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Slavery in Europe:
Part 2, Testing a Predictive Model

Monti Narayan Datta* & Kevin Bales**

ABSTRACT

Since the passage of the Victims of Trafficking and Violence Protection Act and the United Nations Palermo Protocols of 2000, there has been an increased focus on the magnitude and complexity of modern day slavery. Yet, surprisingly, little empirical work exists. A comprehensive review of the literature by Elżbieta Goździak and Micah Bump in 2008 found that quantitative methodologies were noticeably scarce and that the dominant anti-trafficking discourse was not evidence based. One reason for this scarcity has been the difficulty in obtaining reliable representative data. In this paper, we utilize a novel measure of contemporary slavery in Europe that illustrates one way to fill this gap. Using this measure as a dependent variable, we test one of the first predictive models of slavery. Employing multivariate regression analysis, we find that several predictors—state stability risk, freedom of speech, access to financial services, geography, and age—are significantly predictive of cross-national variation in slavery across Europe. We conclude by outlining a research agenda to develop a better empirical understanding of modern day slavery. This is essential for the development of more effective government policies and responses, with an eye toward the eventual significant reduction or eradication of slavery.

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I. INTRODUCTION

The start of the millennium marked significant advances in legislation against human trafficking and modern day slavery in the United States and abroad. The US Congress passed the Victims of Trafficking and Violence Protection Act (TVPA) in 2000.[1] Unprecedented in scope, the TVPA called for an Interagency Task Force to Combat Trafficking, with the Secretary of State coordinating with the Departments of Justice, Labor, Homeland Security, and Health and Human Services. The TVPA also mandated the creation of the Office to Monitor and Combat Trafficking in Persons within the State Department, as well as the production of an annual Trafficking in Persons (TIP) Report—a document with growing influence in exploring and ranking countries' efforts to fight trafficking, although not without controversy.[2] Also in 2000, the United Nations General Assembly adopted the Convention against Transnational Organized Crime. Two supplementary Protocols followed: the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children; and the Protocol against the Smuggling of Migrants by Land, Air and Sea.[3] Commonly known as the Palermo Protocol, this bundle of resolutions was the most comprehensive to date for the international community and served as the foundation for the United Nations Global Initiative to Fight Trafficking (GIFT),[4] inaugurated within the Office on Drugs and Crime in 2007.

Although public awareness and policy as well as journalistic inquiry into modern slavery and human trafficking has increased, little empirical research exists on the subject. A comprehensive review of the literature prepared in 2008 by Elżbieta Goździak and Micah N. Bump for the United States National Institute of Justice concluded, "quantitative methodologies are noticeably scarce" and "the dominant anti-trafficking discourse is not evidence based."[5] Goździak and Bump noted that, of the 218 academic journal articles on human trafficking, only 36 (16 percent) were both peer reviewed and based on empirical research.[6] Moreover, among those studies

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1. Victims of Trafficking and Violence Protection Act of 2000, 22 U.S.C.S. §§ 7101–7113, *available at* http://www.state.gov/documents/organization/10492.pdf.
2. *See, e.g., Philippines Says U.S. Report on Human Trafficking "Unfair, Discriminatory*," BBC News, 23 July 2010, *available at* http://www.wikileaks.org/gifiles/docs/835943_bbc-monitoring-alert-philippines-.html; s*ee also Malaysia outcry at US trafficking blacklisting*, Humantrafficking.org, 17 June 2010, *available* http://www.humantrafficking.org/updates/855.
3. United Nations Office on Drugs and Crime, *United Nations Convention Against Transnatioanl Organized Crime and the Protocols Thereto*, G.A. Res. 55/25, UNODC, (15 Nov. 2000).
4. United Nations, Global Initiative to Fight Trafficking, *available at* http://www.ungift.org.
5. Elżbieta Goździak & Micah N. Bump, Data and Research on Human Trafficking: Bibliography of Research-Based Literature, Inst. for the Study of International Migration 7, 9 (2008).
6. *Id.* at 26.

that did employ empirical research, none included inferential statistics. The same review pointed out that of the research reports produced by intergovernmental organizations (IGOs), including the United Nations and International Labour Organization, and nongovernmental organizations (NGOs), only 1.4 percent benefited from both an empirical basis and peer review.[7] One reason for this extreme lack of empirically founded research is the difficulty in obtaining reliable data. Most existing data on contemporary slavery has been collected unsystematically by a large number of unrelated actors and in a manner that precludes aggregation or meta-analysis. This lack of data is also due to the reluctance or inability of NGOs and IGOs to practice data transparency and submit research to a recognized peer review process. For these reasons, although anecdotal studies abound on human trafficking, it is difficult to develop generalizable inferences based on research following accepted practices of scientific inquiry, let alone inform policy makers or potential donors who would prefer to see "hard data" before committing resources.

In this article, we offer a quantitative analysis of human trafficking and slavery using inferential statistics that follow accepted practices of scientific inquiry. Employing a novel measure of contemporary slavery in Europe, we develop one of the first empirically testable predictive models of slavery. Using multivariate regression analysis, we find that several factors—state stability risk, freedom of speech, access to financial services, geography, and age—are significantly predictive of slavery. We conclude by outlining a research agenda to develop a better empirical understanding of modern day slavery, which is essential for the development of government policies and responses, with an eye toward its eventual eradication. But first, we seek to find common ground on defining slavery and measuring its prevalence in Europe today.

II. DEFINING AND OPERATIONALIZING "SLAVERY"

Defining slavery is a challenge. International agreements, conventions, national laws, state and local laws, non-governmental groups, and social scientists have generated a wide array of definitions. None of these definitions, however, are identical and most embody ideological, policy, and enforcement aims. Although this is not the place to review these variant definitions, it is worth illustrating this variation by noting that some definitions include activities such as forced marriage or even organ trafficking as subsets of slavery, and others do not. Other legal instruments—the Palermo

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7. *Id.* at 36.

Protocol, for example—conceptualize slavery as a subset of another activity, such as human trafficking. This conceptual confusion and lack of agreement obscures decision making, whether scientific or policy focused, when confronting activities that may (or may not) be considered slavery.

Our solution to this challenge is to adopt and operationalize a definition offered by a committee of experts that met to discuss and seek resolution of this issue in 2009–2011.[8] This group, consisting of international legal scholars, historians of slavery, and social scientists, reviewed existing definitions within international law to determine what might provide the greatest clarity and determine how to resolve the widespread confusion. The resulting consensus was that the definition given in the 1926 Slavery Convention of the League of Nations had both a sound conceptual and legal basis: "Slavery is the status or condition of a person over whom any or all of the powers attaching to the right of ownership are exercised."[9]

Building upon this definition, the committee then sought to elucidate the phrase, "powers attaching to the right of ownership" so that the attributes of any instance of suspected enslavement might be compared to the criteria inherent (but not explicit) within the 1926 Convention.[10] To achieve this goal, the committee sought firstly to situate the legal definition within the experiential reality of enslavement, and secondly to specify more clearly the attributes of ownership that apply to enslavement within the context of property rights.

To accomplish the first aim, the committee specified that

> [T]he exercise of "the powers attaching to the right of ownership" should be
> understood as constituting control over a person in such a way as to significantly

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8. The International Research Network, Slavery as the Powers Attaching to the Right of Ownership, Bellagio, Italy (2010), *available at* http://www.qub.ie/schools/SchoolofLaw/Research/ResearchProjects/SlaveryasthePowersAttachingtotheRightofOwnership/; members include: Jean Allain, Queen's University; Robin Hickey, Queen's University; Kevin Bales, Wilberforce Institute for the Study of Slavery and Emancipation, U. of Hull & Free the Slaves; John Cairns, University of Edinburgh; Holly Cullen, University of Western Australia; Seymour Drescher, University of Pittsburgh; Stanley Engerman, University of Rochester; Paul Finkelman, Albany Law School; Bernard Freamon, Seton Hall University; Joshua Getzler, University of Oxford; Allison Gorsuch, Yale University; Richard Helmholz, University of Chicago; Antony Honoré, University of Oxford; Orlando Patterson, Harvard University; Joel Quirk, Wilberforce Institute, University of Hull; Romana Cacchioli, Anti-Slavery International; Karlee Sapoznik, York University; Jody Sarich, DePaul University; Rebecca Scott, University of Michigan; Allison Gorsuch, Yale University; Karlee Sapoznik, York University.

9. Slavery, Servitude, Forced Labour and Similar Institutions and Practices Convention of 1926, 60 L.N.T.S. 253, 9 Mar. 1927, *available at* http://www1.umn.edu/humanrts/instree/f1sc.htm.

10. The Research Network on the Legal Parameters of Slavery, Bellagio-Harvard Guidelines on the Legal Parameters of Slavery, Guideline 2, 3 Mar. 2012, *available at* http://www.qub.ac.uk/schools/SchoolofLaw/Research/HumanRightsCentre/Resources/Bellagio-HarvardGuidelinesontheLegalParametersofSlavery.

deprive that person of his or her individual liberty, with the intent of exploitation through the use, management, profit, transfer or disposal of that person. Usually this exercise will be supported by and obtained through means such as violent force, deception and/or coercion.[11]

This additional specification to the 1926 Convention addresses the fundamental socioeconomic and legal dynamics between two actors (the slave and the slaveholder) that constitute a situation of slavery. It forms a bridge between the lived reality of enslavement and the legal definition needed to specify and address this crime.

To accomplish the second aim, the committee drew upon the work of legal scholars, including Antony Honoré and Robin Hickey, who specify that instances of ownership within a context of legal property rights include, but are not limited to:

- *The right to possess*, which, according to Honoré, is "the foundation on which the whole superstructure of ownership rests."[12]
- *The right to use,* which is the right to enjoy the benefit of the possession.
- *The right to manage,* which is the right to make decisions about how the possession is used.
- *The right to income*, which is the right to profits generated by the possession.
- *The right to capital*, which is the right to dispose of the possession, by transfer or destruction.

These legal attributes, or "instances" —control, use, management, and profit—are the central rights of ownership inherent (but not explicit) to the 1926 Convention specified in the wider tradition of property law. At the same time, these attributes are, in somewhat different language, used to define slavery by social scientists whose aim is not to locate a particular human activity within the rule of law *per se*, but rather to describe it as social phenomena. For example, one social science definition is that slavery is:

The control of one person (the slave) by another (the slaveholder or slaveholders). This control transfers agency, freedom of movement, access to the body, and labor and its product and benefits, to the slaveholder. The control is supported and exercised through violence and its threat. The aim of this control is primarily economic exploitation, but may include sexual use or psychological benefit.[13]

Note that this social science definition contains the concepts of control, use, management, and profit, the necessary "instances" of ownership, but also specifies the mechanisms of control (actual and threatened violence)

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11. *Id.*
12. Antony M. Honoré, *Ownership, in* Oxford Essays in Jurisprudence 113–19 (Anthony Gordon Guest ed., 1961).
13. Kevin Bales, *Professor Kevin Bales's Response to Professor Orlando Patterson, in* The Legal Understanding of Slavery: From Historical to Contemporary 360, 370 (Jean Allain ed., 2012).

and common outcomes of that control (economic exploitation and sexual use). This elaboration illuminates the common and essential elements of the economic and social relationship within slavery. What is important is that the fundamental conceptual agreement of these two converging definitions (one legal, the other social and economic) means that they point to, and can be used to determine, the existence of the same human activity—slavery. Furthermore, the definitional coherence points to a general applicability in both the legal and academic realms.

It is important to examine the consistency of legal and academic definitions of slavery for two reasons. The first reason is that a very large number of cases of slavery never come under the law, but are dealt with by workers in the social services or human rights organizations. Even in the United States, a country with a strong rule of law, one study estimated that only one third of slavery cases that are uncovered come to the notice of law enforcement.[14] In the developing world, the proportion of slavery cases coming to the law can be much lower. At the same time, those who liberate slaves and help them reintegrate into their communities have a clear experiential understanding of what defines slavery, but such an understanding is not necessarily couched in legal terms. Building an understanding of the coherence of legal definitions and experiential definitions forges a link that can help to free those in slavery and to prosecute slaveholders. If the definitions of slavery used by these two groups are not in harmony, a serious gap results in what should be a process of identification and liberation leading to legal action and remedy.

The second reason it is important to examine the consistency of the legal and academic operational definitions of slavery concerns the development of antislavery policies. Because slavery is a global phenomenon, it is expressed in many forms reflecting the cultural, social, and economic influences of different countries and regions. While differing among countries and regions, it is also a patterned activity, reflecting distinct similarities in the exercise of violent control and exploitation. Understanding the local differences, while addressing the fundamental and constant themes of violence and exploitation, is critical to reducing and ultimately eradicating slavery. For that reason, an academic operational definition of slavery is needed to identify this phenomenon within its social and cultural context, and at the same time a universally applicable legal definition is needed to recognize and enforce its status as a crime *jus cogens.*[15] An example of the importance

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14. FREE THE SLAVES, THE HUMAN RIGHTS CENTER & UNIVERSITY OF CALIFORNIA BERKELEY, HIDDEN SLAVES: FORCED LABOR IN THE UNITED STATES (2004).

15. A fundamental and overriding principle of international law from which no derogation is permitted, also referred to as a "peremptory norm," this is a principle accepted by the international community of states which overrides or surmounts other laws. The prohibitions of genocide, maritime piracy, slavery and the slave trade, torture, and wars of aggression and territorial aggrandizement, are generally accepted as *jus cogens* norms.

of the coherence of two such definitions is the description of contemporary slavery that follows. The themes and facts below are derived from academic working definitions that, when operationalized, allow measurements and distinctions to be made of slavery—measurements that might then inform the development of legal responses to this crime.

III. ESTIMATING SLAVERY IN EUROPE

As with defining slavery, estimating slavery's prevalence has its challenges. One challenge is that, since the late 1990s, the dominant discourse within the popular, scholarly, and policy-making communities has sometimes conflated contemporary slavery with commercial sexual exploitation and ignored other forms of enslavement, such as debt bondage, forced marriage, and forced labor. While there is certainly an overlap between commercial sexual exploitation and other forms of modern slavery, in other instances the phenomena are distinct. This has led sociologists like Ronald Weitzer to argue that "[i]n no area of the social sciences has ideology contaminated knowledge more pervasively than in writings on the sex industry."[16] In one sense, this might be expected given that the scholarly study of contemporary slavery has emerged only within the last twenty years. Political and ideological contentions marked the early years of this subfield, not to mention the (understandable) tendency of some national governments to deny or resist the implication that any form of slavery might exist within their borders.

Another challenge is that slavery is a criminal activity that, like most crimes, is regularly concealed from view. To contend with this, most criminological researchers look to the results of representative sample national crime victim surveys, like the British Crime Survey or the National Crime Victimization Survey in the United States. These population surveys are not of crime victims but of the general public, with the aim of eliciting the true level of criminal activity across the population. These studies tend to find a regular pattern of discrepancy between the incidence of crimes experienced by any population and the crimes that members of that population then report to law enforcement. The difference between these two numbers for any particular crime is normally referred to as that crime's "dark figure."[17]

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16. Ronald Weitzer, *Flawed Theory and Method in Studies of Prostitution*, 11 VIOLENCE AGAINST WOMEN 934 (2005).

17. An early explanation of the "dark figure" is found in Albert D. Biderman & Albert J. Reiss, Jr., *On Exploring the "Dark Figure" of Crime*, 374 ANNALS AM. ACADEMY POL. & SOC. SCI. 1 (1967). A more recent introduction to the concept is found in CLIVE COLEMAN & JENNY MOYNIHAN, UNDERSTANDING CRIME DATA: HAUNTED BY THE DARK FIGURE (1996). A full discussion of the nature of the "Dark Figure" in slavery and trafficking crime is offered in the companion article Monti Narayan Datta & Kevin Bales, *Slavery in Europe: Part 1, Estimating the Dark Figure*, 35 HUM. RTS. Q. 817 (2013).

The regular pattern of discrepancy between actual and reported crime is an inverse relationship. In most cases, the more serious a crime the lower the number of unreported instances of that crime. There are exceptions to this rule, particularly in the area of rape and domestic violence, crimes that have lower rates of being reported than would be predicted by their severity.[18] Given that slavery often includes sexual assault, the reticence to report rape may also affect those who have been held in slavery.[19]

Despite these challenges, a nascent body of research has emerged. Kevin Bales developed an estimate of slavery at the country level of analysis in the late 1990s,[20] and revised it again in 2005.[21] Bales developed the estimate by: (1) relying on secondary sources (including records from law enforcement, the International Labor Organization (ILO), the United Nations and some nongovernmental organizations (NGOs); (2) consulting with country experts; and (3) cross-referencing this information to generate estimates. In 1999, Bales estimated the total number of slaves for 111 countries was 27 million.[22] This estimate underwent review by the editors of a widely circulated popular science journal[23] and within the academic literature.[24]

In 2004, the ILO used a methodology similar to Bales' with two exceptions.[25] First, the ILO sampled secondary source materials using a "capture-recapture" method (i.e., two independent teams were in the field collecting data independently of one another). Second, the ILO did not use external country experts to check the robustness of their estimates. Their estimate was 12.3 million[26] people in forced labor globally in

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18. *See, e.g.*, Kathryn Coleman, Peter Kaiza & Stephen Roe, *Homicide, Firearm Offences and Intimate Violence 2007/08, in* CRIME IN ENGLAND AND WALES 2007/08 (David Povey ed., 2009), *available at* http://www.standingtogether.org.uk/fileadmin/user_upload/standingUpload/Homicides_intimate_and_firearms_07.pdf.

19. See an examination of the role of sexual assault in the enslavement of women in Kevin Bales & Jody Sarich, *Afterword: The Paradox of Women, Children, and Slavery, in* TRAFFICKING IN SLAVERY'S WAKE: LAW AND THE EXPERIENCE OF WOMEN AND CHILDREN IN AFRICA (Benjamin Lawrence & Richard Roberts eds., 2012).

20. KEVIN BALES, DISPOSABLE PEOPLE: NEW SLAVERY IN THE GLOBAL ECONOMY 8 (1999).

21. Unpublished, Research Unit, Free the Slaves, Washington, D.C. (2005).

22. BALES, DISPOSABLE PEOPLE, *supra* note 20.

23. Kevin Bales, *The Social Psychology of Modern Slavery*, SCI. AM., Apr. 2002, at 80.

24. Kevin Bales, *International Labor Standards: Quality of Information and Measures of Progress in Combating Forced Labor*, 24 COMP. LABOR L. & POL'Y 321 (2004).

25. ILO Director-General, *A Global Alliance Against Forced Labor: Global Report Under the Follow-up to the ILO Declaration on Fundamental Principles and Rights at Work*, U.N. ILO, Int'l Labor Conf., 93rd Sess., Report I(B), 11 (2005).

26. FORCED LABOR: COERCION AND EXPLOITATION IN THE PRIVATE ECONOMY (Beate Andrees & Patrick Belser eds., 2009), sheds doubts on this estimate. Andrees and Belser were part of the ILO research team for the original estimate of 12.3 million. In this edited volume of papers, Patrick Belser & Michaelle de Cock, *Improving Forced Labor Statistics, in id.* at 173, compare the ILO estimate of 12.3 million with the estimate of 27 million. They explain that the same methods were used to build both databases, and that they also used 'capture-recapture' (two independent teams on the same data field) as an improvement. The improvement was nullified, however, for the country of India because that

2005,[27] later updated to 20.1 million people in 2012.[28] The methods used and the data gathered have not been offered by the ILO for peer review, and are reported by region, so it is uncertain how the estimates were arrived at or what the totals by country might have been.

Unlike previous research from Bales or the ILO, the dependent variable we use in this analysis is not assembled from secondary source aggregation; instead, we draw upon representative survey data to develop an extrapolation of estimates of the incidence of slavery in thirty-seven European countries today.[29] The core data we used in this extrapolation was from pioneering research by Julia Pennington, A. Dwayne Ball, Ronald Hampton, and Julia Soulakova.[30] Their research added three questions concerning forced labor to an existing large household-based cluster-sample study conducted in Belarus, Bulgaria, Moldova, Romania, and Ukraine. Based on an array of demographic indicators, Pennington and her colleagues computed the proportion of households in each of these five Eastern European countries that had family members who ultimately fell into enslavement abroad, and from those measures estimated the mean number of persons trafficked from each country as a proportion of the population. To these five measures, we added two additional proportions, one for the US population, and another for the UK population. Combined, we used these seven proportions to develop an estimate of slavery in Europe, as Table 1 illustrates.

Table 1 lists the proportion of trafficked persons in each country, the population for each country in 2012, and the estimated number of slaves in 2012, which we derive by multiplying the estimated proportion of trafficked persons by the population size. We believe these numbers are superior to previous estimates that rely solely on secondary source estimates. The next column is the estimated number of slaves per country. From this empirically derived estimate of slavery we note a minimum value of twenty-two slaves (in Iceland) and a maximum value of 513,064 slaves (in the Russian

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government insisted that only their "official" estimate, not the one arrived it by the ILO researchers, be used. As Belser and Andrees explain: "Most likely, the difference [between the Bales and the ILO estimate] is due to the large uncertainty about the true magnitude of forced labor in just one country, namely India—where the number of people in bonded labor remains a controversial subject." *Id.* at 186. They then review several estimates done by other researchers, but then explain: "The government of India has always rejected these findings on the basis that the methodology was flawed." *Id.* at 187.

27. ILO Director-General, *supra* note 25, at 10.

28. ILO, ILO Global Estimate of Forced Labor in 2012: Results and Methodology (2012), *available at* http://www.ilo.org/sapfl/Informationresources/ILOPublications/WCMS_182004/lang--en/index.htm.

29. For a full description of the methods used to develop the estimates used in this article, see Datta & Bales, *supra* note 17.

30. Julia R. Pennington, Wayne A. Ball, Ronald D. Hampton & Julia N. Soulakova, *The Cross-National Market in Human Beings*, 29 J. Macromarketing 119 (2009).

Table 1: Slavery in Europe in 2012

Country	Region	Fraction of Population Estimated Enslaved	Population	Estimated Enslaved	Logged Transformation
Albania	East	0.00360	3,002,859	10,810	9.287
Armenia	East	0.00360	2,970,495	10,694	9.276
Austria	West	0.00013	8,219,743	1,069	6.974
Azerbaijan	East	0.00360	9,493,600	34,177	10.438
Belarus	East	0.00121	9,643,566	11,669	9.369
Belgium	West	0.00013	10,438,353	1,357	7.213
Bosnia and Herzegovina	East	0.00360	3,879,296	13,965	9.543
Bulgaria	East	0.00380	7,037,935	26,744	10.193
Croatia	East	0.00360	4,480,043	16,128	9.687
Czech Republic	East	0.00360	10,177,300	36,638	10.508
Denmark	West	0.00013	5,543,453	721	6.580
Finland	West	0.00013	5,262,930	684	6.528
France	West	0.00013	65,630,692	8,532	9.052
Georgia	East	0.00360	4,570,934	16,455	9.707
Germany	West	0.00013	81,305,856	10,570	9.266
Greece	West	0.00013	10,767,827	1,400	7.244
Hungary	East	0.00360	9,958,453	35,850	10.486
Iceland	West	0.00007	313,183	22	3.088
Ireland	West	0.00007	4,722,028	331	5.801
Italy	West	0.00013	61,261,254	7,964	8.983
Luxembourg	West	0.00013	509,074	66	4.192
Moldova (Republic of)	East	0.00936	3,656,843	34,228	10.441
Montenegro	East	0.00360	657,394	2,367	7.768
Netherlands	West	0.00013	16,730,632	2,175	7.685
Norway	West	0.00013	4,707,270	612	6.417
Poland	East	0.00360	38,415,284	138,295	11.836
Portugal	West	0.00013	10,781,459	1,402	7.245
Romania	East	0.00113	21,848,504	24,689	10.116
Russian Federation	East	0.00360	142,517,670	513,064	13.147
Serbia	East	0.00360	7,276,604	26,196	10.172
Slovakia	East	0.00360	5,483,088	19,739	9.889
Slovenia	East	0.00360	1,996,617	7,188	8.879
Spain	West	0.00013	47,042,984	6,116	8.719
Sweden	West	0.00013	9,103,788	1,183	7.076
Switzerland	West	0.00013	7,925,517	1,030	6.938
Ukraine	East	0.00248	44,854,065	111,238	11.618
United Kingdom	West	0.00007	63,047,162	4,413	8.392
Total			745,233,755	1,139,780	

Federation)—a substantial range, illustrating large differences in levels of slavery across the continent. To normalize this measure for the empirical analysis that follows, we express this measure as a logarithmic transformation. This last column becomes the dependent variable in our analysis.

IV. A PREDICTIVE MODEL—INDEPENDENT VARIABLES

In exploring slavery in European countries, we have gathered a number of variables often thought to predict trafficking or slavery to test. Anecdotal evidence from law enforcement personnel and other workers on the ground points to poverty, social unrest, government corruption, population dynamics, and the perception of opportunity (or lack thereof) as predictors of both enslavement within and human trafficking out of a country.

One early attempt at modeling of slavery and trafficking posited that "[r]oot causes of trafficking in persons include the greed of criminals, economic pressures, political instability and transition, and social and cultural factors."[31] This study, using secondary source data and a limited number of variables derived from the United Nations and World Bank indices, concluded,

> [T]he most significant factors predicting trafficking in persons from a country, given in descending order of their power to do so, are
> • the level of a country's governmental corruption;
> • the country's infant mortality rate;
> • the proportion of the population below the age of fourteen;
> • the level of the country's food production;
> • the country's population density; and
> • the amount of conflict and social unrest the country suffers.[32]

For the present analysis a series of similar and additional variables have been assembled. The first measure we include is a variable we call *state stability risk.* This measure, obtained from the Walk Free Foundation's Global Slavery Index,[33] assesses the extent to which a country has a stable government. This is perhaps our most important measure, given that without a stable government, the chances of mitigating slavery are slim at best. We expect to see more slavery in countries with greater *state stability risk*, other things being equal.

State stability risk is a unique measure and an average of several factors including: Corruption, a measure from Transparency International,[34]

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31. KEVIN BALES, UNDERSTANDING GLOBAL SLAVERY: A READER 138 (2005).
32. *Id.* at 139.
33. WALK FREE FOUNDATION, THE GLOBAL SLAVERY INDEX 2013 (2013), *available at* http://www.globalslaveryindex.org/report/. The authors were also authors of the Global Slavery Index report and supervised the collection of a data set on 162 countries on issues on modern slavery. We are deeply grateful for access to these data for the present study.
34. Transparency International, Corruption Perceptions Index 2012, *available at* http://www.transparency.org/cpi2012/results#myAnchor1. The data used are from 2011.

which ranks a country on a 100-point scale from 0 ("highly corrupt") to 100 ("clean"); Governance, from the World Bank,[35] which ranges from -2.5 ("weak governance") to 2.5 ("strong governance"); Independence of Judiciary, a measure from the Cingranelli-Richards (CIRI) Human Rights Dataset, which ranks a country's judiciary independence,[36] ranging from a score of 0 ("not independent"), to a score of 1 ("partially independent"), to a score of 2 ("generally independent"); Political Instability, a measure from the Economist Intelligence Unit,[37] which assesses the vulnerability of a country's political system, ranging from a score of 0 ("no vulnerability") to 10 ("highest vulnerability"); Violent Crime, based on data from the United Nations Office on Drugs and Crime,[38] which lists the homicide rate by country per 100,000 people; and the Peace Index, based on data from Vision of Humanity,[39] which ranks countries on a scale from 1 ("most peaceful") to 5 ("least peaceful").

Because the data points that make up *state stability risk* come from a number of credible yet disparate sources, it is important to examine each variable in relation to the others along the same linear scale, from a minimum of 1 to a maximum of 100. To do this, we employ a normalization procedure based upon the formula:

$$y = 1 + (x-A)*(100-1)/(B-A)$$

This formula allows us to create a linear transformation of each variable, making comparisons more straightforward. In this process, a given variable has one value (call it A) that maps to the minimum value of 1 and another value (call it B) that maps to the maximum value of 100.

In addition to *state stability risk*, there are several other factors we include in the empirical model that follows:

Women's Economic Rights. This measure, also from the CIRI Human Rights Dataset,[40] assesses the extent to which there are economic rights for women in a given country. We use this measure as a proxy for discrimination against women. It ranges from a scale from 0 to 3, where 0 represents "no economic rights" and 3 represents "all or nearly all of women's economic rights were guaranteed by law." In general, we expect to see a negative

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35.   World Bank, The Worldwide Governance Indicators (WGI) Project, *available at* http://info.worldbank.org/governance/wgi/index.aspx#home.
36.   CIRI Human Rights Data Project, *available at* http://www.humanrightsdata.org/index.asp. Data are from 2010.
37.   The Economist Intelligence Unit, Political Instability Index, *available at* http://viewswire.eiu.com/site_info.asp?info_name=social_unrest_table&page=noads. Data are from 2007.
38.   United Nations Office on Drugs and Crime, Global Study on Homicide 2011 (2011), *available at* http://www.unodc.org/unodc/en/data-and-analysis/statistics/crime/global-study-on-homicide-2011.html.
39.   Vision of Humanity, Global Peace Index, *available at* http://www.visionofhumanity.org/#/page/indexes/global-peace-index. Data are from 2012.
40.   CIRI, *supra* note 36.

relationship between strong rights for women and the prevalence of contemporary slavery in Europe, other things being equal. That is, stronger women's rights should lead to less forms of enslavement.

Freedom of Speech. This variable, also from the CIRI Human Rights Dataset, indicates the extent to which freedoms of speech and press are affected by government censorship, including ownership of media outlets. We use this measure as a proxy for negative rights, i.e., those rights that citizens should not have taken away from them by the state in order to lead lives of dignity and purpose. This measure ranges on a score from 0 to 2, where 0 represents "government censorship of the media was complete" and 2 represents that "there was no government censorship of the media" in a given year. We expect to see a negative relationship between freedom of speech and the prevalence of slavery in Europe. That is, greater access to freedom of speech should lead to less slavery.

Access to Financial Services. This measure, taken from the World Bank,[41] assesses the fraction of the adult population using formal financial intermediaries, and ranges on a scale from 0 (low access) to 100 (high access). Individuals in countries with access to legitimate forms of credit should have more opportunities for economic development, and thus less susceptibility to enslavement.

Eastern Europe. This measure is a dummy variable, in which a score of 1 represents a country in Eastern Europe and a score of 0 represents a country in Western Europe. We include this variable to account for the challenges in economic and political opportunity within Eastern Europe after the collapse of the Soviet Union. Life in Eastern Europe remains a challenge and provides a context of increased vulnerability to enslavement than occurs in Western Europe.

Men Over 60. This variable, from the United Nations Department of Economic Affairs,[42] includes the percent of the male population over sixty years of age, by country. The logic of including this variable is that richer countries tend to exert a *pull* on poor economic migrants that may be lured into exploitative work. Thus, human traffickers seek to meet the demand for such workers in rich countries. A key attribute of rich European states is that they are also marked by increased longevity of their population. For that reason we assert that the percentage of males over the age of sixty years old stands as a good marker for the demand for trafficked persons. We expect

41. PATRICK HONOHAN, THE WORLD BANK, TRINITY COLLEGE DUBLIN & CEPR, CROSS-COUNTRY VARIATION IN HOUSEHOLD ACCESS TO FINANCIAL SERVICES (2007), *available at* http://siteresources.worldbank.org/INTFR/Resources/Cross_Country_Variation_In_Household_Access.pdf. This report was prepared for the Conference "Access to Finance" in Washington, D.C. on 15–16 Mar. 2007. Data are from 2007.

42. United Nations Department of Economic and Social Affairs, World Population Prospects: The 2012 Revision, *available at* http://esa.un.org/unpd/wpp/Excel-Data/population.htm. Data are from 2010.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Slavery	37	30,804	86,355	22	513,064
LogSlavery	37	8.642	2.071	3.087	13.147
State Stability Risk	37	42.032	24.908	5.382	94.205
Women's Economic Rights	37	2.081	.893	1	3
Freedom of Speech	37	1.324	.668	0	2
Access to Financial Services	37	65.810	33.745	9	100
Eastern Europe	37	.513	.506	0	1
Men Over 60	37	18.116	3.767	6.9	23.8

to see a positive relationship between this factor and our measure of slavery in Europe today, other things being equal.

Table 2 provides descriptive statistics. Note the disparity between the first two variables—*Slavery* and *LogSlavery*. *Slavery* is the raw measure for the estimated number of enslaved from Table 1. The standard deviation (i.e., the spread) of *Slavery* is about three times that of the mean. This indicates a substantial distribution. At the same time, the gap between the minimum (twenty-two slaves) and maximum (513,064 slaves) suggests a highly skewed distribution. This contrasts markedly with the second variable in Table 2 (*LogSlavery*), which takes the natural log of *Slavery*. *LogSlavery* has a much more even distribution and is thus a better candidate to include as the dependent variable in our analysis.[43]

The other descriptive statistics from Table 2 are informative. *Women's Economic Rights,* a proxy for state discrimination against women, ranges from 1 (some economic rights) to 3 (total economic rights). The average is about 2.1, which indicates that, on the whole, most countries in Europe had more than a modicum of economic rights for women. Thus, it may be the case that there is little variation in state discrimination against women in Europe—at least based on this measure.

The other variables are also illuminating. *Freedom of Speech* has a mean of 1.3 out of a minimum value of 0 and a maximum of 2. This tells us that negative rights were on the whole respected throughout the thirty-seven countries in our dataset under study. *Access to Financial Services,* on a scale from 9 to 100 in Europe, has a mean of about 65 and a standard deviation of about 33. This tells us that access to credit has substantial variation.[44] *Eastern Europe* has a mean of about .5, which tells us that half the countries

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43.   This means that the dependent variable changes by 100*(coefficient) percent for a one unit increase in the independent variable while all other variables in the model are held constant.

44.   A histogram analysis reveals that the distribution in Honohan, *supra* note 41, is nearly bimodal.

in our study are from Eastern Europe and the other half are from Western Europe—a good amount of variation. Lastly, *Men Over 60* has a mean of 18.116, which tells us that, on average, about twenty-percent of men in the thirty-seven countries under study are over the age of sixty years.

V. INFERENTIAL STATISTICS

What then predicts variation in the prevalence of slavery across the thirty-seven countries of Europe under study? A preliminary multivariate linear regression analysis using robust standard errors tested the hypothesis that the independent variables listed above would be likely predictors of the presence of slavery and human trafficking in Europe. Table 3 presents the results.

Table 3. A Preliminary Analysis of the Predictors of Human Trafficking in Europe (Dependent variable is logged)

	Coefficient
State Stability Risk	.034**
	(.015)
Women's Economic Rights	-.544
	(.405)
Freedom of Speech	-1.245***
	(.446)
Access to Financial Services	.029***
	(.008)
Eastern Europe	2.401***
	(.591)
Men Over Sixty	.215**
	(.079)
Constant	2.885
	(2.113)
R^2	.77
N	37

Robust Standard Errors in Parentheses
** $p < .05$; *** $p < .01$

The results from Table 3 are revealing. Our dominant claim is that risk to state stability accounts for significant variation in slavery in Europe today. The coefficient of *State Stability Risk* is positive and statistically significant at the .05 level or with ninety-five percent confidence. A one percent increase in risk to state stability predicts a 3.4 percent increase in slavery in Europe, other things being equal. In other words, the greater the risk to state stability, the greater the likelihood of enslavement across Europe.

At the same time, several other variables in Table 3 are also telling. The coefficient of *Freedom of Speech* illuminates the importance of negative

rights as a way of warding off contemporary slavery. A one-unit increase in this measure (that is, from a score of 2 to a score of 3 on the CIRI Human Rights Dataset) predicts a 125 percent reduction in the presence of slavery. This finding is significant at the .01 level or with ninety-nine percent confidence. Freedom matters.

Likewise, having access to financial services is also a key predictor in understanding slavery in Europe today—but not in the direction we predicted. Originally, we posited that there should be a negative relationship between *Access to Financial Services* and our measure of slavery. That is, greater access to credit should discourage enslavement in a given country in Europe, other things being equal. Instead, the coefficient of this factor is *positive* and statistically significant. That is, greater access to financial services leads to more enslavement. What could account for this? One explanation may be that wealthier countries in Europe tend to pull in more enslavement—a positive correlation. Thus, our measure of access to finances could also be a proxy for wealth in general. Wealthier countries can also attract more traffickers and the enslaved. Or, another explanation might be that the people accrue more debt than they are able to pay off in countries where there is easy access to finances, making them prone to trafficking. Future research that examines a pooled times series of data on enslavement in Europe would shed more light on this dynamic and provide more conclusive evidence.

The coefficient of *Eastern Europe* should come as no surprise. It suggests that countries in Eastern Europe still account for a significant share of slavery in Europe today. And the measure of age (*Men Over Sixty*) is telling. It suggests that for every percentage point increase in men over sixty years of age, there is about a twenty-one percent increase in slavery. This is most likely illustrative of the pull that relatively wealthier countries have on poor economic migrants that may be lured into exploitative work.

The one factor that is not statistically significant in this preliminary model is the measure accounting for state discrimination against women—*Women's Economic Rights*. Given that the descriptive statistics for this measure illustrated relatively little variation, it may be the case that state discrimination against women does indeed matter, but that the measure we apply is most likely too blunt of an instrument. This is a problem we have noticed in general in exploring existing datasets for measures of discrimination. Little data on the subject exists and better measures are needed to account for how discrimination against women leads to cross-national variation in enslavement.

That said, we next repeated the preliminary analysis without the measurement of women's economic rights, given that it was not statistically significant. The following figure presents a path diagram showing the statistically significant predictive power of each of five independent variables on the prevalence of slavery in thirty-seven European countries. The fractional numbers below each variable are the standardized beta coefficients; these
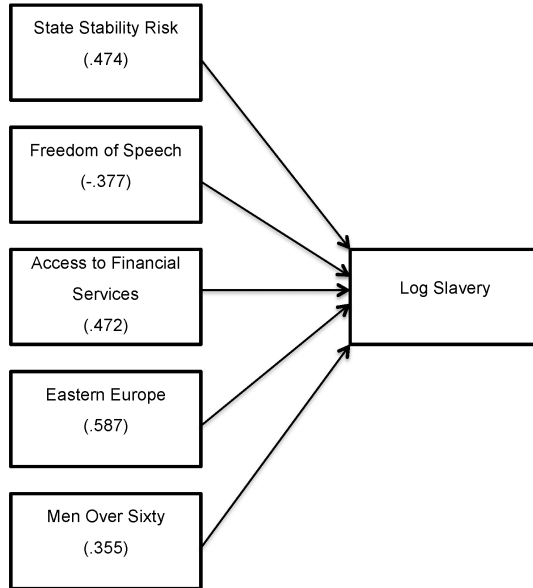
Figure 1. Diagram of Causal Variables
(Standardized Beta Coefficients in Parentheses)

give the relative strength of each of the predictive factors. Each of these variables is at least statistically significant at the .05 level or with ninety-five percent confidence.

Perhaps the most telling variable from Figure 1 is the measure *Eastern Europe*, which has by far the strongest standardized beta coefficient. This highlights the robust effect that being from the former Soviet Union or Eastern Bloc continues to have on life outcomes for citizens, including the chance of being trafficked and enslaved.

VI. CONCLUSIONS

In this article, building upon the work of Pennington, Ball, Hampton, and Soulakova, we employ an extrapolation method to develop an estimation of the prevalence of slavery across thirty-seven nations in Europe. We argue this method is more accurate than previous estimates. Next, we employ an empirical analysis and explore the extent to which a number of variables predict cross-national variation in slavery. We find that the risk of state in-stability, freedom of speech, access to financial services, whether a country

is in Eastern Europe, and the percentage of the male population of each country over the age of sixty are statistically significant predictors of slavery.

Although we are confident that these are key factors in understanding the story of modern day slavery, our paper carries a number of significant limitations. Our first and most substantial limitation is that we only examine countries in Europe. The next step in our research agenda is to broaden our geographic sample. Key to this objective is the accomplishment of more random sample population surveys addressing human trafficking and slavery.

A second limitation, related to the first, is that we require a longitudinal time series of analysis to have more robust results. We can more effectively understand trends in how much risk to state stability, for example, predicts slavery only if we look at larger numbers of nations over a broad range of time, for instance five or ten years. Indeed, given that countries like Greece have recently experienced significant upheaval, a longitudinal analysis would be quite revealing of how unemployment, for instance, affects trends in slavery across Europe. At the same time, a longitudinal analysis would allow for flows over slavery between countries—another key dynamic that our current static model of slavery does not fully capture.

A third limitation is that quantitative studies shed light on only part of the picture. A fuller analysis of slavery requires strong qualitative methods as well, such as the use of in-depth case studies to trace the processes by which, and the extent to which, supporting factors translate into slavery. The challenge here is not only finding hard numerical data, but also constructing a qualitative research methodology that complements a large-N statistical analysis as a robustness check.

Based on these limitations, we have several recommendations for future research. First, we recommend that there be the collection of more representative data upon which scholars can develop falsifiable hypotheses about the causes and consequences of human trafficking and modern day slavery. Pennington et al., upon whose work we build in this paper, essentially piggybacked three questions related to trafficking onto a much larger survey. Because cross-national surveys are expensive and time-consuming, their approach was efficient and cost effective. We encourage other scholars to consider ways to generate survey data based on random sampling from which they may estimate the prevalence of slavery in a given country, group of countries, or region.

Second, we urge that academics and practitioners share data on slavery and human trafficking. We acknowledge that some NGOs and IGOs have chosen to keep their data private, but we contend that the transparency of data on slavery, in accordance with the fundamental practices of scientific inquiry, carries benefits that far outweigh perceived costs, such as the ability to produce evidence-based results that can serve the policy community

in addressing this serious crime. As a modest step in that direction, all of the data used in this paper are available online on the author's website.[45]

Finally, we suggest that academics and practitioners partner and benefit from each other's comparative advantage. Academics are adept at analyzing trends in data using complex statistical methodologies, yet they often lack the expertise and depth of knowledge that only comes with years of being in the field—something practitioners have in abundance. Practitioners, on the other hand, often lack training in statistical analysis and yet often have access to the best data. Academics and practitioners can assist one another and produce better research with which to inform the policy community as well as illuminate the social phenomenon of slavery.

We hope this paper becomes one of many within the academy to apply more rigorous empirical assessments in understanding the causes and consequences of human trafficking and modern day slavery. Given that the preponderance of research on the subject is not empirical and not peer-reviewed, we feel it is important to advance a research agenda that applies the best possible estimates using the most rigorous social science methods.

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45.   *See* http://www.montinarayandatta.com.