBSTANTIALLY THE SAME TERMS AND TO SUBSTANTIALLY THE SAME EXTENT AS PERSONS CHARGED WITH OTHER SERIOUS CRIMES (OR, TO THE EXTENT SUCH EXTRADITION WOULD BE INCONSISTENT WITH THE LAWS OF SUCH COUNTRY OR WITH INTERNATIONAL AGREEMENTS TO WHICH THE COUNTRY IS A PARTY, WHETHER THE GOVERNMENT IS TAKING ALL APPROPRIATE MEASURES TO MODIFY OR REPLACE SUCH LAWS AND TREATIES SO AS TO PERMIT SUCH EXTRADITION).

(6) WHETHER THE GOVERNMENT OF THE COUNTRY MONITORS IMMIGRATION AND EMIGRATION PATTERNS FOR EVIDENCE OF SEVERE FORMS OF TRAFFICKING IN PERSONS AND WHETHER LAW ENFORCEMENT AGENCIES OF THE COUNTRY RESPOND TO ANY SUCH EVIDENCE IN A MANNER THAT IS

CONSISTENT WITH THE VIGOROUS INVESTIGATION AND PROSECUTION OF ACTS OF SUCH TRAFFICKING, AS WELL AS WITH THE PROTECTION OF HUMAN RIGHTS OF VICTIMS AND THE INTERNATIONALLY RECOGNIZED HUMAN RIGHT TO LEAVE ANY COUNTRY, INCLUDING ONE'S OWN, AND TO RETURN TO ONE'S OWN COUNTRY.

(7) WHETHER THE GOVERNMENT OF THE COUNTRY VIGOROUSLY INVESTIGATES, PROSECUTES, CONVICTS, AND SENTENCES PUBLIC OFFICIALS WHO PARTICIPATE IN OR FACILITATE SEVERE FORMS OF TRAFFICKING IN PERSONS, AND TAKES ALL APPROPRIATE MEASURES AGAINST OFFICIALS WHO CONDONE SUCH TRAFFICKING. AFTER REASONABLE REQUESTS FROM THE DEPARTMENT OF STATE FOR DATA REGARDING SUCH INVESTIGATIONS, PROSECUTIONS, CONVICTIONS, AND SENTENCES, A GOVERNMENT WHICH DOES NOT PROVIDE SUCH DATA CONSISTENT WITH ITS RESOURCES SHALL BE PRESUMED NOT TO HAVE VIGOROUSLY INVESTIGATED, PROSECUTED, CONVICTED, OR SENTENCED SUCH ACTS. DURING THE PERIODS PRIOR TO THE ANNUAL REPORT SUBMITTED ON JUNE 1, 2004, AND ON JUNE 1, 2005, AND THE PERIODS AFTERWARDS UNTIL SEPTEMBER 30 OF EACH SUCH YEAR, THE SECRETARY OF STATE MAY DISREGARD THE PRESUMPTION CONTAINED IN THE PRECEDING SENTENCE IF THE GOVERNMENT HAS PROVIDED SOME DATA TO THE DEPARTMENT OF STATE REGARDING SUCH ACTS AND THE SECRETARY HAS DETERMINED THAT THE GOVERNMENT IS MAKING A GOOD FAITH EFFORT TO COLLECT SUCH DATA.

(8) WHETHER THE PERCENTAGE OF VICTIMS OF SEVERE FORMS OF TRAFFICKING IN THE COUNTRY THAT ARE NON-CITIZENS OF SUCH COUNTRIES IS INSIGNIFICANT.

(9) WHETHER THE GOVERNMENT OF THE COUNTRY, CONSISTENT WITH THE CAPACITY OF SUCH GOVERNMENT, SYSTEMATICALLY MONITORS ITS EFFORTS TO SATISFY THE CRITERIA DESCRIBED IN PARAGRAPHS (1) THROUGH (8) AND MAKES AVAILABLE PUBLICLY A PERIODIC ASSESSMENT OF SUCH EFFORTS.

(10)WHETHER THE GOVERNMENT OF THE COUNTRY ACHIEVES APPRECIABLE PROGRESS IN ELIMINATING SEVERE FORMS OF TRAFFICKING WHEN COMPARED TO THE ASSESSMENT IN THE PREVIOUS YEAR.