

A MODEL FOR ASSESSING THE RISK OF HUMAN TRAFFICKING ON A LOCAL  
LEVEL

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A Thesis presented to  
the Faculty of the Geography Program  
University of Missouri-Columbia

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In Partial Fulfillment  
of the Requirements for the Degree  
Masters of Arts

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AMANDA COLEGROVE

Dr. Matthew Foulkes  
Thesis Supervisor

May 2013

The undersigned, appointed by the Dean of the Graduate School, have examined the thesis entitled:

**A MODEL FOR ASSESSING THE RISK OF HUMAN TRAFFICKING ON A LOCAL LEVEL**

Presented by Amanda Colegrove

A candidate for the degree of Master of Arts

And hereby certify that in their opinion it is worthy of acceptance.

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Dr. Matthew Foulkes  
Associate Professor  
Department of Geography

---

Dr. Michael A. Urban  
Associate Professor  
Department of Geography

---

Dr. Jill Nicholson-Crotty  
Professor  
Department of Political Science

## **Acknowledgments**

My deepest thanks to Dr. Matt Foulkes, my advisor, whose process is as different from mine as night is from day. It made this a better thesis and kept me from going off the deep end on several occasions. It also nearly pushed me off the deep end more than once.

I would not change it.

I would also like to thank my committee members, Dr. Mike Urban and Dr. Jill Nicholson-Crotty, for giving me of their time and research knowledge.

A shout out goes to my comrades in suffering: we made it!

Finally, thank you to my family who has cheered me on even through their sadness at my leaving. I would not be where and who I am today without you. All my love.

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## **Abstract**

Human trafficking is a human rights violation that is difficult to quantify. Models for estimating the number of victims of trafficking presented by previous researchers depend on inconsistent, poor quality data. As an intermediate step to help current efforts by nonprofits to combat human trafficking, this project presents a model that is not dependent on quantitative data specific to human trafficking, but rather profiles the risk of human trafficking at the local level through causative factors. Businesses, indicated by the literature, were weighted based on the presence of characteristics that increase the likelihood of trafficking in persons. The mean risk was calculated by census tract to reveal the multiplicity of risk levels in both rural and urban settings. Results indicate that labor trafficking may be a more diffuse problem in Missouri than sex trafficking. Additionally, spatial patterns of risk remained largely the same regardless of adjustments made to the model.

## **Chapter 1: Introduction**

Human trafficking is a global phenomenon. It touches all countries as a point of origin, destination, transit, or all three. According to the United Nations (UN Global TIP Report 2009: 6), human trafficking is “the recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation.” The United States (2011) has encoded a similar definition, “the recruitment, harboring, transportation, provision, or obtaining of a person for labor or service, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.”

Although slavery is outlawed in nearly every country, it continues to thrive. Furthermore, human trafficking is the third most profitable crime, after drug trafficking and the arms trade (UNODC 2009; Shelley 2010). While many Americans think the battle with slavery is nothing more than an event from our history books, thousands of people are transported to various locations within the United States and forced to work in varying exploitive conditions. Exploitation of domestic servants, hotel employees, agricultural workers, factory workers, and providers of sexual services persists.

Human trafficking is typically divided into three broad categories: forced labor, commercial sexual exploitation, and child labor. Forced labor can be found in domestic servitude, crop harvesting, and slaughterhouses. It includes debt bondage and any labor

obtained through force, fraud or coercion. Sex trafficking not only includes forced prostitution, but also stripping, pornography, and other sexual services. Child labor is present in both the labor and sex industries. Within the United States force, fraud, or coercion do not have to be proven in order for trafficking charges to be brought if the individual providing sexual services is under the age of 18. These three categories are intertwined and overlap to some degree. It is common for women forced to labor in nail salons by day to be forced to prostitute at night. Sexual assault is also frequently part of forced labor events.

Statistics regarding the number of trafficking victims are thrown around with little or no empirical data to support them. For example, the US reports 600,000 to 800,000 people are trafficked across international borders every year, 14,500 to 17,500 of whom are trafficked into the United States (US TIP Report 2011). But the Government Accountability Office (2006) says the methodology is flawed, lacks transparency and is not viable for long-term analysis. The UN reports there are 2.1 million slaves around the world at any given time, while Bales & Soodalter (2009) say there are 27 million slaves worldwide (US TIP 2009, UN Global TIP 2009). This discrepancy is due to differing definitions of trafficking. For example, some feminists declare all women in prostitution to be victims of trafficking while others only include those who are forced. Bales & Soodalter (2009) also claim that of the 400,000 children and teenagers estimated to be living on the streets nationwide, between 100,000 and 200,000 become victims of traffickers. An earlier, much critiqued report claimed as many as 300,000 children and teenagers were trafficked (Spangenberg 2001).

We know a significant amount of detailed information about other global crimes like drug trafficking and arms trading, but the same techniques have yet to be used to provide more accurate data on trafficking in people (Shelley 2010). Definitions that conflate people smuggling, implying full knowledge and acquiescence, with labor exploitation creates identification problems for law enforcement officials, which in turn hampers accurate data collection. Sexual exploitation receives the most media attention, and in the United States evangelical groups and radical feminists have succeeded in shaping policy to encompass all prostitution as sex trafficking, marginalizing victims of trafficking for forced labor (Bernstein & Jakobsen 2010). For example, the term sex work has been removed from government documents, and regulations dictate no funding will be awarded to organizations that support the legalization of prostitution (Bernstein & Jakobsen 2010).

Research and anti-trafficking efforts conducted since the passage of the Trafficking Victims Protection Act in 2001 have yielded insight into causes, definitions, and policies, but little has been done to collect empirical data, especially at the local level. This gap in knowledge impedes research. Statistics, though contested, exist on a global scale, a regional scale, and even a national scale. Recent models have attempted to provide guidance in assessing the amount and types of trafficking at broad scales, but there are no current methods to detail the local manifestation of human trafficking (Clawson 2007; Mattar 2008; Baldwin, Eisemann, Sayles, Ryan & Chuang 2011). Although human trafficking is present virtually everywhere, geography and spatiality are the least recognized components by law enforcement, government agencies, and academia. Global statistics, while shocking, do not translate well to the local dynamics of

a place. Even studies that focus on smaller regions are difficult to generalize for widespread use by local communities. The addition of empirical data and geography may be the missing ingredient in anti-trafficking efforts around the world.

Because of the dearth of information available, I propose creating maps highlighting possible locations at risk of human trafficking at a local scale based on several criteria the literature has deemed important as an initial step in fighting human trafficking until such time as empirical, quantitative data is available. Clawson (2007) developed an international model for analyzing the scope of human trafficking, but repeatedly ran into inconsistent methods of and requirements for record keeping and a general lack of data. She was forced to use less direct indicators on several occasions. Her conclusion was that certain record keeping methods should be instituted both nationally and internationally to enhance analytical capabilities and provide consistency for researchers. To date, none of her suggestions have been broadly implemented. Any accurate analysis will be impossible until detailed records are kept and made available to researchers. While attempting to build a local scale model, this project encountered similar problems and choices as Clawson.

This mixed methods research addresses these shortcomings via two objectives: 1) create a tool to map local and regional profiles of the likelihood of trafficking in Missouri, and 2) allow members of an anti-human trafficking coalition to evaluate the tool. I will create a model of trafficking risk based on variables the literature has deemed important, a common technique in criminal justice studies. This first objective will be a unique contribution to the literature as no attempts have been made to map the likelihood of human trafficking in a local context. The second objective will utilize focus groups

and surveys in order to ascertain how these maps impact the spatial perceptions of anti-trafficking efforts in Mid-Missouri. Missouri is an ideal study area for its ease of transportation on several major highways spanning the entire state, and because of a diversity of urban and rural areas. This allows for exploring how a model of trafficking can be applied across a variety of landscapes. Because of the lack of spatiality in trafficking statistics, many organizations may not have a well-defined sense of the local extent of the trafficking problem, or how their activities mesh with this local geography. Creating and studying the impact of these maps will have practical significance for researchers and anti-trafficking efforts.

## **Chapter 2: Literature Review**

A great deal of literature exists about human trafficking in the twenty-first century, but uncertainty regarding how trafficking should be defined, where it occurs, and how widespread the problem is continues. Early research focused on describing who is at risk of becoming a victim of human trafficking and why it has flourished. Only more recently have studies attempted to collect empirical numbers. Those few studies focusing on estimating the number of victims face a difficult task for two reasons: the clandestine nature of the crime and the ambiguity of definitions. This literature review will provide an overview of human trafficking risk factors and aspects of demand before discussing complicating factors in data gathering efforts and crafting coherent policies. The final sections will review literature on crime analysis and models of human trafficking.

### **Overview**

Research into risk factors for becoming a victim of human trafficking reveals poverty and lack of employment opportunities are the two largest contributors. Individuals are willing to put themselves at greater risk in the pursuit of basic needs like food or shelter (IHRLI 2005, IOM 2005). Adding to the pressure of poverty and unemployment are problems with political and social violence, gender inequality, and a general indifference toward women, adolescents, and children (IOM 2005). Many females and adolescent victims fall prey to traffickers because of problems such as: economic instability, sudden responsibility as a single head of the household, illiteracy, minimal education, lack of technical skills, and/or a history of physical or sexual abuse (IHRLI 2005). Other conditions that increase the potential for trafficking in persons are

development strategies involving tourism, a newly opened or weak border, complex governmental budget situations that may increase corruption and the presence of teen runaways (Kelly, et al 2005; Bales & Soodalter 2009).

Economic growth and integration into the global economy has a direct effect on the lives of working people (Toge-Lawson 2008). International organizations such as the World Bank and the International Monetary Fund have required governments to institute austerity measures in order to be approved for additional loans. These measures negatively affect citizens already struggling to survive. Multi-national corporations seeking the cheapest labor demand governments ease restrictions or lose business. As developing countries bow to pressures from international organizations and multi-national corporations, the poor suffer increasing hardships which facilitate increased risks to migrate (Kelly et al 2005). When a global recession hits, like in 2008, the number of possible victims swells (Shelley 2010).

A small but growing body of literature has focused on the demand side of trafficking (Wheaton et al 2010; O'Brien 2011). Wealthier nations are the most common destination for trafficked individuals (Shelley 2010; IHRLI 2005; Bales 2007; Danailova-Trainor & Laczko 2010). But, even those trafficked to work in sweatshops in developing countries typically manufacture products to be sold in wealthy nations (Kelly et al 2005). Consumers expect to get the most for their money; therefore corporations must cut costs in order to stay profitable (Pierce 2011). As labor is one of the highest expenses, production is moved to locations with fewer restrictions and lower wages (Wheaton et al 2010). Consumers likewise expect cheap food, driving agricultural businesses to cut labor costs as well (Kelly et al 2005). Male demand for paid sexual services is known to

increase prostitution in localized areas when there is a concentration of men. Events like the Superbowl and the Olympics, jobs like harvesting crops, and military installations or peacekeeping efforts all correlate to higher demand (Yen 2008; Shelley 2010; Hughes 2005; Kara 2009). The lack of willingness by citizens to perform these low-wage or demeaning jobs and the consumer mindset create a growing demand for a low-wage, disposable work force (Musto 2009).

Many countries, including the United States, refuse to acknowledge the skyrocketing demand for low-skilled workers by continuing to seek immigrants with higher educational levels and professional skills (Ahmad 2008). This means rejected, uneducated workers are forced to migrate illegally in order to fill available jobs.

Although there is a link between labor and trafficking, states' policies on migration ignore this fact and have instituted more restrictive migration policies under the banner of protecting people from traffickers (Berman 2010; Hanley et al 2006; Strauss 2012).

Irregular migration exposes the worker to increased exploitation and possible criminal charges, while tough immigration policies make the state appear as though it is serious in its efforts to combat trafficking (Strauss 2012; Hanley et al 2006; Pierce 2011; Ahmad 2008). Economically, the state and corporations benefit from restricting migration into these low skilled areas because it perpetuates the depression of wages for both legal and illegal migrants. According to Wheaton, Schauer, & Galli (2010) even a small increase in the cost of labor has a negative impact on profits significant enough to press businesses to go underground to avoid taxes and labor unions. This reality constitutes a closer inspection of industries and their employment practices.

## **Limitations of Existing Research**

Research in human trafficking has two large limitations. First, the clandestine nature of the activities makes it difficult for accurate numbers to be collected (Tyldum & Brunovskis 2005; Kelly et al 2005; Baldwin 2011; Bales 2007; Bales & Soodalter 2009). The United States reported in 1999 that there was 45,000 to 50,000 people trafficked into the country every year (Guinn 2008). After much criticism due to the lack of supporting evidence and unexplained methods, the estimated numbers dropped until it reached current claims of 14,500 to 17,500 people trafficked into the US each year (Guinn 2008; Potocky 2010). The covert nature of the crime is thought to depress most estimates. Traffickers are adept at using modern technologies to stay ahead of law enforcement and bribe officials whenever necessary (IHRLI 2005; Huda 2009; Shelley 2010; Bales 2007). Furthermore, victims are reluctant to come forward. Through the use of violence, drugs, alcohol, threats of violence toward the victims' families, and real and imagined corruption among police and government officials, traffickers have effectively silenced many victims' attempt to speak up (Bales 2007; IHRLI 2005; Shelley 2010; Shelley 2003; Tyldum & Brunovskis 2005).

The second limitation to accurate reporting is differing definitions of trafficking (Brennan 2008; Cwikel & Hoban 2005; Davidson 2006; Guinn 2008). Implementation by the signatories of the UN's anti-trafficking protocol has led to heated debates about whether workers who are voluntarily smuggled, but end up in slave like conditions, should be considered trafficked (Hanely et al 2006; Kanaiaupini 2008). Differentiating between being smuggled and trafficked can be unworkable when voluntary migrants,

using illegal means, suffer violence and debt bondage similar to definitions of trafficked victims (Ahmed 2008). Trafficking is often embedded in migration flows, both legal and illegal, and people's experience of exploitation and abuse range along a continuum (IHRLI 2005; Davidson 2010; Strauss 2012). This leads to conflicting reports on the number of slaves.

Voluntary and involuntary migrations have many similarities (Musto 2009). Ahmed (2005) found that legal and non-legal migrants often work side by side, experiencing the same benefits or exploitations. Rijken (2009) and Zimmerman (2010) suggest using a labor or human rights perspective where how a worker came to be in a particular location matters less than their working conditions. Race, gender, age, and class impact the exploitation of workers, regardless of their legal or trafficked status (Hanley, Oxman-Martinez & Lacroix 2006; Derluyn, Lippens, Verachtert, Bruggeman & Broekaert 2009). Focusing on labor or human rights violations allow law enforcement to approach people in trouble with less aggression or suspicion and increases the likelihood he or she will help in the prosecution (Berman 2010; Wilson, Walsh & Kleuber 2006). However, without legal status, some countries will not accept a complaint and in other cases only an employee can lodge the complaint (Hanley et al 2006). Degrees of willingness to migrate, varying perspectives of labor and human rights, and the significance of legal status makes gathering quantitative information even more difficult.

Further complicating definitional issues is how to properly identify sex trafficking victims. While the UN protocol views all forms of trafficking as equally criminal, the United States (US) definition places commercial sex trafficking under the label of "severe forms of trafficking" and throughout the last decade has made sex trafficking the focus of

its efforts while virtually ignoring labor trafficking (Davidson 2006; Carson & Edwards 2011; Davidson 2010; Outshoorn 2005). In practice it is challenging to separate the legally defined victims from voluntary prostitutes as many women knew what kind of work they were going to be doing, just not how abusive the conditions would be (Kelly 2003; Musto 2009; Bernstein 2010).

Feminist studies have debated commercial sex trafficking, for the most part, from two opposing camps (Carson & Edwards 2011; Cwikel & Hoban 2005). Liberal feminist theorists focus on the agency of women (Augustin 2005; Bernstein 2010; Jeffreys 2009; Spanger 2011). It highlights the choices that women make in order to survive, including prostitution. Labeling these women victims of trafficking robs them of their agency and capacity to think for themselves (Spanger 2011; Musto 2009; Limoncelli 2009). Evidence supporting such feminist claims was gathered from women who knew they were being transported for sexual labor, as well as women who are in prostitution and fight for its legalization. Research has also linked Western and religious ideals to demands for the abolition of prostitution (Jeffreys 2009; Weitzer 2007; Weitzer 2010). Liberal feminists do not deny that trafficking happens, but encourage us to think carefully about how we perceive individual women.

The other side of the debate comes from radical feminists, often called abolitionist feminists. From this perspective, prostitution is inherently sexist and rooted in patriarchy (Hughes 2005; Hodge 2008; Huda 2009; Kara 2009; Yen 2008). They focus on the structures that constrain women's choices in making a life for themselves and seek the end of prostitution all together, claiming it is male violence against women. Radical feminists gather evidence from individual women trapped in exploitive conditions and

experiencing physical and emotional hardship unlike any other labor arena. Radical feminists do not deny that women make choices, but encourage us to dig deeper in order to understand why their choices are so narrowly restricted.

While liberal feminists often ignore the violent realities of sex work, radical feminists ignore positive outcomes of legalizing prostitution. Limoncelli (2009) attempts to refocus the debate on the actual, lived experiences. She criticizes the competing camps for spending more time proving their rightness rather than finding solutions that make women's lives better. Too often, ideas about trafficking and prostitution become the main issue instead of the material practices of sex labor. Radical and liberal feminists debate ideas about sex work instead of analyzing the work itself. A look at lived experiences of street and brothel prostitutes makes the liberal categorization of prostitution as work difficult. Voluntary prostitutes' health issues overlap with trafficked women, women in domestic violence situations, and migrant women in other forms of informal exploitive labor (Zimmerman, Yun, Roche; Shvab, Watts, Trappolin, Treppete, et al 2006; Zimmerman, Hussain, et al 2006a; Kelly et al 2005). Still, Limoncelli (2009) explains, the framework of sex as labor empowers women to speak up for themselves, fights paternalism, and has resulted in local reforms that benefit women. Vehement opposition by liberal and radical feminists to acknowledge the truths expounded on by either camp hinders any process of negotiation for solutions and further delays quantitative research.

Each of these discussions has merit. The human rights of any person, trafficked or not, should be taken into consideration when forming policies and regulations. A keen understanding of the interconnectedness of the global economy, migration, and labor is necessary to address the complexity of human trafficking. Further research into the

demand side of trafficking may provide information for more nuanced solutions. However, overshadowing the theoretical and moral debates surrounding these perspectives is the lack of quantitative evidence. Researchers continue to use contested numbers from the U.S. or other organizations as they argue over definitions, discuss conditions, and make suggestions. There is a clear need for quantitative data that must be addressed.

### **Policies**

This lack of data and disagreements about the definition of trafficking impacts policies and their implementation. Funds set aside for victim assistance will be quantifiably different if there are hundreds of victims or thousands of victims. Due to the hidden nature of this population, victims have been difficult to find. As a result, in the U.S., focus has recently shifted in efforts and policy toward domestic child victims trafficked for sexual exploitation, who are easier to identify (Potocky 2011; Bales & Soodalter 2009). Federal anti-trafficking laws state consent cannot be given by anyone under the age of 18 and therefore any case involving a minor is automatically considered trafficking. Increased numbers do not necessarily indicate an increase in one form of trafficking or a decrease in another. Knowing the scope of human trafficking in a geographic location is necessary for the proper establishment and implementation of policy. However, international agreements and national policies have been instituted without this knowledge.

As an international agreement the 2003 UN Protocol to Prevent, Suppress & Punish Trafficking in Persons, Especially Women and Children, or the Palermo Protocol, acts as the lowest common denominator (Rijken 2009). It is void of spatiality and the

uniqueness of place influencing human trafficking at the local level. For example, the caste system impacts trafficking in India and immigration policy is intricately connected to trafficking in the United States (Hepburn & Simon 2010). While the Protocol acknowledges the global dimensions, it is only the first step nations should take in addressing the problem in their own country. Like the Palermo Protocol, the U.S. law, known as the Trafficking Victims Protection Act (TVPA) is devoid of spatiality. Trafficking is defined by conditions of exploitation and means through which individuals are brought into slavery. It leaves unresolved the differences place makes in the manifestation of trafficking a law enforcement official in a particular state or city may find. For example: harvesting of vegetable crops is a job known to have a high risk for labor violations including trafficking. However, in Missouri, a focus on migrant labor in agricultural fields may be less beneficial since a majority of the crops in the state are soybeans and corn, harvested mechanically. Given that victims are frequently transported via highways, a more geographical view of trafficking may be appropriate.

Recent trafficking incidents in MO provided the emotional impetus to increase penalties, but do not answer the need for better data. Instead, they highlight the lack of answers to questions about the prevalence of certain types of trafficking in the state over others or whether the crime is widespread throughout Missouri or concentrated in specific locations. Without empirical numbers, it is difficult to assess the effectiveness and quality of updated policies or anti-trafficking efforts by NGOs. Many organizations are concerned with the daily provision of services and do not have the time or resources to build a broader picture of human trafficking. With the absence of data, the creation of trafficking risk maps will be a useful tool for assessment of services offered compared to

services needed as well as a tool for law enforcement to judge where resources should be focused. These maps may also provide legislatures a way to determine better policies.

### **Crime Analysis**

The ambiguity of definitions and other complicating factors can be seen in the wording of anti-trafficking policies and how these policies are implemented. Moral and theoretical debates expounded on above are encoded in various ways into legal documents leaving law enforcement without concrete structures to guide their arrests. Individual agents and departments within governments rely on subjective criteria, creating occasion for two victims with similar circumstances to be treated differently. Although human trafficking is a global problem, its local face has yet to be revealed in the same detail as the global phenomenon. An instance of human trafficking occurs in a particular place, not in the abstract world.

The spatial clustering of crimes has long been recognized by law enforcement, using paper maps and push pins to map out these areas until the advent of Geographic Information Systems (GIS). Geographers studying spatial components of crime regard the landscape as communicating symbolic messages (Kumar 2003; Cohen & Felson 1979; Herbert & Brown 2006). Neighborhoods with poorly maintained houses and lawns and difficult surveillance speak of their vulnerability to the criminally minded (Cohen & Felson 1979; Ziegler). Two of the more common theories, broken windows and routine activities, emphasize management of the built environment to deter crime. Obvious displays of territoriality tell would be thieves they are at a higher risk of getting caught and are therefore more likely to find a different target. Broken windows theory postulates that allowing one broken window will lead to other vulnerable qualities and invite crime.

To deter criminal behavior there can be no tolerance for poorly maintained neighborhoods. Routine activities theory, which considers crime a routine activity along with other daily actions, stipulates the combination of a motivated criminal, the presence of a suitable target, and the lack of a capable guardian creates a situation ripe for criminal activity (Kumar 2003; Cohen & Felson 1979). This has led to place based crime prevention programs such as Crime Prevention Through Environmental Design (CPTED).

Herbert & Brown (2006) consider both theories too simplistic. Although landscapes may communicate messages of vulnerability, those landscapes are socially constructed with limited total freedom. Larger societal influences, such as capitalism, dictate development zones, contributing to deterioration in other zones, and cultural influences determine what is aesthetically pleasing in architecture. Some environments have been pushed into vulnerability from outside forces, but place based crime prevention disregards these structural causes of spaces of poverty and segregation.

Similarly, human trafficking is a crime that does not fit well in either crime theory. However important built environment characteristics are for preventing crime in a neighborhood, they do not directly translate in preventing trafficking in persons. It is not the built environment, necessarily, that encourages or discourages human rights violations. Commercial sexual exploitation occurs in suburban homes and inner city brothels, in run down motels along lonely stretches of highway and in five star hotels in the crowded city. The environment that connects them is not structures and their maintenance, but culture and economics. Likewise, involuntary servitude is found inside private homes and public hotels, in a rural tomato field and in busy restaurants. In both

cases the landscape is abstracted from the built structures to the underlying social structures that promote unlivable wages against the backdrop of billion dollar profits.

Studies of the spatiality of crime have often used statistical techniques such as regression analysis to develop local spatial models of crimes. These models are developed by uncovering the relationships between crime and a number of observable factors, including the proximity of other criminal acts. Numerically, many observations are necessary for these techniques to properly predict any crime spree, or movement of crime from one region to another (Gorr & Harries 2003; Groff & La Vigne 2001; Johnson 2008; Malczewski, Poetz & Iannuzzi 2004). This type of analysis is common for burglaries and has been adapted for geographic purposes as demonstrated by Malczewski's, et al (2004) use of geographically weighted regression in an analysis of patterns of burglaries in London, Ontario. However, regression analysis is not possible at this time for studies on human trafficking. At the national level, the data available is unreliable (Danailova-Trainor 2006 & Belser; Clawson 2007). At the local level, the data set of arrests is neither geographically precise nor large enough to run the equations.

Property crimes are locational crimes in a way that human trafficking is not. Broken windows and stolen goods from a house provide a place one can point to as having experienced a crime. Human trafficking is a crime of the body, which does not necessarily correspond to a permanent location. The person who recruited a victim may or may not be the same person who transports them, who may or may not be the same person who exploits the victim. Potentially, there are three perpetrators and three locations. Once we factor in the possibilities of victims coming from anywhere, victims going to anywhere, the temporary nature of jobs like harvesting and construction, and the

mobility of traffickers, the typical crime analysis equations become even less relevant to understanding or predicting human trafficking.

### **Models of human trafficking systems and risk**

Models that estimate the number of trafficked victims at a national level have been attempted previously. Danailova-Trainor & Belser (2006), have one of the most ambitious models to estimate the number of victims in trans-national sex trafficking. They discovered that typical market equations would not suffice because the human trafficking market is not perfectly competitive and there is “no direct, observable transaction that involves buyers and sellers” as both are often from the same crime organization. Instead, using previous research, available data, and their own experimentation with the data, they looked for exogenous factors influencing the number of victims. Because sex trafficking cannot be separated from prostitution the former was measured as a percentage of overall prostitution. Rather than attempting to quantify the phenomenon they gathered other researchers’ estimates and took the average, assuming high estimates would cancel out low estimates. Then they measured other variables like border permeability, how open to globalization a country is, and female youth unemployment rates in the source country. Numbers were “impossible to determine” exactly, but they do state emphatically that there is a statistical relationship between the number of victims out of a country and the level of female youth unemployment in that country. Furthermore, if a country is open to globalization and has prostitution, they are likely to be a destination for trafficking victims.

Farrel et al (2010) also attempt to estimate the number of victims that have been trafficked. Originally they intended to perform a meta-analysis, but found there was no

systematic information available and agencies that do collect data lack the capacity to identify and track potential victims. Instead, using the existing literature to identify vulnerable populations, they analyzed existing estimates from a variety of sources for quality. Depending on the source of information, vastly different numbers are given. For example, the federal estimates present the minimum median number of labor victims to be 5,166, but economic models estimate the number to be 60,467. After quality checking 207 studies they determined there were no reliable counts because existing research on human trafficking in the United States is incomplete and there is an unquantifiable degree of double counting. In the end, the team managed to provide ranges for the minimum to the maximum number of victims.

To date models have been on the national or international scale and have not successfully estimated the scope of human trafficking. With better data the models may prove useful and adaptable to local levels, but anti-trafficking organizations need a tool that does not rely on faulty statistics. My contribution to the literature will be to examine the risk factors associated with human trafficking and create a smaller scale geographic profile of that risk. Interested parties can then use this tool for assessing the region in which he or she fights human trafficking. I based my model on two other important works on estimating human trafficking on an international scale: Clawson's (2007) work, entitled "Estimating Human Trafficking into the United States: Development of a Methodology Final Phase Two Report" and Zimmerman, Hossain, and Watts' (2011) work entitled "Human trafficking and health: A conceptual model to inform policy, intervention, and research."

Clawson (2007) attempted to create statistical models for estimating the number of women being trafficked into the mid-Atlantic region of the United States from 15 countries in Eastern Europe. Her approach was both qualitative and quantitative. Initially, prosecution cases were reviewed to identify trafficking flows and create a list of data variables and sources to collect information on those variables. In the quantitative methods she divided human trafficking into four phases or zones: recruitment from the country of origin, transit journey, arrival at the southwest border or mid-Atlantic region of the United States, and transport from entry points to markets within the United States. Each zone has a different model, along with different data sources, assumptions and circumstances. Collecting data was problematic due to inconsistencies within countries and between countries. In most cases it became necessary to use proxy data. For example, the qualitative portion of this study indicated demographic characteristics important for determining vulnerability to recruitment, like education, religion, and ethnicity, but none of that information was available in source countries. Instead, Clawson used the Gender-Related Development Index (GDI) to measure inequalities between genders in these geographic areas. Although the results are presented at the national level, Clawson's theoretical disaggregation of the trafficking process is an important contribution to the literature.

Zimmerman, et al (2011) contend that as human trafficking is not decreasing, health consequences will need to be considered by policy makers and health professionals. Their model divides trafficking into three stages: recruitment, travel-transit, and exploitation. Each stage has specific health risks associated with it. At the recruitment stage a pre-existing condition can make an individual vulnerable to

trafficking, while otherwise healthy individuals may experience an initial decrease in well-being if recruitment is violent. The transit stage health risks are highlighted by the dangers of travel and abuses by traffickers. Health risks increase, or accumulate, as a victim is trapped for longer periods of time. Even rescue does not necessarily decrease health risks as a victim may be deported and re-trafficked. This model also demonstrates points of intervention by healthcare providers and law enforcement, thereby changing the pattern of risk for that individual.

Experts repeatedly state the need for better and more data. Quantitative analysis is hindered by inconsistencies in available data and the overall lack of data. Recognizing that statistical models would also not be possible at the local level, I determined to use more readily available data to create an assessment model of the likelihood of human trafficking activity. This tool maps local and regional profiles of human trafficking risk in Missouri based on criteria previous researchers identified as factors for increasing the likelihood of trafficking. Acknowledging the importance of both Clawson's and Zimmerman's model in separating trafficking into stages or zones, this model also has three stages in order to reflect the complexity of the issue. This model also recognizes the significance of accumulated risk presented by the Zimmerman model.

## **Chapter 3: Methods**

### **Overview**

This project develops a statewide, tract-based model of human trafficking risk and then evaluates its usefulness amongst human trafficking advocates in their attempt to change society. Permission to study members' perceptions and changes thereto was garnered from the Central Missouri Stop Human Trafficking Coalition (CMSHTC). The Coalition has a membership of organizations and individuals who are working to stop human trafficking in central Missouri. By working with CMSHTC I had access to most of the individuals and organizations that are involved in anti-trafficking activities in the region. Knowledge was cogenerated with members of the anti-trafficking organizations who allowed me to study their evolving perceptions to determine what trafficking risk maps might mean for them locally and for the greater fight against human trafficking.

### **Study Area**

The study area is Missouri. The diversity of urban and rural landscapes, the wide range of economic activities, and three large transportation corridors (I70 from East to West, I44 from East to Southwest, and US63 from North to South) provides a comprehensive geographic setting to develop the trafficking model. Existing studies focus exclusively on urban areas (Ahmad 2008, Danailova-Trainor & Laczko 2010, Baldwin, et al 2011 and Sasson 2002), so little is known about human trafficking in rural areas. In order to understand how human trafficking might vary at smaller scales, the analysis will take place at census tract level. This will allow for more nuanced maps, and allow for the exploration of how trafficking might vary across less populated areas.

Although the model is developed for Missouri, it can be used as a starting point to develop models for other places across the nation. Risk factors increasing the likelihood of human trafficking are similar nationwide. Likewise, the system of law enforcement and NGOs that fight trafficking in local places are similar across the U.S., as NGOs are often a branch of a national nonprofit or provide similar services as those in other locales. These similarities allow this model to be utilized anywhere in the country to assess risk, direct funding, and focus services.

### **Data**

To complete the first objective, I used existing data of over 10,000 businesses to create a spatial model of human trafficking. These are places where, based on theoretical assumptions, current literature, and knowledge gained from studies of typical places and situations surrounding arrests, exploitation is most likely to occur. Identification of potential spaces of coercion is based on actual occurrences discovered both locally and nationally and theories on power, conflict, capitalism and equity. I used GIS and spatial analysis to create layers highlighting areas of greater potential for human trafficking activities. The main factor that elevates the trafficking risk of a place is the presence of a low wage/low skill, or service industry job. These include: restaurants, construction companies, nail salons, massage parlors, agriculture, strip clubs, escort services, truck stops, and bars.

Data sources are existing lists from online databases of industries and a private company that maintains current locational information of businesses within the United States. Information was aggregated to census tract and county level geographies in order to protect identities of current businesses and to allow the incorporation of data published

by the Census Bureau. Businesses requiring skilled labor or non-manual labor were excluded from this study, as the risk for finding trafficking in these industries is low. I utilized maps of Missouri, Missouri counties, 2010 Missouri census tracts and roads available on the Missouri Spatial Data Information Service (MSDIS) website. Income and other demographic data from the 2010 Census and the American Community Survey were used.

For the second objective, I explored how these maps might assist various organizations in their anti-trafficking efforts by comparing their perceptions about where trafficking occurs and the spatial extent of their services and activities with the potential locations of trafficking revealed by the maps. My sample population was drawn from the current members of the Central Missouri Stop Human Trafficking Coalition. Members of the coalition include local and federal law enforcement, social service providers, antihuman trafficking organizations, antiviolence organizations, concerned citizens, and community business people. Although the coalition does not include all organizations in Missouri fighting human trafficking, limiting my sample to this population is justifiable. Many of the same state organizations that are part of the coalition work in other locations around the state. Likewise, other non-governmental agencies are in multiple locations or there are similar organizations in other areas. All members of the coalition had equal opportunity to participate, and because the make-up of the coalition is similar to organizations around the state, the information gathered is generalizable to the entire state. Sample size and composition were different for each phase of the evaluative part of the study.

Phase one involved surveying members of the CMSHTC to assess their current spatial perceptions of the trafficking problem and their activities. Of the 12 Coalition member respondents to the initial questionnaire, three were board members, three were concerned citizens, and seven worked for a nonprofit organization. Some participants were in more than one category. Questions probed topics such as where trafficking is most prevalent and how are services distributed. This initial survey was conducted via email questionnaire. All members of the coalition were emailed, using the organization's listserv, a consent form and the questionnaire. Those willing to participate filled out the form and emailed it back to me, signifying consent.

Phase two involved presenting the quantitative data and maps, through the medium of posters, to members of CMSHTC. Prior to the discussion session the coalition sent out an invitation email along with the consent form to all members. While anyone in the coalition was welcome to participate in the discussion, I tried to get as representative a sample of organizations fighting human trafficking as possible. Of the six organizations represented in two separate discussion groups, two offered services directed specifically to victims of trafficking in MO. One representative worked for an international organization helping victims and fighting trafficking abroad and one offered case management for foreign-born survivors. Three organizations offered referral services and/or funding to other organizations. One organization offered counseling services. This provided an evaluation of the tool by those most likely to use it and is, therefore, generalizable to anywhere in the United States.

A second questionnaire was handed to each individual and filled out after the presentation, but before group discussion to ensure a record of responses before being

influenced by fellow participants. This second survey gathered information about how their perceptions changed after viewing the maps, looking for any surprises or confirmations. If participants had not filled out the first questionnaire, I asked if they were willing to do so in order to have a specific base line to compare their second answers to. Upon completion of the second questionnaire I conducted a semi-structured discussion group with the same individuals, which was recorded. This involved participants discussing the perceived accuracy of the maps, their usefulness, any adjustments that would make the maps better, and ways the maps and information can be used in anti-trafficking efforts. Maps serve as a powerful and persuasive communication tool, and this mapping exercise could potentially be used by state policy makers as they learn about human trafficking in their districts. In addition, it has the potential to serve as a template for similar efforts in other states, broadening the impact of my efforts.

### **Building a risk profile model**

Initial point data for businesses and their attributes were entered into a geographic information system (GIS), along with tract-level income and ethnicity data. Layers were created to separate possible commercial sexual exploitation (CSE) sites from strictly labor exploitation sites; hotels are represented in both layers. Data were inserted into three models that reflect the stages of human trafficking: recruitment, transit, and exploitation. Exploitation was divided again into CSE and labor exploitation. The Zimmerman et al (2011) model calculates accumulated risk for health problems amongst trafficking victims. Similarly, I calculated the relative likelihood of the presence of trafficking through the accumulation of risk factors. While they looked for specific things affecting health, I looked for characteristics that make trafficking possible.

The division of trafficking into three stages is predicated on the knowledge that different demographic and causative factors apply to recruitment than to transit and exploitation. In reality trafficking is a dynamic and continuous event, with all three stages overlapping or being present in various combinations. By separating the stages, the analysis can be refined to more accurately reflect what is happening in Missouri. The further delineation of exploitation into sexual exploitation and labor exploitation follows the same logic. Different businesses are predominant in each type of exploitation with different risk factors present. For prosecution, the stages are irrelevant. No transport need occur for trafficking to be charged and anyone who knowingly harbors a victim can also be charged with trafficking. However, for the purpose of analysis, the stages facilitate a deeper understanding.

Each business was weighted based on the presence of risk factors. In the case of sexual exploitation a business received a base risk weight between one and three, depending on how directly connected to adult entertainment it is, with one being least connected and three being most connected (see Table 3.1). For example: strip joints receive a weight of three, truck stops receive a two because they are not in the business of prostitution but well known for that activity, and bars receive a one because they are connected through their selling of alcohol which increases the likelihood that someone will try to buy sex (Farrell, et al 2010; Lewis et al 2012). After determining the base risk, the risk scores of hotels, gas stations, and truck

<b>Business</b>	<b>Base Risk</b>
Strip Club	3
Bar	1
Escort Svc	3
Hotel	2
Truck Stop	2
Night Club	1
Massage Parlor	2

**Table 3.1 Base Risk of Businesses for Sex Trafficking**

stops were increased depending on their proximity to other businesses or highways.

Those factors deemed to increase the risk of exploitation were placed in separate columns and given a weight of 0 if not present or a 1 if present for that business (see Table 3.2).

Hotels were given an increased risk factor if they were .2 miles or less from an adult entertainment venue, truck stop, or major highway (defined as I70, Hwy 63 & I44).

Hotels with 100 employees or more scored higher because larger hotels have been common sites for prostitution. Likewise, gas stations or truck stops within .2 miles from major roads are at an increased risk due to the ease with which traffickers can move on. The decision to use .2 miles was based on the estimated typical distance at which one can see a business from the highway. These individual risk factors were then summed for each business to create a total risk score for that business.

<b>Business</b>	<b>Base Risk</b>	<b>Hotel .2 Miles from Adult Entertainment Venue</b>	<b>Gas Station .2 miles from Major Highway</b>	<b>Size of workforce &gt; 100 employees</b>	<b>Total Risk</b>
Strip Club	3	0	0	0	3
Bar	1	0	0	0	1
Escort Svc	3	0	0	0	3
Hotel	2	1	0	1	4
Truck Stop	2	0	1	0	3
Night Club	1	0	0	0	1
Massage Parlor	2	0	0	0	2

**Table 3.2 Adjustment of Base Risk Based on Risk Factors Present**

For labor exploitation, I followed the same procedure. First, I assigned a base risk based on whether a business type has experienced repeated arrests nationwide, with the scores ranging from 1 to 2 (see table 3.3). I then increased these scores if the business was large. Specifically, I used total revenue and size of work force as proxy data for whether a business contracted their hiring with an outside company, which the literature

and law enforcement has shown increases the likelihood of human trafficking (see Table 3.4 for aggregated risk factors). After the total risk was aggregated to the census tracts and averaged, a point of risk was added to those tracts that had an above average presence of foreign-born residents.

<b>Business</b>	<b>Base Risk</b>
Hotel	1
Dry Cleaner	1
General Construction	1
Painting/Dry Wall Hanging	2
Nail Salon	2
Restaurants (non-fastfood)	1
Agriculture	2
Meat Pkg	2

**Table 3.3: Base Risk of Businesses for Labor Trafficking**

<b>Business</b>	<b>Base Risk</b>	<b>Size of Workforce: 0-499=0; ≥500=1</b>	<b>Annual Revenue: 0-\$999,999=0; ≥\$1 million=1</b>	<b>Total Risk</b>
Hotel	1	0	1	2
Dry Cleaner	1	0	0	1
General construction	1	1	0	2
Paint/Dry Wall Hanging	2	0	1	3
Nail Salon	2	0	0	2
Restaurants	1	0	0	1
Agriculture	2	1	0	3
Meat Pkg	2	1	1	4

**Table 3.4 Adjustment of Base Risk Based on Risk Factor Present**

Once the total risk for each business has been summed, the total and mean scores for each tract were calculated. Maps can be made based on the frequency with which businesses are located in a census tract, the summed total of risk in a census tract, or the

mean risk total. Each demonstrates a different component of the risk profile. However, by using the mean, urban areas are not over-emphasized in relation to rural areas because means control for the vast differences between tracts in population and the size of their economy.

The recruitment risk profile of each tract was created using demographic factors associated with vulnerability to becoming a trafficking victim: female population 51% or higher, the top quintile of tracts in terms of percentage of youth age 10 to 24, above average unemployment rates, higher than 30% poverty rate, above average percentage of nonwhites, and the presence of a juvenile detention center (see table 3.5). Averages were determined using Missouri data. Although the typical cut off for poverty analysis is 20%, I chose to use 30% to ensure a concentration of poverty within a census tract. Data of runaway children could not be obtained, but would be necessary to create an accurate recruitment risk profile given the well-documented recruitment of runaways into forced labor and sexual exploitation. Again, the recruitment risk score is accumulated. The more characteristics present, the higher the risk of trafficking recruitment occurring in that census tract.

Census tract	≥51% Female Residency	Top Quintile Ages 10-24	Above average Unemployment	≥30% Poverty	Above average of Nonwhites	Presence of Juvenile Detention Center	Total Risk
A	0	0	0	1	1	0	2
B	0	1	1	1	1	0	4
C	1	0	1	0	0	1	3
D	0	0	0	1	0	0	1
E	1	1	0	0	1	0	3

**Table 3.5 Risk Factors for Recruitment Phase**

## **Limitations of the Data**

The source data for industries contained many errors and introduced complications that could impact the modeled results of trafficking risk. For example, industry codes (SIC) are not always reflective of an at-risk business. Churches and nonprofit organizations were included under the code for 'clubs'. I went through the data set code by code to ensure only the appropriate businesses were included. Further cleaning measures were taken to exclude businesses known to be permanently closed, but there may be some I do not know have shut down. Also, certain industries were more difficult to assess and weight than others. Past research indicates that the massage industry is often a cover for prostitution. However, the frequency within the United States is unknown. The SIC codes are divided into massage and massage therapy. It is impossible to tell if one code is more at-risk than the other, therefore massage or massage therapy businesses that use secondary codes of health, wellness, or alternative medicine were given the lowest weight, while chiropractic and physician offices were completely removed from the dataset.

Construction companies are another limitation. Many operate in multiple cities and counties. Due to the number of businesses, determining their reach was too expensive and time consuming. These maps merely reflect the county and census tract of the address given for their business, not any other location they may do business. Additionally, not all construction jobs have the same risk of trafficking. Skilled tasks, which pay well, cannot be separated from the low wage/low skill jobs. Based on industry codes, it is impossible to tell which construction companies predominantly provide low

wage/low skill jobs. If their secondary codes indicated they focused on painting or roofing, jobs at high risk of trafficking, the business was given a higher weight.

There are geographic issues that also affect this model. First, a number of construction companies work in Missouri, but are headquartered in a different state. These businesses were not included in this study. In an informal conversation with a construction site supervisor, he voiced his suspicion that out of state companies are more likely to bring in trafficked individuals because most immigrants on the job work for out of state companies. If this is the case, then the risk maps are built on incomplete data and represent an underestimation of the problem. Second, the likelihood of trafficking is elevated at particular points of businesses, but the risk score is being represented by area. This means an entire tract or county is given the same category of risk when in reality it may represent a particular location in that tract or county. Similarly, census tracts vary in size, further influencing the impression of where risk is higher and the geographic space that risk covers. Finally, in order to focus the scope of this study I did not take into account the porous nature of state borders or what is happening in neighboring states. Trafficking victims in Missouri could be from anywhere in the country or world and victims recruited from Missouri could be transported anywhere. This study does not reflect that reality.

A lack of detailed arrest data hindered the creation of the risk profile maps. Missouri State Police provided total numbers of arrests for the state, and the county of arrest and industry in which the violation occurred is available. However, the low number of actual arrests (due to identification and reporting issues discussed above) and expense of acquiring this data led me to decide not to include it in the base data of the model. This

meant inferential statistical modeling using arrest data as the predicted variable was not possible. Thus, the model and maps introduced in this thesis represent hypothetical and relative likelihood, not actual probability, as the model is based on risk factors associated with trafficking rather than actual occurrences of trafficking via arrest data. For instance, in census tracts where the model indicates there is a high risk of occurrence of human trafficking, no actual trafficking violations may have occurred.

The weighting scheme for this model is subjective. Numbers assigned do not indicate actual risk. Although the risk factors for human trafficking are supported by the literature, a weight of two does not signify that business is twice as risky as a business with a weight of 1. The assigned risk numbers could have been in increments of .5 rather than whole numbers. Because the weights are subjective and the factors used are qualitative, the profiles are only possibilities. No profile should be interpreted as actual risk or actual human trafficking events. Determining actual risk requires more arrest data than is available at this time.

Transit risk assessment is a particular challenge. If Missouri were a closed system, an accurate profile could be conducted by connecting the locations with the highest risk for recruitment to the locations with the highest risk of exploitation. Those roads most commonly used for getting to census tracts with a high risk of labor or sex trafficking would most likely be traveled by traffickers. However, there is every possibility that victims from Missouri are not staying in the state and victims in the state could have come from anywhere in the world. Weighting is another option for risk assessment. Those roads categorized by the Department of Transportation as a major road and having a relatively high number of truck stops, rest areas or gas stations would receive the

highest risk levels. A third option, and the one demonstrated here is to assign those portions of the road running through a high risk census tract a high risk level. A trafficker is most likely to be found on the major roads traversing those high risk census tracts.

### **Assessing the Risk Profile Model**

Data gathered by the questionnaires is categorical in nature and resulted in information being grouped by answer to each question, which are closed ended for the first questionnaire and mixed closed/open ended for the second questionnaire. Analysis of questionnaire data involved the counting and categorizing of responses to closed-ended questions and open coding of transcripts of open-ended discussions. Previous research does not indicate what was likely to be found, therefore this project was exploratory. Responses to close-ended questions were recorded and tallied, and the frequencies of common answers were reported. Current spatial perceptions, captured in the first questionnaire, were compared to perceptions after viewing the maps, captured in the second questionnaire. I expected to find some change to ideas about where trafficking may occur as no model exists for determining risk and members base their current perceptions on anecdote or experience. I expected to find similar answers to the first questionnaire regarding perceptions as to which region has the highest concentration of human trafficking and who is making the largest effort to fight it. I expected there would be a broad range of services offered and little consensus on which type of trafficking is most common. Because organizations cater to one type of victim, they may perceive that type to be the most common. The second questionnaire was used to compare to the first as well as attempt to identify gaps in knowledge the maps fill.

Analysis of the discussions that followed the presentation of the risk maps involved open coding, looking for trends in thought among the participants. I looked for both consensus and dissent regarding the usefulness of the maps. The discussion groups were exploratory, with the main focus being evaluating the tool. From the discussions I hoped to determine a) if the tool is useful b) what adjustments should be made to the tool and c) the ways organizations might use the tool. I expected to gather several suggestions about how to increase the accuracy of the model as well as general ideas about how the tool will be used. I also hoped to come away with less obvious uses that will broaden the constituency of users.

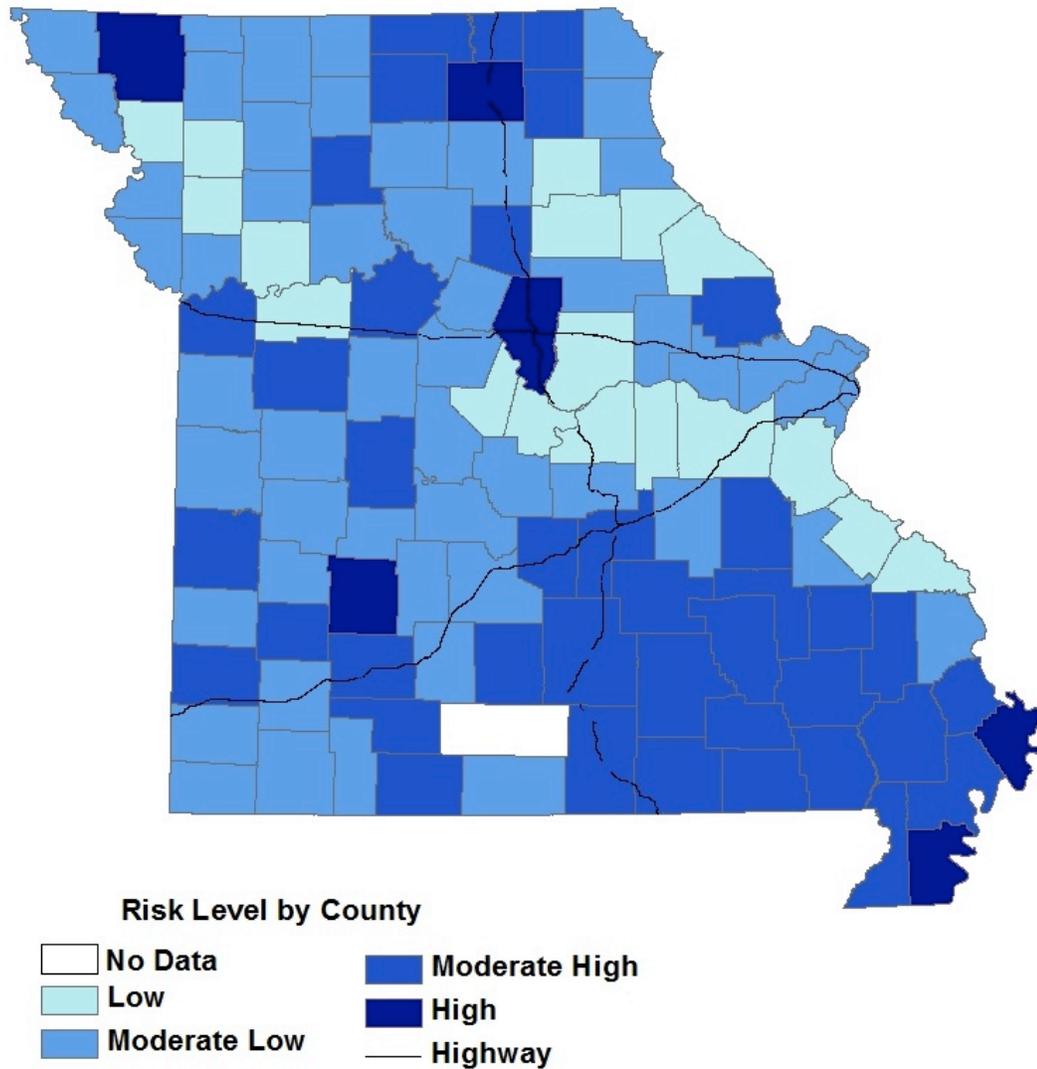
## Chapter 4: Results

### Spatial Patterns of Risk

The spatial pattern of risk is sensitive to the geographic level of analysis, the number of risk factors used, and the weights chosen for each factor. While a county level risk assessment makes patterns of risk more apparent, it does not show the localized nuances of a census tract assessment (See Map 4.1). Similarly, if we simply use the frequency of at-risk businesses or the sum of risk factors for each tract, urban areas are emphasized (See Map 4.2). This is a logical pattern based on population density, but obscures how risk varies in rural areas. Using the mean risk of a census tract makes variations in the risk levels in rural areas discernable (See Map 4.3 and 4.4).

The spatial patterns of sex trafficking risk (exploitation stage) follow major highways, and increases in densely populated areas or near military bases. The likelihood of sex trafficking also appears to be higher in the suburbs of Kansas City and St. Louis rather than the inner city. Given that the risk model includes factors such as presence of strip clubs, hotels, and truck stops, this is not surprising. Knowledge of these risk factors and Missouri geography are enough to deduce where the highest relative risk tracts are located. Although this iteration of the risk model does not include weighting for above average population of males in a census tract, locations with military bases are still revealed as high risk. The risk surrounding military installations is due to having more high-risk businesses than low risk. A large rectangle of medium to high risk south of I-44 just east of Hwy 63 demonstrates how a few high-risk businesses can raise the average

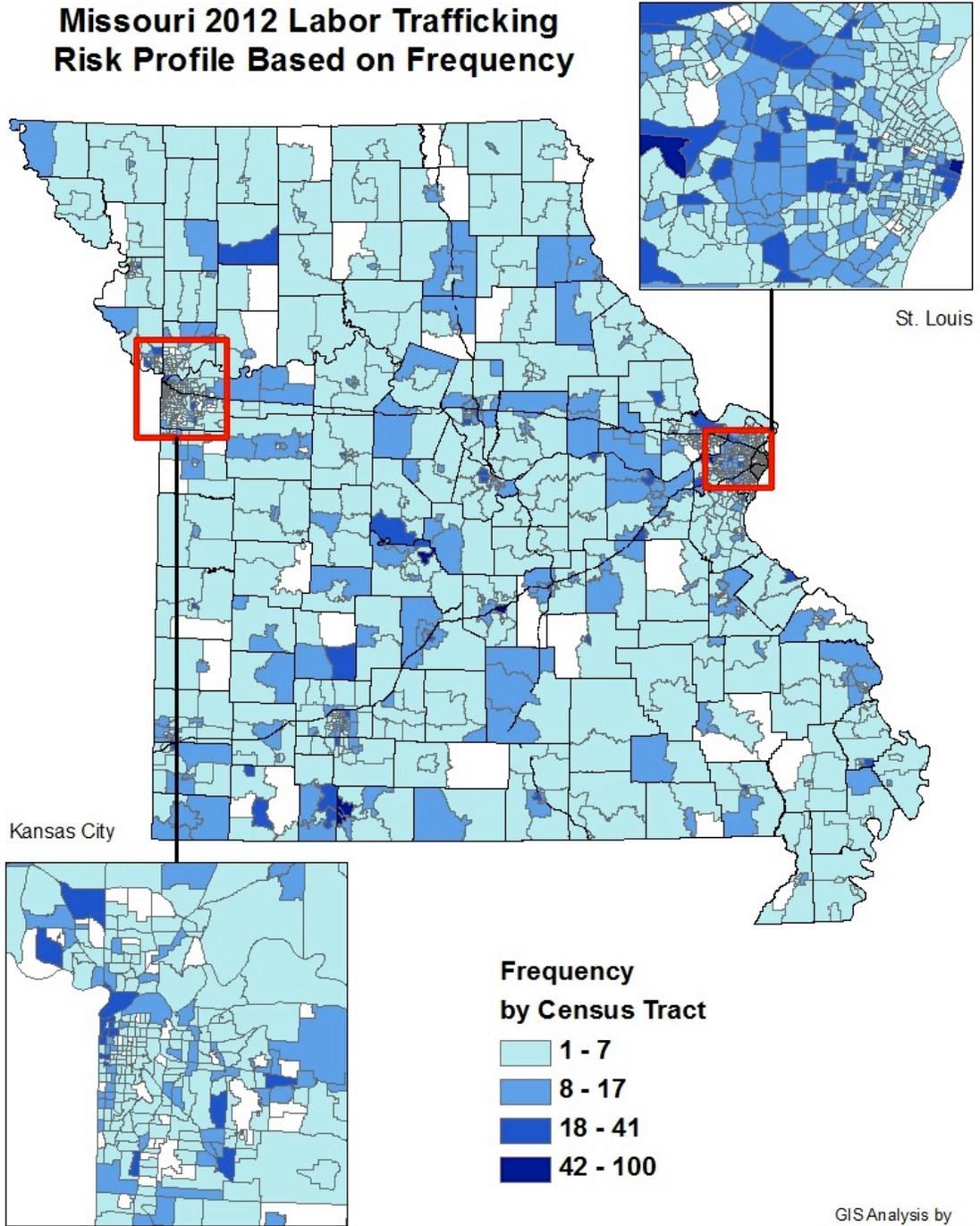
# Missouri 2012 Labor Trafficking Risk Profile by County



Map 4.1

GIS Analysis By Amanda Colegrove

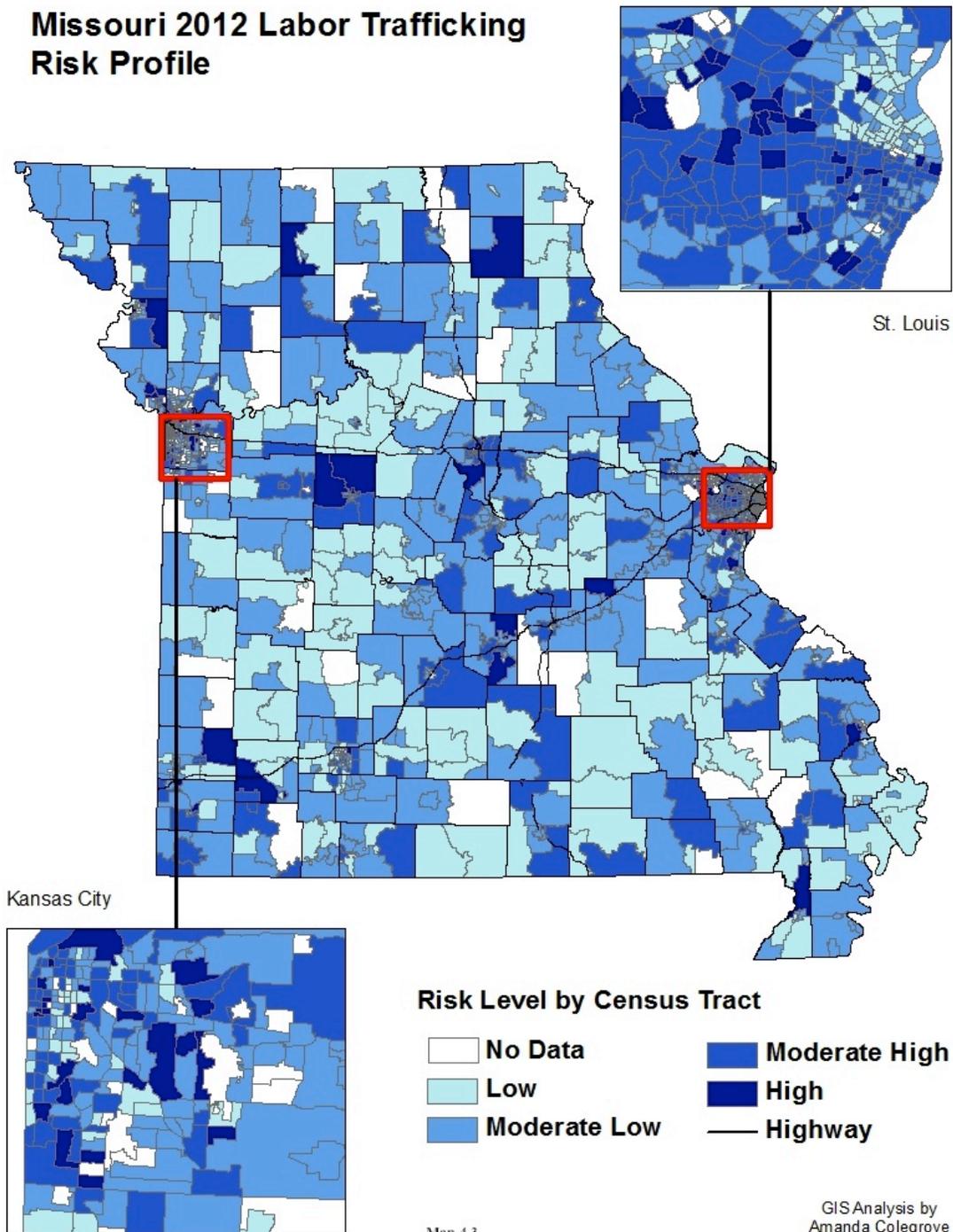
# Missouri 2012 Labor Trafficking Risk Profile Based on Frequency



Map 4.2

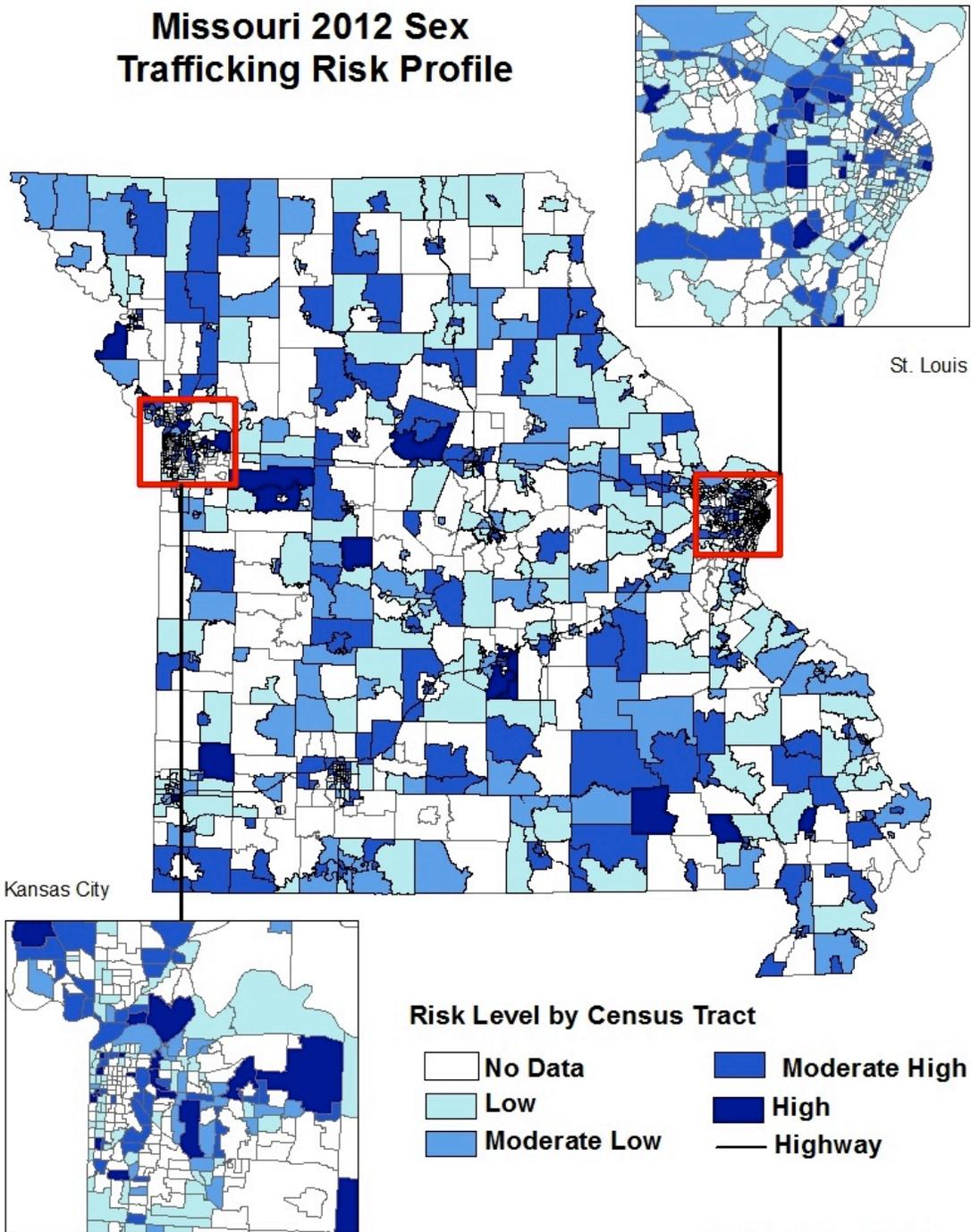
GIS Analysis by  
Amanda Colegrove

# Missouri 2012 Labor Trafficking Risk Profile



Map 4.3

# Missouri 2012 Sex Trafficking Risk Profile



Map 4.4

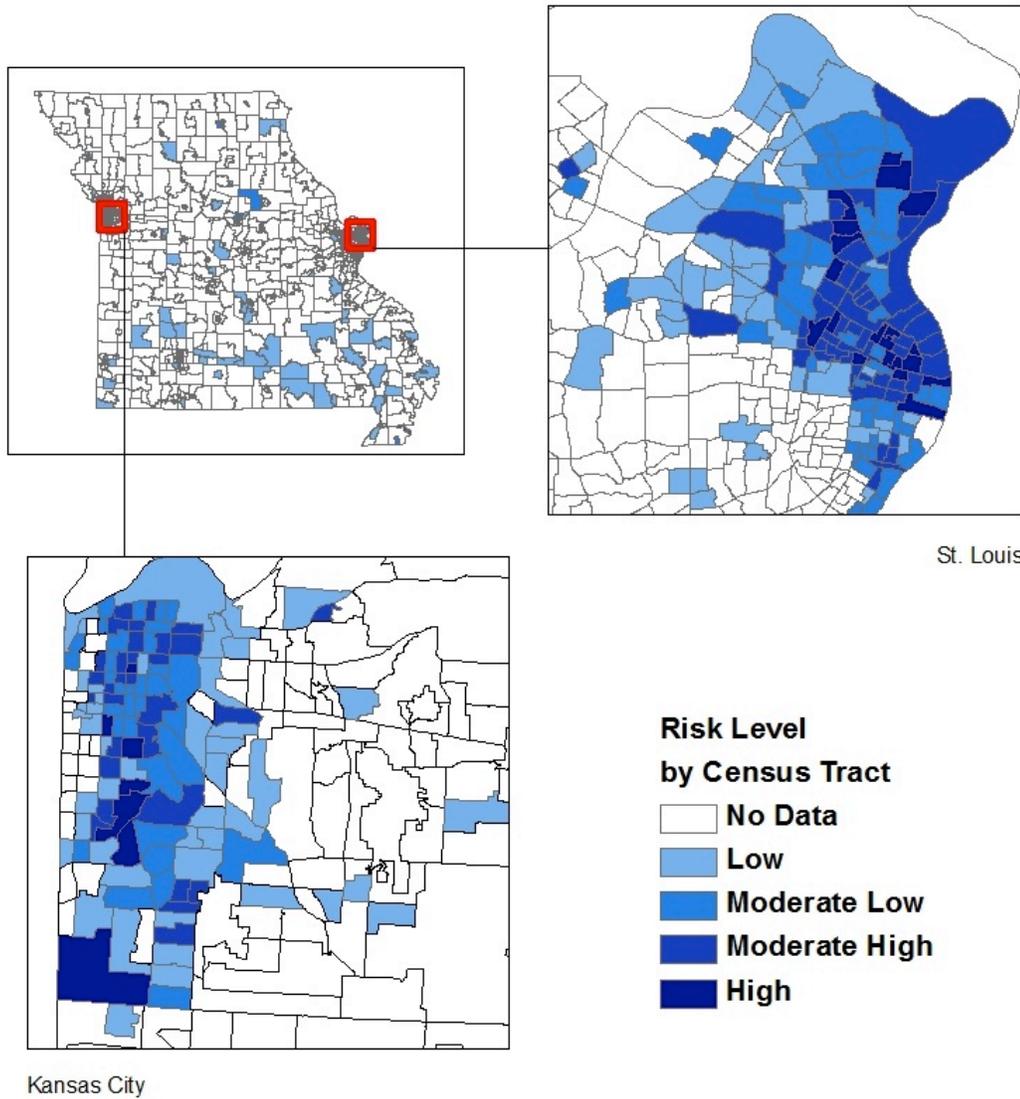
GIS Analysis by Amanda Colegrove

risk in rural areas even with more densely populated areas like Kansas City and St. Louis, whose average is decreased by a significant amount of lower risk businesses such as hotels and bars.

Labor trafficking has a more uniform pattern across the state. Although densely populated areas may have higher total frequency of at-risk businesses, many rural areas contain businesses that are more heavily weighted in the risk model, like meat packaging facilities or poultry processing plants. Another industry associated with human trafficking that is found in rural areas is tourism. A place like Branson, though small and a significant distance from any large urban center, is so service-driven that the risk score mimics those typically found in larger urban areas. These geographic characteristics meant both the northern and southern regions of Missouri display a similar pattern of large areas of lower risk levels with one or more census tracts scattered throughout with much higher risk levels. In addition, large urban centers like Kansas City and St. Louis had many low risk census tracts, belying the popular opinion that labor trafficking is an urban issue. However, higher scores appear in the southern and western tracts of St. Louis suburbs. This is a mirror image of the recruitment profiles (See Map 4.5), which are calculated based on demographic factors like poverty and minority concentrations.

Places at risk of being recruitment areas for human traffickers were mostly urban (See Map 4.5). The poverty, unemployment, and concentrations of nonwhites found in urban areas produced risk scores that exceeded the risk scores for most rural areas. A few small tracts in Southern Missouri presented the same level of risk as those in St. Louis or Kansas City due to poverty and unemployment (See Map 4.6). It is unlikely that the

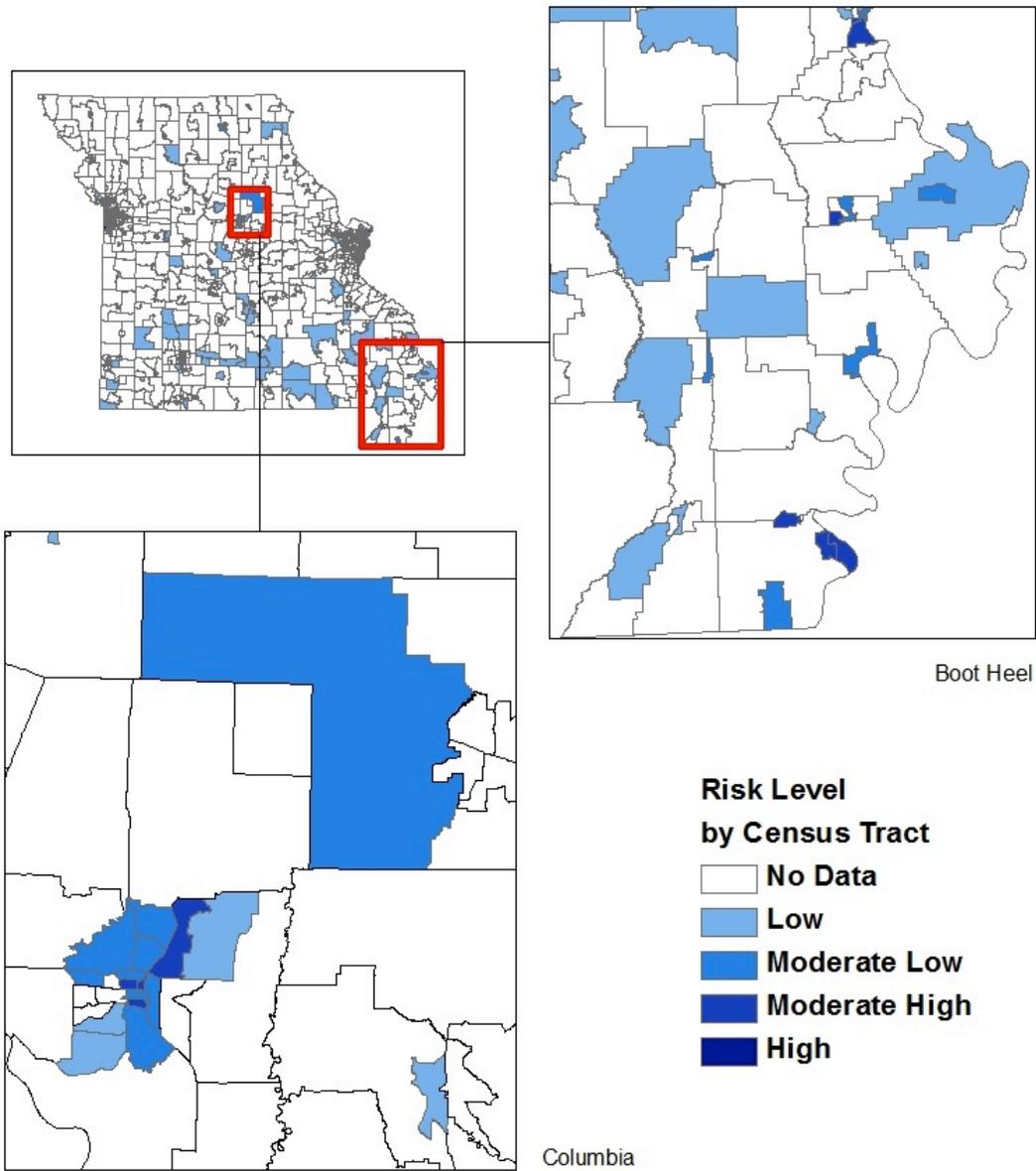
# Missouri 2012 Human Trafficking Recruitment Risk Profile Featuring Kansas City and St. Louis



GIS Analysis by  
Amanda Colegrove

Map 4.5

## Missouri 2012 Human Trafficking Recruitment Risk Profile Featuring the Boot Heel and Columbia



Map 4.6

GIS Analysis by  
Amanda Colegrove

needed data on runaways would significantly change this pattern, as they tend to concentrate in large cities. There were also higher risk census tracts within Columbia, MO (See Map 4.6). The high percentage of females attending the university and the level of poverty many students live in are factors in producing this risk level.

Exploitation maps highlight the riskier areas of travel or those roads most likely to have a trafficker transporting victims on. The transit risk profile is shown in Map 4.10. It is based off the labor exploitation map and therefore demonstrates the same pattern of risk. Gas stations, truck stops, and rest areas are public locations where victims are more readily seen and law enforcement can target for raising awareness. Once a victim is moved to a location of exploitation they are often completely hidden from public view. Unless they are brought to a hospital for treatment or speak up when allowed out, finding them is challenging. Looking for traffickers and their victims along road ways may be an alternative for law enforcement.

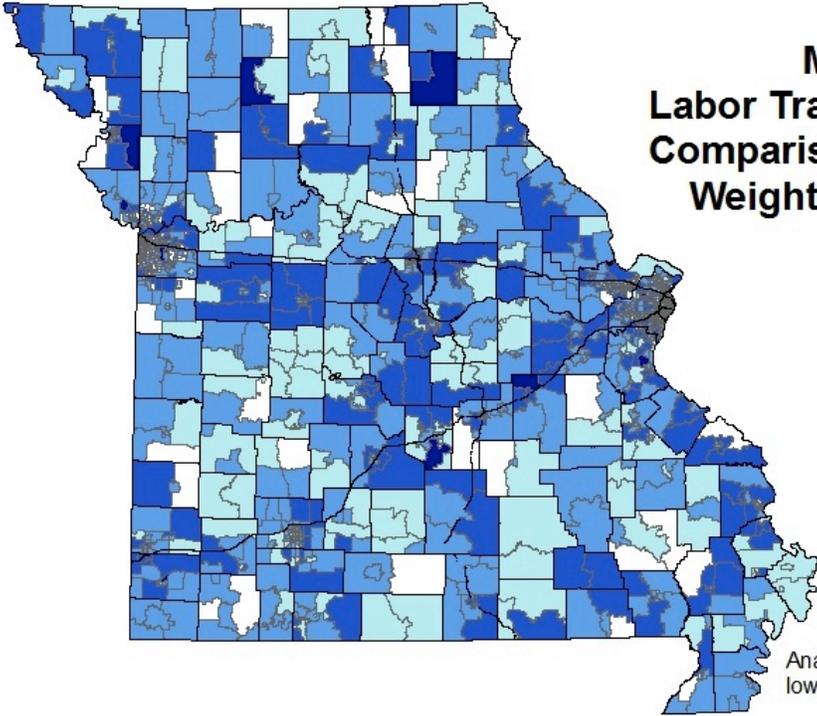
### **Sensitivity Analysis**

The model can be adjusted in multiple ways, but it does not always change the pattern of risk. One way to modify the model is to change the weighting scheme. For example, my initial labor trafficking risk analysis divided annual revenue and size of workforce into three categories: 0-2. However, this allowed a census tract with one large, highly profitable business to reach the risk level of other tracts with many businesses having a high base risk. To adjust this I brought the number of risk categories for those two factors down to two: 0-1. This gave a more realistic profile of risk (See Map 4.7). You can see that most dark blue tracts change to a lighter blue, signifying lowered risk, but the overall pattern remained the same.

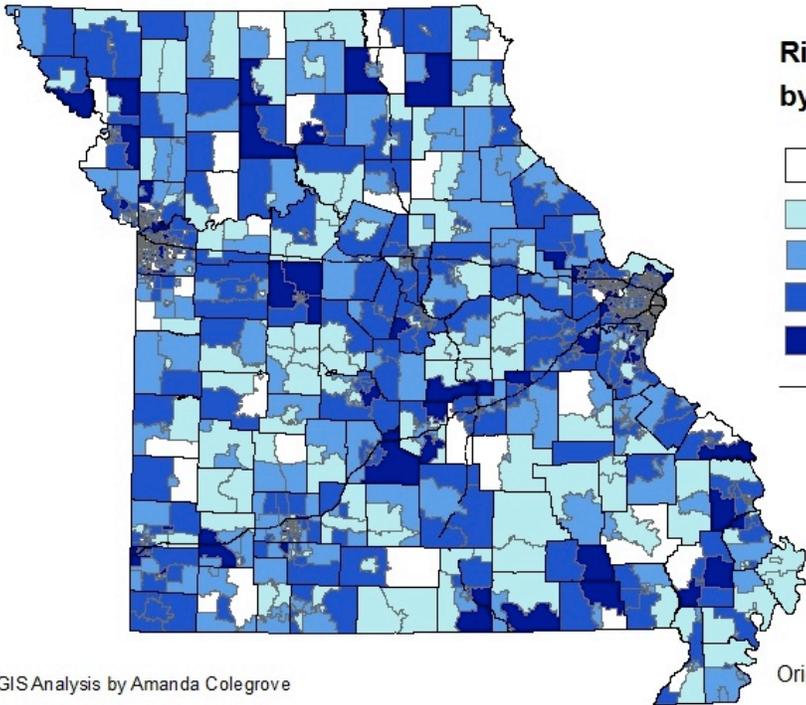
A second way to modify the model is to remove or add businesses for analysis. My original analysis of sex trafficking risk in Missouri included bars and nightclubs as possible sites for trafficking due to through alcohol consumption. By removing these businesses from the analysis, the average risk is lowered in many areas and a greater number of tracts have no data, designated by white (See Map 4.8). However, those tracts that are highest risk (darkest blue) in the original analysis remain as the highest risk areas in the second analysis. The pattern is only slightly changed due to no-data census tracts.

A third way to adjust the model is to add a factor into the analysis. For example, the initial analysis of sex trafficking risk does not weight census tracts with a high relative percentage of males any higher than other tracts. Per the methodology section, a simple adding of risk to each business for being in a census tract with a high concentration of males was not reasonable because once the scores were aggregated this factor would have too much influence. Instead, I added one point to each averaged risk for those census tracts with a male population greater than 50% (See Map 4.9), similar to the formula for the first labor trafficking analysis. Now fewer tracts have no data because a point of risk is added regardless of whether or not there is a business in that tract. Many of those tracts that were without data entered the lowest risk category. This is not necessarily inaccurate as arrest records show sex trafficking can occur without any link to a particular business, and illegal brothels, which could operate in those census tracts, are not part of my list of licensed business. The overall pattern of high risk remains similar to the original map, with a few more census tracts reaching the highest category of risk.

# Missouri 2012 Labor Trafficking Risk Comparison Between Weighting Schemes



Analysis using  
lower weights



**Risk Level  
by Census Tract**

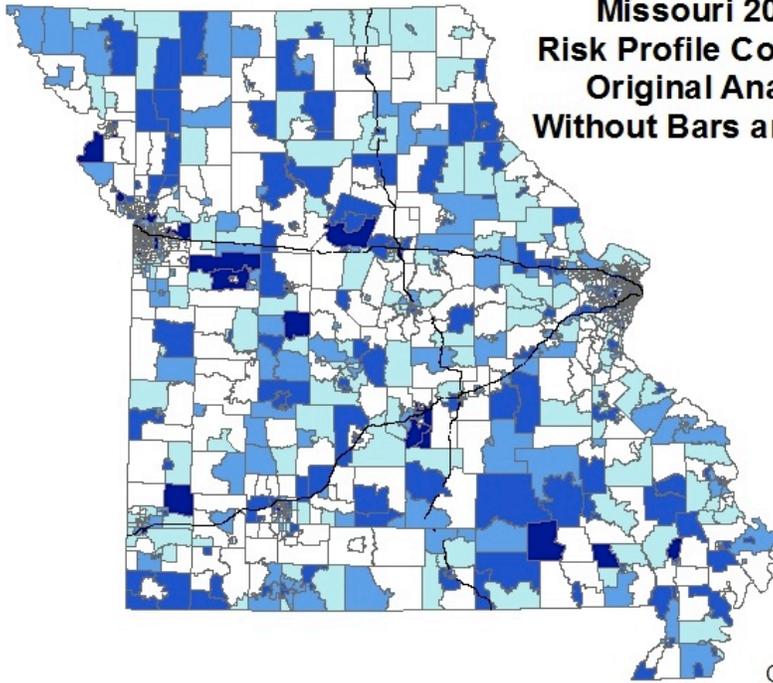
- No Data
- Low
- Moderate Low
- Moderate High
- High
- Highway

GIS Analysis by Amanda Colegrove

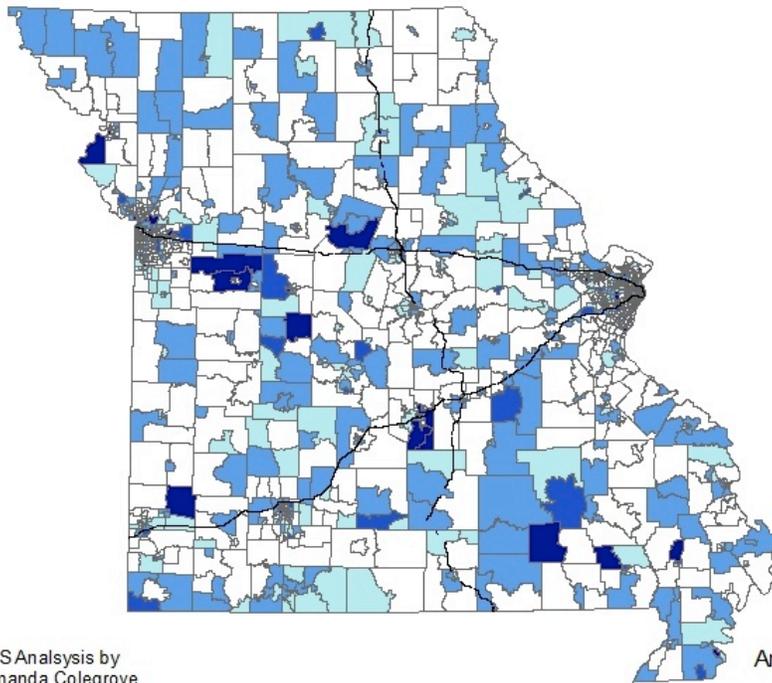
Original Analysis

Map 4.7

### Missouri 2012 Sex Trafficking Risk Profile Comparison Between Original Analysis and Analysis Without Bars and Nightclubs Data



Original Analysis



#### Risk Level by Census Tract

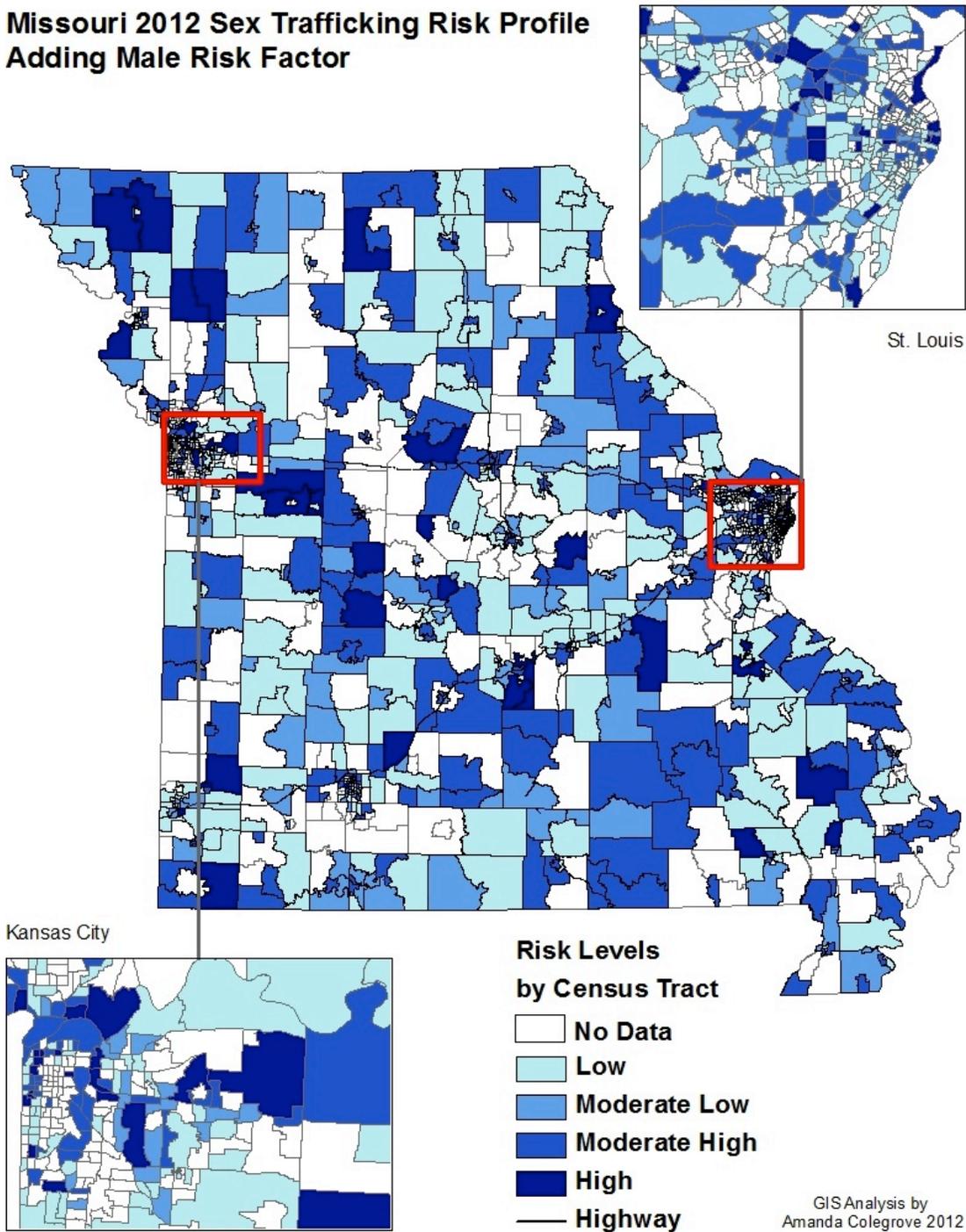
-  No Data
-  Low
-  Moderate Low
-  Moderate High
-  High
-  Highway

GIS Analysis by  
Amanda Colegrove

Analysis without bars  
and nightclubs

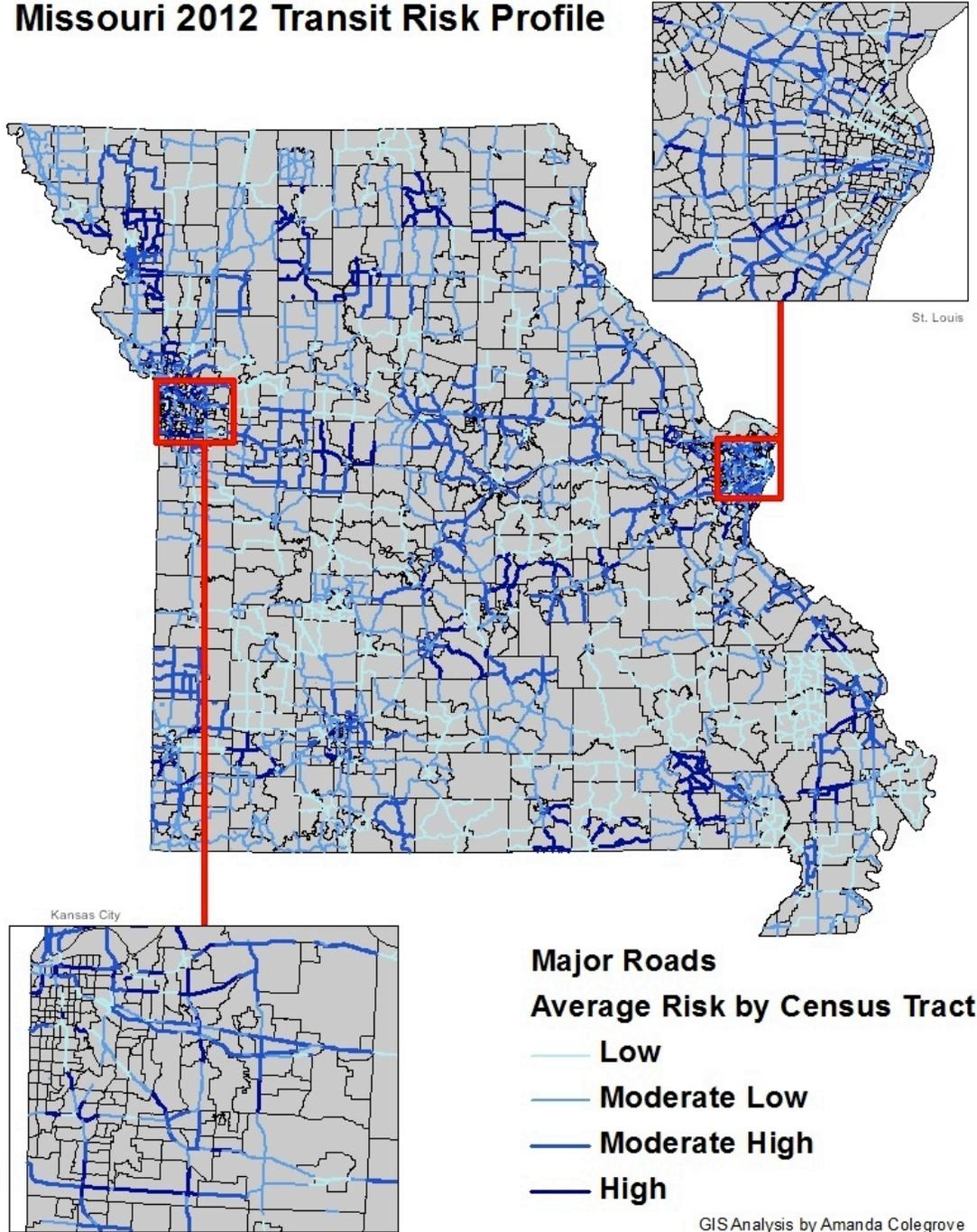
Map 4.8

# Missouri 2012 Sex Trafficking Risk Profile Adding Male Risk Factor



Map 4.9

# Missouri 2012 Transit Risk Profile



Map 4.10

## **Model Feedback**

Based on the initial questionnaire, respondents perceive sex trafficking to be the most common type in Missouri. This perception did not change after seeing the maps, even though participants were surprised at the high-risk levels of labor trafficking across the state. Beliefs about where the highest concentration of trafficking occurs was split between those who say large urban centers and those who name industries like agriculture and meat packing, though neither of these industries are linked to sex trafficking. Viewing the maps merely confirmed their beliefs about where trafficking is happening the most. Participants also perceive regions doing the least about trafficking in the context of areas each are most familiar with. Those working in St. Louis cite locations on the east side of the state, while those in central Missouri provide diverse answers ranging all over the state. Perceived weaknesses of the Missouri efforts to combat human trafficking centered on funding and training. Participants also listed funding and training as the most common use of the maps in the second questionnaire.

Responses to the maps were overwhelmingly positive. Participants appreciated the visual representation of what they already knew, “It’s really helpful to see. It sounds so simple, but it really is helpful.” Contrary to my expectations, participants had a firm grasp of the landscape of human trafficking in their area and the maps confirmed, not changed their perceptions. Likewise, the maps did not change how these individuals would advocate for clients or advise on policy, although one respondent said her knowledge of trafficking had expanded through learning about risk factors that they had not thought of before. One respondent mentioned the maps as data to back-up current

knowledge. However, the elevated risk levels of labor trafficking across the entire state were somewhat of a surprise. One said, “the fact that labor trafficking can be happening in just about all across the state . . . that we need to be looking for labor trafficking in many . . . isolated areas, rural areas than I think people would have anticipated.” For two respondents, the maps highlighted a lack of outreach to rural areas and for two others it highlighted the lack of focus on labor trafficking.

All of the respondents agreed the maps are useful to their work. The two most common themes discussed were funding and training or education of some kind, whether it be for law enforcement or schools. For one participant working in eastern Missouri, the maps would help her organization target its training to specific areas and allow trainers to know what to focus on. The maps were also seen as useful in advocating for the allocation of funds from the state. One participant thought it could be used to procure funding for educational programs about human trafficking in public schools in high-risk areas. Another thought,

“it might be more possible to try to get something through the legislature that would ask for funding just in targeted counties, you know, to start out with. It wouldn’t be a huge amount of money, and then kind of build from there. It sounds more manageable than trying to get money for the whole state in this environment.”

Two unique ideas came out of the discussion. In the first group it was wondered if the maps could be used to protect survivors of trafficking when relocating them, using the maps to keep them out of other possible high-risk areas. In the second group one participant thought the maps could be used to influence the debate on immigration reform by demonstrating that “maybe it’s not people taking your jobs . . . they may not be getting paid at all.”

## **Discussion**

I ran a variety of analyses in order to determine the best indicator of possible risk for human trafficking, but the model remained consistent throughout numerous tweaks. Regardless of how many factors or which weighting scheme is used, the patterns of risk remain similar. This indicates that risk factors for both sex trafficking and labor trafficking have the same underlying spatial distribution. Human trafficking may not be the urban problem many have thought it to be. Risk profiles in this study show patterns of exploitation are often higher in suburbs, where demand is located, and recruitment may be taking place in the inner city, where poverty and unemployment are higher.

Contrary to my expectations, questionnaires revealed there is a broad consensus on the most common type of human trafficking in Missouri being commercial sexual exploitation. Although the stated purpose of the Coalition is to raise awareness about both types of trafficking, the perception remains that sex trafficking is more common. The depiction of the labor trafficking risk profile was a revelation to participants. Based on previous research, this is not surprising. Labor trafficking is ignored, underreported and likely to involve more victims than sex trafficking (Bales 2007; Ahmad 2008; Pierce 2011). This continued perception is likely due to the cultural disgust toward sexual exploitation, the media's and law enforcement's focus on sex trafficking, which results in higher numbers of sex trafficking victims found, and the Coalition's more extensive experience with sex trafficking victims than labor trafficking victims.

Also contrary to my expectations, there was no broad consensus about where the highest concentration of trafficking occurs or where the greatest need for anti-trafficking

efforts exists in Missouri. This lack of consensus is influenced by the various locations that members of the Coalition focus on in their work with nonprofit organizations. While some are centered in Columbia, others work out of St. Louis and each become familiar with the surrounding areas of their locale. Furthermore, this lack of consensus demonstrates the paucity of empirical data. Those working to end human trafficking are basing much of their work on anecdote and personal experience rather than actual social science research.

Given the results of the questionnaires and the focus groups, the three objectives for the qualitative portion of this study were met. As is, members of the Coalition deemed the model valuable and determined several possible uses. Its flexibility with which risk factors or business types to use and how those factors are weighted means the model can be adapted to fit every location's uniqueness of place or the discovery of new information. Current inaccuracies in the results were not a serious concern to participants of the focus group because they recognized their own ability to work with the data, get better, more up-to-date information on businesses or runaways, and adjust the model as they needed.

## Chapter 5: Conclusion

Human trafficking is a human rights violation that is difficult to gather reliable data on. Organizations claim vastly different amounts of people are slaves, from the United Nation's Office on Drugs and Crime's 2.5 million to Not For Sale's ambiguous "more than 30 million" (unodc.org; notforsalecampaign.org). Estimates provided by the United States continue to be suspect but used by all researchers, because they are the only numbers available. Models presented by previous researchers depend on this inconsistent, poor quality data. The field's lack of quantitative information continues to hinder efforts to combat human trafficking. Reliable estimates of the number of victims are still a thing of the future. There is hope that as more training is conducted and better reporting policies are crafted, the necessary data will be available, providing a clear picture of the scope of human trafficking, nationally and internationally. When quality, reliable data becomes available, the national and international models presented in my literature review will be more accurate. Those models could then be adapted to state and local levels.

As an intermediate step to help current efforts by nonprofits to combat human trafficking, this project presents a model of human trafficking likelihood that is not dependent on quantitative data specific to human trafficking. Risk factors presented by previous qualitative research can be applied to the landscape to create possible profiles of human trafficking risk. This study has shown that within the exploitation stage, labor trafficking risk is a bigger, more diffused challenge than is currently realized by law enforcement and anti-trafficking organizations. The uniformity of some risk of labor

trafficking across the state with pockets of high risk in both rural and urban settings could mean victims of exploitation repeatedly go unidentified. Unlike labor trafficking risk, sex trafficking risk clustered in particular areas of the state. The most common tracts having high risk are those with highways running through them, strip clubs, and/or escort services. Recruitment risk maps were the most urban centered of all the maps due to concentrations of poverty, unemployment, and nonwhites, but a few rural areas exhibited equally high levels of risk. Sensitivity analyses of the various models demonstrated that the spatial patterns of trafficking risk varied little as different elements of the models were altered.

The maps matched coalition members' perception of the spatiality of sex trafficking, but they presented a more diffuse risk profile for labor trafficking than the spatial patterns perceived by coalition members. With this model local and national non-profit organizations can assess the possible risk of trafficking in their area. The model is adjustable to reflect unique characteristics of a place and the maps produced from the analysis can be used to target education or training programs. The maps are also useful in demonstrating funding needs to possible donors. For my analysis I used a geographic information system to display my findings spatially, but it would not be required to perform the mathematical portion of this study. Organizations on a tight budget can easily use commonly available spreadsheet software to run the analysis and use the scores alone without a mapping component. They could also upload the scores to any number of free online mapping programs.

It is important to note these risk profiles demonstrate how trafficking risk factors vary over space and how those spatial patterns are different for labor trafficking than they

are for sex trafficking. This model does not indicate actual human trafficking. Census tracts with a “high risk” may not have any trafficking activity while another with “low risk” may have several incidents of trafficking activity. Neither can the labor trafficking risk profile be compared to the sex trafficking risk profile. The weighting schemes are relative and cannot be compared across categories. For example, in a census tract with a high risk of sex trafficking but a low risk of labor trafficking we cannot conclude one is more likely to find sex trafficking than labor trafficking. What these models can be used for is a discussion of where one might find trafficking-related activities in their area as well as the underlying factors associated with various components of the trafficking process.

Echoing the many researchers who have come before me, future research needs to focus on getting reliable quantitative data, first and foremost. Regarding this study, the model developed here needs to be tested once more geographically detailed data becomes available. Only then can researchers determine how known risk factors associated with trafficking interact to affect the probability of finding trafficking in a locality. Likewise, more needs to be done to test the model’s validity in a larger geographical context as well as in other states besides Missouri. Questions that need to be answered are: is this model accurate outside Missouri and is it accurate at the national level? Several iterations of the model should be tested, as well, to determine the best option for anti-trafficking organizations. Other studies should gather runaway data and determine the best way to incorporate data on prostitution and other labor violations. Future research should also incorporate mitigating factors such as the presence of an anti-trafficking organization like

the Coalition or other social service providers and determine what, if any, impact this has on risk levels.

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