University of Michigan Journal of Law Reform

2016

Can Prostitution Law Reform Curb Sex Trafficking? Theory and Evidence on Scale Substitution, and Replacement Effects

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Recommended Citation

CAN PROSTITUTION LAW REFORM CURB SEX TRAFFICKING? THEORY AND EVIDENCE ON SCALE, SUBSTITUTION, AND REPLACEMENT EFFECTS

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Sex trafficking, a pervasive problem in many parts of the world, has become increasingly salient to policymakers and the general public. Activists, politicians, and scholars continue to engage in debates about how best to curb it. This Article discusses one especially contentious dimension of these debates: does banning prostitution reduce sex trafficking? Or is legalizing prostitution the optimal approach? Or is there a third, better way? Proceeding both theoretically and empirically, this Article seeks to cast light on the relationship between different types of prostitution laws and the prevalence of sex trafficking and human trafficking. It attempts to make three contributions to the literature.

First, it builds on existing theories of the link between the demand for purchased sex and the supply of sex-trafficking victims to create a simple ordinal measure of prostitution laws. This measure, which the Article dubs the Prostitution Law Index (PLI), captures not only whether prostitution overall is legal or illegal, but whether buying sex is legal or illegal and *whether selling sex is legal or illegal, which better reflects the actual cross-country variation in prostitution laws. The PLI takes into account scale, substitution, and replacement effects in the market for prostitution, where scale refers to increases in the prevalence of trafficking that are caused by growth of the overall market for prostitution; substitution to decreases in trafficking caused by current consumers who purchase sex with trafficking victims and, based on the risk of criminal sanction, shift to instead purchasing sex with individuals who voluntarily sell sex, thereby crowding out trafficking victims; and replacement to decreases in trafficking caused by new voluntary sellers of sex who, incentivized by changes in prostitution laws, enter the market and crowd out trafficking victims. The PLI ranks prostitution laws across countries on a four-point scale (from 1 to*

4), based on their expected effectiveness (from least to most effective) in reducing sex trafficking.

Second, the study uses a recent dataset provided by the European Union to map the statistical relationship between PLI scores and prevalence of sex trafficking, based on the Article's theory of scale, substitution, and replacement effects. The analysis suggests that there generally is an inverse relationship between a country's PLI score and the prevalence of trafficking in that country. Greater legislative efforts to reduce scale and to increase substitution and replacement appear, on average, to be associated with lower levels of sex trafficking.

Third, the Article presents a basic Difference-in-Differences analysis—on the basis of extremely limited data and thus with an unusually large number of caveats—of Norway's 2009 prostitution law reform. Tentative results indicate that the Norwegian reform, which made it legal to sell but illegal to buy sex, may potentially have helped reduce the prevalence of trafficking there.

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INTRODUCTION

Sex trafficking typically refers to the "recruitment, transportation, transfer, harbouring or receipt of persons" through force, fraud, or coercion for the purpose of sexual exploitation.[1] Because sex trafficking, like human trafficking generally, is an underground industry, it is hard to measure the true magnitude of the problem.[2] The United Nations has estimated that, at any given time, 2.4 million people around the world are being trafficked, eighty percent of them for purposes of sexual exploitation.[3] Even these numbers—just like other existing figures on either human or sex trafficking, whether higher[4] or lower[5]—must be taken with a grain (or spoonful) of salt.[6] But even without perfect data, it seems clear that sex

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1. *See* Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, Supplementing the U.N. Convention Against Transnational Organized Crime, art 3(a), *opened for signature* Dec. 12, 2000, T.I.A.S. No. 13127, 2237 U.N.T.S. 319 (entered into force Dec. 25, 2003).

2. *See, e.g.*, Seo-Young Cho et al., *Does Legalized Prostitution Increase Human Trafficking?*, 41 WORLD DEV. 69 (2013) ("One of the biggest challenges of doing research on human trafficking is the scarcity of reliable and comparable data. Human trafficking is a clandestine, criminal activity, with those being trafficked and involved in such activities being part of 'hidden populations.' Therefore, the true number of human trafficking victims is unknown." (citations omitted)).

3. The Associated Press, *U.N.: 2.4 million human trafficking victims*, USA TODAY (Apr. 4, 2012), http://usatoday30.usatoday.com/news/world/story/2012-04-03/human-trafficking-sex-UN/53982026/1.

4. *See, e.g.*, INT'L LABOUR ORG., ILO GLOBAL ESTIMATE OF FORCED LABOUR: RESULTS AND METHODOLOGY 13 (2012) ("The ILO estimates that 20.9 million people are victims of forced labour globally, trapped in jobs into which they were coerced or deceived and which they cannot leave. Human trafficking can also be regarded as forced labour, and so this estimate captures the full realm of human trafficking for labour and sexual exploitation, or what some call 'modern-day slavery.'").

5. *See* Ian McColl, *Human Trafficking . . . A Global Problem*, 60 MERCER L. REV. 792 (2009) (citing an estimate of international trafficking only, which by comparison is relatively low: "about six to eight hundred thousand people, mostly women and children, are trafficked across international borders").

6. *See, e.g.*, Niklas Jakobsson & Andreas Kotsadam, *The Law and Economics of International Sex Slavery: Prostitution Laws and Trafficking for Sexual Exploitation*, 35 EUR. J.L. & ECON. 93 (2013) ("The available data on trafficking is limited and unsatisfactory in many ways and we strongly encourage efforts to collect better data.").

trafficking is now widespread and substantial throughout many parts of the world, including Europe and the United States.[7]

While trafficking is above all an issue of human rights, it may nonetheless be worthwhile to view sex trafficking through an economic lens. A better understanding of the economic forces driving modern trafficking may allow policymakers to devise and implement more effective responses. Because the commercial sex industry as a whole is highly profitable, criminals have powerful incentives to traffic individuals for the purpose of sexual exploitation.[8] Economics may therefore have important lessons to teach about how to counter, and how *not* to counter, sex trafficking.

Simply put, prostitution can be seen as a market: the demand side comprises individuals who purchase sex, while the supply side includes both voluntary prostitutes and sex-trafficking victims. Some countries have tried to combat prostitution—and, by extension, sex trafficking[9]—by focusing exclusively on the supply side of the market. In Romania, for instance, it was previously illegal to sell sex but legal to buy it.[10] Law enforcement agencies were thus only arresting individuals who were selling sex, while leaving the demand side untouched.

In other countries, such as America (a few counties in Nevada aside), it is illegal both to sell and to buy sex.[11] In theory, such laws aim at eradicating a market for paid sex, including both voluntary prostitution and trafficking, by targeting both supply and demand.

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7.   *See, e.g.*, Lenora C. Babb, *Utah's Misguided Approach to the Problem of Sex Trafficking: A Call for Reform*, 14 J.L. & Fam. Stud. 277, 282 (2012); Joyce Outshoorn, *The Political Debates on Prostitution and Trafficking of Women*, 12 Soc. Pol. 141, 141–42 (2005); Donna M. Hughes, *The "Natasha" Trade: The Transnational Shadow Market of Trafficking in Women*, 53 J. Int'l Aff. 625, 625–26 (2000); Lionel Barber, *FT Season Appeal: Letter from the editor*, Fin. Times (Dec. 2, 2015), http://www.ft.com/intl/cms/s/2/5434fa74-9518-11e5-ac15-0f7f7945adba.html (writing about human trafficking, including sex trafficking, that the "slavery trade is as ancient as it is barbaric. The fact that it has not been eradicated demands urgent action.").

8.   *See, e.g.*, Meredith Dank et al., Estimating the Size and Structure of the Underground Commerical Sex Economy in Eight Major US Cities 1–2 (2014); Kevin Bales, Disposable People: New Slavery in the Global Economy 3–4 (3d ed. 2012).

9.   Since sex trafficking is essentially a subset of the total market for prostitution.

10.   *See* U.S. Dep't of State, Bureau of Democracy, H.R. and Lab., 2008 Human Rights Report: Romania 12 (2009), http://www.state.gov/j/drl/rls/hrrpt/2008/eur/119100.htm ("Prostitution is illegal but was prevalent. Police generally limited their intervention to fining prostitutes for loitering or disturbing the peace. According to local media, there were anecdotal reports that sex tourism existed in Bucharest and other major cities. The law does not provide punishment for clients of prostitutes, unless the prostitute was a minor and the client admitted knowing that fact before the act.").

11.   *See* Ronald Weitzer, *Sex Work: Paradigms and Policies, in* Sex for Sale: Prostitution, Pornography, and the Sex Industry 21 (Ronald Weitzer ed., 2d ed. 2010) ("Prostitution is treated in a more uniform manner in the United States, with criminalization being the reigning policy. This means that solicitation to engage in an act of prostitution is illegal, except in certain counties in Nevada, where about 30 legal brothels exist.").

In practice, though, most prostitution-related arrests in the United States are made against sellers—not buyers—of sex.[12] Hard numbers on the seller-buyer arrest disparity are exceptionally difficult, if not outright impossible, to come by,[13] but some have estimated that as many as nine out of every ten prostitution-related arrests in the U.S. are of sellers, not buyers.[14] *De facto*, then, law enforcement agencies in countries adopting either the (former) Romanian or the American approach have tended to focus on controlling the supply side rather than the demand side of the sexual services market.

Other countries, such as the Netherlands[15] and Germany,[16] have opted for a third approach. Both countries have legalized prostitution and related activities,[17] such as pimping and running brothels.[18] Under this approach, the state makes no effort to deter people from selling or buying sex. Instead, law enforcement agencies focus on rooting out trafficking and other exploitative forms of prostitution, and may use resources that would otherwise have been devoted to investigating, arresting, and prosecuting buyers or sellers of sex to target traffickers, and other exploitative suppliers, instead.[19] Proponents of this approach tend to believe that it is, above all, the criminalization of prostitution that makes trafficking

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12.   *See, e.g.*, Moira Heiges, *From the Inside Out: Reforming State and Local Prostitution Enforcement to Combat Sex Trafficking in the United States and Abroad*, 94 Minn. L. Rev. 428, 437 (2009) ("Unfortunately, rather than focusing on reducing the market for sex trafficking, police, prosecutors, and courts have typically viewed pimps and purchasers as trivial or derivative offenders, while targeting prostituting persons for arrest and prosecution." (footnote omitted)).

13.   A case in point: the author has submitted FOIA requests to local law enforcement agencies in an attempt to gather data on the ratio of arrests of sellers of sex to arrests of buyers—so far without success. Typically, local law enforcement responds by stating that such data is not collected and therefore does not exist.

14.   *See* The Economist, *Selling Sex: Hold the Backpage*, The Economist (July 18, 2015) (noting that "Cook County now arrests more buyers of sex than sellers. In America as a whole, by contrast, more than 90% of those arrested for taking part in the business are prostitutes.").

15.   *See generally* Annelies L. Daalder, Prostitution in the Netherlands Since the Lifting of the Brothel Ban 12–13 (2007).

16.   *See* German Federal Ministry for Family Affairs, Senior Citizens, Women and Youth, Report by the Federal Government on the Impact of the Act Regulating the Legal Situation of Prostitutes 9 (2007) [hereinafter Federal Ministry].

17.   *See, e.g.*, Alissa J. Rubin, *To Discourage Prostitution, France Passes Bill That Penalizes Clients*, N.Y. Times (Apr. 6, 2016), http://www.nytimes.com/2016/04/07/world/europe/to-discourage-prostitution-france-passes-bill-that-penalizes-clients.html ("The Netherlands and Germany take a different approach, regulating prostitution as a business and requiring health checks and other measures to protect both the prostitutes and their customers.").

18.   *See id.*; Daalder, *supra* note 15.

19.   This view assumes that prostitution is not inherently exploitative and that consensual prostitution should not be prohibited; this stands in stark contrast, of course, to the neo-abolitionist position. *See infra* note 24.

attractive in the first place, and that permitting prostitution will therefore help reduce the prevalence[20] of trafficking.[21]

A fourth legislative approach to prostitution—one that has also been claimed to reduce sex trafficking—is to criminalize only the purchasing of sex. This model (the Demand Model) exclusively targets the demand side of the commercial-sex market. First introduced in Sweden in 1999,[22] similar laws are now on the books in a number of countries, including Norway, Canada, Iceland, Northern Ireland, and France.[23] One reason the Demand Model has grown in

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The legalization approach practiced in Germany and the Netherlands, or the decriminalization route taken by New Zealand, and, recently, by Romania, are generally favored by non-abolitionists, who also agree with the notion that a clearer distinction between voluntary and forced prostitution should be drawn in order to focus the attention on the victims of sexual exploitation. *See, e.g.*, Alison Brysk, *Sex as Slavery? Understanding Private Wrongs*, 12 Hum. Rts. Rev. 260 (2011) ("Anti-trafficking policies depart from an assumption of free individual women or parents on behalf of children, who are coerced or egregiously misled to be smuggled across borders, and then continuously pressured and abused to engage in sex work. It is assumed that such women were not and would not engage voluntarily in sex work, that other employment options do not exist or are not exploitive, and that trafficking is uniquely harmful due to its nature. [However,] anti-trafficking policies framed to protect 'innocent' women from sexual slavery ignore or slight prior sex workers or other women who migrate voluntarily to engage in sex work but are subsequently exploited."). Proponents contend that making prostitution permissible would make it possible for law enforcement agencies to prioritize going after traffickers instead of arresting those in the market for purchased sex who are not exploiting other individuals.

20.   Prevalence in the context of this Article refers to the number of individuals who are identified or presumed to be victims of trafficking one or more times in a given year relative to the country's population. This is distinctly different from measuring the proportion of the sellers of sex that have been victimized. It is also notably different from measuring incidence, which would refer to the number of discrete victimization events that take place in a given year. While incidence might be a valuable complement to prevalence for the purpose of measuring human suffering, it would be even harder to get reliable data on incidence.

Unless the Article specifies otherwise, all references to increases, decreases, etc. in trafficking are to be taken as increases, decreases, etc. in the prevalence of trafficking.

The two primary outcome variables in this article are the number of sex trafficking victims per million people in a given country in a given year and the number of victims of all human trafficking per million people in a given country in a given year.

21.   *See, e.g.*, Alison Murray, *Debt Bondage and Trafficking, in* Global Sex Workers: Rights, Resistance, and Redefinition 60 (Kamala Kempadoo & Jo Doezema eds., 1998) ("It is the prohibition of prostitution and restrictions on travel which attract organized crime and create the possibilities for large profits, as well as creating the prostitutes' need for protection and assistance.").

22.   Donna M. Hughes, *The "Natasha" Trade: The Transnational Shadow Market of Trafficking in Women*, 53 J. Int'l Aff. 625, 649 (2000) ("This new law is the first that aims to protect women from violence by holding men accountable and thereby addressing the demand for women to be trafficked for prostitution.").

23.   *See, e.g.*, Mac McClelland, *Is Prostitution Just Another Job?*, New York Magazine (Mar. 21, 2016), http://nymag.com/thecut/2016/03/sex-workers-legalization-c-v-r.html ("These opponents to decriminalization support the 'Nordic model,' which punishes buyers, brothels, and pimps but not the sex workers themselves, a system pioneered by Sweden that has since been adopted in some form in Iceland, Norway, Northern Ireland, and Canada. The idea is to ultimately end the trade without harming the women, who are seen as its victims, by

popularity is that, to some, it appears compelling in theory: a focus on the demand side of the sex trade has the potential to shrink the market for prostitution and thereby reduce the profitability of sex trafficking, which means that traffickers should supply fewer victims to the market.[24]

The rationale for targeting demand instead of supply is simple. The idea is that there will be someone who is willing to supply the market as long as demand exists[25] in the form of individuals willing to pay hefty sums[26] for sexual services.[27] Proponents of the Demand

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targeting the more powerful economic agents, namely men."); Rubin, *supra* note 17 ("After a debate lasting nearly two and a half years, France's Parliament on Wednesday approved a bill to discourage prostitution by penalizing those who pay for sex, following the example of Sweden and Norway. . . . Under the new law, first time offenders will pay a fine of € 1,500, or about $1,700, if they "solicit, accept or obtain relations of a sexual nature" from a prostitute in exchange for money. The fine can rise to € 3,750 (about $4,300) for repeat offenders. Convicted offenders may also have to attend classes to learn about the vulnerability of women in the sex trade. There is also the option for a settlement in which the offender could be ordered to take classes in lieu of the fine. The law also repeals an existing measure that penalizes solicitation by prostitutes, which many viewed as having forced prostitutes to work in more desolate neighborhoods or outside of city centers where they were less likely to be arrested by the police, but also where they were less safe.").

24.   In the scholarly and public debates, this approach tends to be favored by many neo-abolitionists, who assert that all forms of prostitution, whether voluntary or not, are inherently exploitative. *See, e.g.*, Marie Segrave, *Order at the Border: The Repatriation of Victims of Trafficking*, 32 Women's Stud. Int'l F. 251, 252 (2009) ("At a most basic level a neo-abolitionist perspective is characterised by its identification of prostitution as one of the more serious/ extreme instances of the oppression and sexual exploitation of women that exists within a patriarchal social system."). *See also* Janie A. Chuang, *Rescuing Trafficking From Ideological Capture: Prostitution Reform and Anti-Trafficking Law and Policy*, 158 U. Pa. L. Rev. 1655, 1664 (2010); Jane Scoular & Anna Carline, *A Critical Account of a 'creeping Neo-abolitionism': Regulating Prostitution in England and Wales,* 14 Criminology & Crim. Just. 608, 609 (2014). For an account that goes into greater depth of different theories about prostitution and commercial sexual exploitation, see Melissa Hope Ditmore, Encyclopedia of Prostitution and Sex Work, Volume 2 (2006).

25.   *See, e.g.*, Masud Ali, *Assessment of the Demand-Supply Interface of Trafficking and Commercial Sexual Exploitation, in* Human Trafficking: New Directions for Research 74 (Christine Aghazarm & Frank Laczko eds., 2008) (arguing that "the demand-side actors are not passive consumers of services delivered by trafficked individuals; rather the demand-side actors are often active agents in shaping the supply of sexual services which can only be met by trafficked individuals"). Nonetheless, it must be noted that demand is not the single root cause of human trafficking; other factors are essential, too. *See, e.g.*, Janie Chuang, *Beyond a Snapshot: Preventing Human Trafficking in the Global Economy*, 13 Ind. J. Global Legal Stud. 137, 160 (2006) (explaining that human trafficking also has its root causes "in poverty, unemployment, discrimination, and violence against women").

26.   *See, e.g.*, Dank et al., *supra* note 8, at 61 ("In Miami, online escort services are typically described as 'high-end' in that the prices charged are higher—$600 to $1,000 per hour—and therefore the customers tend to be wealthier.").

27.   It is, of course, possible to imagine a theoretical situation where the market for paid sex is eliminated by imposing such extreme penalties on suppliers that there will be no supply even if there is a substantial level of demand. But this would not only seem unrealistic, given how much more severely suppliers presumably would have to be punished to be deterred; it would also likely be extremely expensive, since deterrence is based on both severity

Model argue that it is unrealistic to think that trafficking can be successfully fought without substantially reducing, if not eliminating, the demand side of the commercial market in sex.[28] Because sex trafficking can be very lucrative,[29] and because actors in the market, such as pimps, perceive the risk of being caught as relatively low,[30] proponents of this fourth approach have argued that reducing the demand for paid sex may make it much less profitable for traffickers to stay in business. If fewer people purchase sex, proponents contend, traffickers will traffic fewer human beings.[31]

Supporters of the Demand Model claim that criminalizing only the act of buying sex focuses law enforcement resources on reducing the demand for purchased sex. Yet, in some tellings at least, the Model is also based on the notion that attempting to reduce sexual exploitation by criminalizing individuals who sell sex may well prove counterproductive.[32] While criminalizing the sale of sex may discourage voluntary prostitutes from entering the prostitution industry, the sex-trafficking victims who are part of the market for prostitution are forced, deceived, or coerced into selling sex. Arguably, then, the risk of legal sanctions will not affect their behavior in the market for prostitution. Criminalizing the sale may not have an effect on traffickers either. Trafficking is already illegal in most countries, and traffickers are typically not personally selling sex. Such a legislative approach may, therefore, result in both increased arrests of trafficking victims and an increase in the proportion of individuals in the market for prostitution who are subject to force,

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of punishment and certainty of punishment, the latter of which depends in large part on law enforcement resources.

28.   *See, e.g.*, Janice G. Raymond, *Ten Reasons for Not Legalizing Prostitution And a Legal Response to the Demand for Prostitution*, 2 J. TRAUMA PRAC. (2003).

29.   *See* Hughes, *supra* note 22, at 650 ("The trafficking of women for purposes of sexual exploitation has become a highly profitable shadow market for organized crime networks.").

30.   *See* DANK ET AL., *supra* note 8, at 3 ("While pimps have varying levels of knowledge regarding law enforcement tactics and sentencing surrounding sex trafficking, offenders believed that pimping was less risky than other crimes, including drug trafficking.").

31.   *See, e.g.*, Max Waltman, *Prohibiting Sex Purchasing and Ending Trafficking: The Swedish Prostitution Law*, 33 MICH. J. INT'L L. 133, 136 (2011) (writing that "any effective approach against sex trafficking must also reduce prostitution and the demand for it"). However, it must be noted that it is possible that traffickers would respond to a decrease in demand by reducing the intensive margin rather than the extensive margin. In other words, rather than exploiting fewer human beings, traffickers might simply choose to reduce the average number of transactions per victim. But, assuming there are fixed costs associated with trafficking human beings, profit-maximizing traffickers should reduce the extensive margin.

32.   This argument unites those who favor the Demand Model and those who support legalization or decriminalization, as neither camp wants to criminalize the act of selling sex.

fraud, or coercion.[33] In the worst-case scenario, advocates of the Model might contend, criminalizing the sale of sex could even lead to *more* sex trafficking than if selling sex were legal. If the individuals who are selling sex voluntarily are discouraged from doing so by the criminalization of selling, supply may fall, which could drive up the purchase price of sex. Enticed by greater profits, traffickers might respond to the price increase by trafficking even more victims.

While some find the Demand Model intriguing in theory, there is an unfortunate lack of empirical evidence on its real-world impact. At present, there is little data either to support or to challenge the claim that this type of prostitution law does the most to reduce sex trafficking.[34] Nor is it well understood how exactly the analysis of supply and demand bears on the relationship between prostitution laws and sex trafficking. This is not surprising; indeed, there exists only limited literature on the general relationship between prostitution laws and sex trafficking.[35] This Article, by using new data from the European Union (EU), attempts to shed some light on both on this general relationship and on the particular relationship of the Demand Model to sex trafficking.

More specifically, the Article seeks to make three contributions. First, it builds on existing theories of the link between demand for purchased sex and the supply of sex-trafficking victims to create a very simple ordinal measure of prostitution laws, the Prostitution Law Index (PLI).[36] The PLI is developed by scoring laws on a four-point scale according to how effective a theoretical model predicts them to be at reducing the prevalence of sex trafficking. To make such predictions, the Article uses some basic assumptions about scale, substitution, and replacement effects. Second, it uses a new dataset, collected across the European Union, to study the relationship between a country's PLI score and the prevalence of sex and

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33. *See* Babb, *supra* note 7, at 293 ("Utah's sex trafficking laws are seriously inadequate, and [given that the amendments were explicitly explained as a tool making it easier to arrest the prostitutes] the new sexual solicitation statute only makes a bad situation worse.").

34. Unfortunately, a lack of sound empirical evidence plagues trafficking research in general. *See, e.g.*, Sheldon X. Zhang, *Beyond the 'Natasha' story—a review and critique of current research on sex trafficking*, 10 GLOBAL CRIME 178 (2009) ("Much of our current knowledge, including statistical estimates and characteristics of the trafficking business, derives from a handful of reports issued by government and non-government agencies. With few empirical studies available, imagination seems to have filled the gaps of our knowledge.").

35. *See infra* Part I (discussing the limitations of the existing literature).

36. *See infra* Part I.

human trafficking in that country.[37] Third, it develops a very limited Difference-in-Differences[38] analysis of the effects of Norway's 2009 adoption of a version of the Demand Model.[39]

The Article concludes that there appears to be a significant negative correlation between PLI scores and prevalence of sex trafficking and human trafficking within European Union member states. That is to say, decreasing the scale effect and increasing the substitution and replacement effects—i.e., raising a country's Prostitution Law Index score—appears to generally be associated with lower levels of trafficking.

Furthermore, a Difference-in-Differences analysis of Norway's recent introduction of demand-focused prostitution laws provides some suggestive evidence that the country's prostitution law reform may have perhaps reduced the prevalence of sex trafficking there. Because the data is very limited, however, this finding must be interpreted with a great deal of caution, and is merely potentially indicative, at best.[40] Future studies will hopefully examine this possibility in more detail, and will likely find more useful the Difference-in-Differences framework rather than the statistical result itself.

The Article proceeds as follows. Part I reviews some of the existing literature on prostitution laws, sex trafficking, and human trafficking. Part II sets up the Article's basic theoretical framework for the analysis of prostitution laws. It looks at such laws through the lens of the demand for purchased sex and the supply of sex trafficking, based on scale, substitution, and replacement effects. It also presents a simple way of categorizing prostitution laws in terms of supply and demand, which yields four distinct categories of laws. Part III discusses the new, consolidated European Union dataset on sex trafficking and human trafficking, and introduces the Prostitution Law Index as a means of quantifying prostitution laws. The PLI

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37.   *See infra* Part III.A.

38.   *See generally* Martin Gaynor et al., *Death by Market Power: Reform, Competition, and Patient Outcomes in the National Health Service*, 5 Am. Econ. J. 134, 141 (providing an example of a Difference-in-Differences analysis on a different topic: "Our goal is to test the hypothesis that the pro-competition policy improved hospital quality. To do this we exploit the variation in market structure across hospitals and examine whether quality is higher for hospitals in less concentrated markets after the introduction of competition. This is a difference-in-differences (DiD) approach. The simplest DiD strategy compares two groups over two time periods, where a treatment group is exposed in the second period and a control group is not exposed to the policy in either period.").

39.   *See infra* Part V.C.

40.   The many caveats notwithstanding, the author strongly believes that the method itself is sound. And regardless of whether future research validates or vitiates the particular results adduced here, the author equally strongly believes that the use of quasi-experimental methods in future research on the causal relationship of prostitution laws to sex trafficking holds the promise of high returns.

ranks laws on a four-point scale based on how well those laws may be expected to combat sex trafficking. To do so, it uses some basic assumptions about supply and demand in the prostitution market. Part IV presents the regression models employed, and discusses a number of important assumptions, limitations, and caveats regarding the research design. Part V presents the results of the cross-country regression and Difference-in-Differences analyses. A brief conclusion summarizes the findings, reiterates important limitations and caveats, and lays out some directions for future research.

I. Existing Research on the Relationship between Prostitution and Sex Trafficking

The view that prostitution is inherently harmful[41] is neither new[42] nor marginal; despite much sharp criticism, it remains an influential[43] and commonly held view among academics and the broader public.[44] Similarly influential and debated is the theory that it is necessary to curb prostitution in order to reduce sex trafficking and human trafficking.[45] However, actual empirical evidence is scarce, and the link between prostitution and trafficking has been debated for decades without nearing anything resembling consensus.[46]

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41.   *See generally* Ronald Weitzer, *The Social Construction of Sex Trafficking: Ideology and Institutionalization of a Moral Crusade*, 35 Pol. Soc. 447, 451 (2007) (citing advocates who believe that prostitution "is evil by definition").

42.   *See, e.g.*, Francis William Newman, The Cure of the Great Social Evil, with Special Reference to Recent Laws Delusively Called Contagious Diseases' Acts 3 (1869) (describing contemporary views on prostitution in England as follows: "Under the name of the Great Social Evil our newspapers have for years alluded to an awful vice, too evidently of wide prevalence.").

43.   *See, e.g.*, Ole Martin Moen, *Is Prostitution Harmful?*, J. Medical Ethics 1 (2012) ("Most of us believe that prostitution is harmful. We believe that we are harmed if we sell sex and, perhaps, harmed if we buy sex. This harm, moreover, we consider to be of serious proportions. Selling sex is not regarded as on par with eating too much chocolate or getting a bad grade. Rather, it is regarded as so harmful that if it is ever permissible and appropriate to engage in prostitution, it must be as the last option available in a situation where the alternative is to suffer a life-threatening harm (such as starvation). Opinion polls support this line of thought.").

44.   *Cf.*, Ronald Weitzer, *The Mythology of Prostitution: Advocacy Research and Public Policy*, 7 Sexuality Research & Soc. Pol'y 15 (2010) ("Knowledge regarding sex work is increasingly being distorted by a group of influential activists, organizations, and some academics who regard the sex industry as a universally harmful institution.").

45.   *See, e.g.*, McClelland, *supra* note 23 (citing Cherie Jimenez, who runs the Eva Center, a sex-work exit program in Boston: "You can't end the trafficking piece without addressing it as a whole thing, as a sex trade. Decriminalization, which is what Amnesty is calling for, would make this an open market.").

46.   *See generally* Stephanie A. Limoncelli, The Politics of Trafficking: the First International Movement to Combat the Sexual Exploitation of Women (2010) (providing a comprehensive overview).

Already in 1949, the United Nations International Convention for the Suppression of the Traffic in Persons called for countries to reduce prostitution within their borders.[47] This call has resonated in academic and policy circles, and over the years many neo-abolitionists have attempted to give empirical backing to their views. One scholar, for example, has argued that "evidence seems to show that legalized sex industries actually result in increased trafficking to meet the demand for women to be used in the legal sex industries."[48] Another has made the stronger claim that "[w]herever prostitution is legalized, trafficking to sex industry marketplaces in that region increases."[49] And the United States Department of State, in its annual report on human trafficking, has written that "[s]ex trafficking would not exist without the demand for commercial sex flourishing around the world."[50] Such views seem to suggest that countries can best fight sex trafficking by eliminating the domestic market for all commercial sex, including voluntary prostitution.

Those who think that prostitution is inherently harmful and those who believe that sex trafficking is inevitable so long as demand for commercial sex is high may thus end up taking the same policy position: prostitution should be illegal. But many disagree with the argument that permitting prostitution increases trafficking.[51] The Bureau of the Dutch National Rapporteur on Trafficking in Human Beings has suggested that legalized prostitution benefits voluntary prostitutes, who may replace trafficking victims in the market, and at the same time makes trafficked women less attractive to buyers—both of which would reduce sex trafficking.[52] In the same vein, one study found that New Zealand's 2003 reform of its prostitution laws, which among other things decriminalized prostitution, helped improve the relationship between police and

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47. *See* Outshoorn, *supra* note 7, at 142.

48. Hughes, *supra* note 22, at 651.

49. Melissa Farley, *Theory Versus Reality: Commentary on Four Articles About Trafficking for Prostitution*, 32 Women's Stud. Int'l F. 311, 313 (2009).

50. U.S. Dep't of State, Trafficking in Persons Report 27 (2007).

51. *See, e.g.*, Weitzer, *supra* note 41, at 457 ("The causal link between legal prostitution and trafficking has not been empirically established. There is no evidence, for instance, that women are being coercively trafficked into Nevada's legal brothels . . . Rather than being a magnet attracting migrants into a country, it appears that legal prostitution may help reduce trafficking due to enhanced government regulation and oversight of the legal sector.").

52. *See* Anna G. Korvinus, The Dutch National Rapporteur on Trafficking in Human Beings, Trafficking in Human Beings 16 (2005). *See also* Segrave, *supra* note 24, at 253 (discussing the argument that "legalization of sex work, better working conditions and benefits and protection for sex workers will combat trafficking").

individuals who sell sex.[53] Better communication could reduce the prevalence of trafficking, as sellers become more likely to report both abusive buyers (who may be more likely to pay for sex with trafficking victims) and exploitative pimps (who may be traffickers).[54] Another argument in favor of making prostitution legal notes that criminalization is precisely what attracts traffickers in the first place. Kamala Kempadoo has written that

> Traffickers take advantage of the illegality of commercial sex work and migration, and are able to exert an undue amount of power and control over [migrants] . . . . In such cases, it is the laws that prevent legal commercial sex work and immigration that form the major obstacles.[55]

To assess the merits of these two opposing views on legalization, one would do well to inquire into the actual effects, if any, of prostitution laws upon trafficking, independent of anti-trafficking laws proper. Does it actually matter whether prostitution is legal or illegal?

One way that prostitution laws may impact trafficking is by affecting the availability of sexual services. If such laws can meaningfully affect either the demand or supply of commercial sex, it is plausible to believe that such laws can also change the extent to which individuals are coerced or deceived into selling sex.

Some might respond that the prostitution industry does not operate like a normal market. And it is undoubtedly true that prostitution differs from many other service industries, because of the associated stigma. In a 2007 study, the German government found that fewer than eight percent of individuals who sell sex are "officially insured as prostitutes"; although this may result simply from the fact that many sellers have other jobs, it could also indicate that the stigma attached to the profession makes sellers less likely to disclose that they engage in prostitution.[56] In New Zealand, where prostitution has been decriminalized, reports still emerge that sellers are subject to "continuing stigma" and "harassment by

53. *See* Lynzi Armstrong, *From Law Enforcement to Protection? Interactions between Sex Workers and Police in a Decriminalized Street-Based Sex Industry*, British J. Criminology (Feb. 18, 2016), http://bjc.oxfordjournals.org/content/early/2016/03/11/bjc.azw019.

54. Abigail Hall Blanco, *Idealism blurs truth about legalizing sex work*, Las Vegas Sun (July 8, 2012, 2:00 AM), http://lasvegassun.com/news/2016/jul/08/idealism-blurs-truth-about-legalizing-sex-work/ (arguing that after New Zealand's prostitution law reform, "it was easier for sex workers to report abuse and for police to prosecute sex crimes").

55. Kamala Kempadoo, *Introduction: Globalizing Sex Workers' Rights, in* Global Sex Workers: Rights, Resistance, and Redefinition 17 (Kamala Kempadoo & Jo Doezema eds., 1998).

56. *See e.g.,* Federal Ministry, *supra* note 16, at 26.

the general public."[57] In other ways, though, the market for prostitution does resemble that of other service industries. For example, platforms in at least some countries allow buyers to recommend and rate prostitution businesses as though they were hairdressers or restaurants.[58]

The argument that permitting prostitution distorts the market in favor of those who sell sexual services by choice rather than by force does imply that legalization or decriminalization would lower the prevalence of trafficking. Both supply-side effects and consumer preferences may play a significant role in reducing trafficking.[59] Still, others would contend that scale of demand also plays a crucial role; if more people want to buy sex or are willing to pay more for it, the argument goes, then, *ceteris paribus*, one may expect more trafficking, and more victims, as a result.[60]

While there are several facially plausible arguments cutting both ways, the empirical evidence on the relationship between prostitution laws and human trafficking is mixed. The results of one study suggested that prostitution laws have no positive or negative effect on human-trafficking inflows to European countries.[61] Similarly, another study, using a global sample of countries, initially found that prostitution laws have no effect on trafficking flows between pairs of countries.[62] However, when that same study introduced additional

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57.   Gillian M. Abel et al., The Impact of the Prostitution Reform Act on the Health and Safety practices of Sex Workers 11 (2007).

58.   Websites now exist where customers can rate the individuals from whom they purchase sex—a practice similar to posting business reviews on Yelp or TripAdvisor. *See, e.g.,* Christine Milrod & Martin A. Monto, *The Hobbyist and the Girlfriend Experience: Behaviors and Preferences of Male Customers of Internet Sexual Service Providers*, 33 Deviant Behavior 792, 796 (2012) ("The review website of interest to this study was TheEroticReview.com, referred to as TER among its users and ranked among the top 1,500 most visited websites in the United States (Alexa.com 11 October 2011). According to information found on the website, TER has over 1,000,000 registered members. The site receives between 250,000–300,000 unique Internet visitors daily and contains more than 800,000 reviews including the names and contact information of 75,000–100,000 ISSP or simply 'providers,' another name for prostitutes and sexual massage practitioners who can be located by using the Internet.").

59.   However, some would argue that there may be other important demand-side effects of legalization that are unrelated to either supply or consumer preferences. For instance, if it is legal to purchase sex, buyers may be keener on reporting suspected trafficking cases to the police, which would suggest that criminalizing prostitution could risk increasing trafficking prevalence. *See, e.g.,* Global Network of Sex Work Projects, The Criminalization of Clients 5 (2011) (writing that when prostitution is criminalized "a client encountering a sex worker who has been coerced, or is in danger, is unlikely to report it to the police for fear of incriminating himself").

60.   *See, e.g.,* Cho et al., *supra* note 2 at 67, 69.

61.   Diego Hernandez & Alexandra Rudolph, *Modern Day Slavery: What Drives Human-Trafficking in Europe?*, 38 Eur. J. Pol. Econ. 118 (2011).

62.   Randall Akee et al., *Transnational Trafficking, Law Enforcement and Victim Protection: A Middleman's Perspective*, IZA Discussion Paper No. 6226, Dec. 2011, at 25.

variables for the purpose of estimating the causal impact, it found that prohibiting prostitution increases trafficking.[63]

In sharp contrast, an analysis of European countries found legalized prostitution positively correlated to increases in human trafficking.[64] This conclusion is consistent with that of another global study, which found that, on average, countries where prostitution is legal have a higher prevalence of human trafficking than countries where prostitution is illegal.[65] The findings also align with the results of a detailed report on national prostitution laws, which suggested that stricter prostitution laws are associated with lower rates of human trafficking.[66]

II. Theory

This Part develops a basic model for analyzing the relationship between prostitution laws and sex trafficking through an economic lens. Although the model relies on numerous assumptions, some of which may be considered unrealistic, and most of which are not easily testable on the basis of current evidence, it provides a useful framework for thinking about why different types of prostitution laws may be associated with different levels of sex trafficking.

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63.   *Id.* at 29. This result supports the line of reasoning proposed by many non-abolitionists. *See supra* note 19.

64.   Jakobsson & Kotsadam, *supra* note 6, at 16–17 ("Using cross country data we find clear support for our theoretical predictions: trafficking of persons for commercial sexual exploitation is least prevalent in countries where prostitution is illegal, most prevalent in countries where prostitution is legalized, and in between in those countries where prostitution is legal but procuring illegal.").

65.   Cho et al., *supra* note 2 at 75–76 ("Our quantitative empirical analysis for a cross-section of up to 150 countries shows that the scale effect dominates the substitution effect. On average, countries with legalized prostitution experience a larger degree of reported human trafficking inflows.").

However, it must be noted that the way in which the authors defined the substitution effect was notably different from the definition used in this Article. *Id.* at 69 ("The full answer to the question depends on what happens to the composition of prostitutes and whether any substitution effect away from trafficked prostitutes (toward domestic prostitutes or foreign prostitutes legally residing and working in the country) is stronger than the scale effect. Under conditions of illegality, a certain share of prostitutes will consist of trafficked individuals, given the difficulties in recruiting individuals willing to voluntarily work in such an illegal market. This share of trafficked prostitutes is likely to fall after legalization. Sex businesses wishing to take advantage of the legality of prostitution (instead of remaining illegal) would want to recruit more national citizens or foreigners legally residing with a work permit in the country since employing trafficked foreign prostitutes (or, for that matter, illegally residing foreign prostitutes that were not trafficked) endangers their newly achieved legal status." (footnote omitted)).

66.   Andrea Di Nicola et al., Study on National Legislation on Prostitution 132 (2005).

In addition, the model helps frame and set expectations for the empirical analysis presented in Part V, which attempts to analyze which types of prostitution laws are associated with lower levels of trafficking. Instead of leaving those statistical showings simply to speak for themselves, the Article, in this Part, adds context and develops predictions regarding the association between prostitution laws and the prevalence of trafficking. Because the preliminary results presented in Part V partially confirm the predictions developed here, at least some elements of the theoretical model may turn out to be accurate, and are worthy of further inquiry.

A. Scale, Substitution, and Replacement Effects in the Market for Prostitution

To explore the theory of the relationship between prostitution generally and the subset thereof that constitutes sex trafficking, this Article will start by considering a country with a fixed population and a single market for prostitution.[67] We assume that economic agents in this market fall into one of only four categories:[68] 1) individuals who purchase sex; 2) individuals who voluntarily sell sexual services; 3) traffickers who use coercion, fraud, or force to make other individuals sell sex; and 4) victims of sex trafficking.

Imagine, first, the following scenario: it is illegal both to sell and to buy sex; human trafficking is illegal; and purchasing sex with victims of trafficking is, and remains, illegal regardless of changes to the prostitution laws.[69] Assume that some proportion of sellers or buyers is deterred from being active in the market when selling or buying sex, respectively, is illegal; that law enforcement agencies

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67. This approach is inspired in part by the steps outlined in Cho et al., *supra* note 2.

68. Although the potential impact (positive or negative) of pimping and brothel-owning on the prevalence of sex trafficking is an intriguing question, this study does not make these two factors into variables, simply because that exclusion limits the scope of the analysis. The limitation allows the fourfold division of economic agents.

69. The assumption that it is always illegal to pay for sex with trafficking victims makes it easier to predict consumer behavior under a legal prostitution regime; it also helps isolate the effects that prostitution laws have on trafficking prevalence independent of anti-trafficking efforts. One may propose, for instance, that if buyers cannot be arrested for purchasing sex regardless of whom they are paying to have sex with, then they may be more inclined to report suspected cases of sex trafficking to the police. While potentially real, investigating the existence of such a "reporting effect" is beyond the scope of this Article. In addition, it is not necessary that the direction of any potential causal effect that making it legal to purchase sex with victims of sex trafficking would have on trafficking prevalence is negative. It is possible that such a legal reform would increase trafficking prevalence by making it possible for sinister customers who prefer trafficking victims to seek the latter out if the risk of criminal sanctions is eliminated, which could drive up the price for sex with trafficking victims and thereby increase the supply of victims in the market.

are actively, but imperfectly, enforcing both prostitution and trafficking laws;[70] and that the resources devoted to combating prostitution and trafficking are independent, so that changing the resources devoted to combating one will not affect the resources available for combating the other.

Take as a further given that this market for prostitution is similar to a competitive market in some respects but different in others. The market structure will resemble perfect competition in that "firms" (i.e. traffickers and individuals who sell sex) are price-takers holding small market shares, in contrast to a monopoly or an oligopoly. The market will resemble perfect competition, but still differ from it insofar as sellers provide services with some (limited) variation in type and quality, and insofar as there is a relatively high freedom of entry and exit (except for the clear barrier to entry stemming from the fact that prostitution, at least initially, is illegal).

The market structure will starkly differ from a situation of perfect competition when it comes to buyers' levels of information. Instead of the complete information possessed by buyers in a perfectly competitive market, presume that buyers here have limited information about the service being provided.[71] Assume further, for the sake of simplicity, that each seller, whether voluntary or trafficked, always supplies the same quantity of sexual services. Importantly, this implies that any change in supply will affect only the extensive margin, not the intensive margin.[72] To simplify the analysis, also assume that the practical aspects of the operations carried out by traffickers do not benefit from a regime in which it is legal to sell sex,[73] and that

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70.   The assumption about enforcement of the laws is critical because it implies that prostitution and sex trafficking are both *de jure* and *de facto* illegal. In reality, clearly, the case could be very different, because the laws on the books may not actually be actively enforced, which is one of the primary reasons as to why it is so difficult to study the impact of prostitution laws; quantifying the degree of enforcement of laws is, if at all possible, extremely difficult.

71.   From this, the important implication follows that buyers may not be perfectly aware before and during a transaction whether they are paying for sex with a victim of sex trafficking. This assumption seems reasonable based on existing research. *See, e.g.*, Scott R. Peppet, *Prostitution 3.0?*, 98 IOWA L. REV. 2031, 2031 (2013) ("The client does not know her history in any way—whether she has been abused in the past, for example, or suffers from mental or emotional instability or from drug addiction. Most important, the client has no idea whether the prostitute may be a victim of sex trafficking. In short, the client is hiring an unknown.").

72.   The extensive margin in this case refers to the number of individuals who are selling sex whereas the intensive margin refers to the average quantity of sex sold per individual. So, the rationale for keeping the intensive margin fixed is that the focus of the analysis is the prevalence of sex trafficking as measured by the number of exploited individuals—not the incidence of sex trafficking, e.g. the number of exploitative transactions of sexual services (which is interesting, but even harder to measure).

73.   In other words, in this market it neither becomes easier nor cheaper to traffic individuals for sexual exploitation simply because it is legal to sell sex (whether this is true or not

the reservation price[74] of voluntary sellers equals the reservation price of traffickers.[75]

As with markets for other illegal products and services, such as the current market for illegal drugs or the alcohol market during Prohibition, banning prostitution will be assumed to not eliminate the market. So long as demand exists,[76] barriers to entry are comparatively low, and the price that buyers are willing to pay at least equals the marginal cost, some individuals will supply the market—whether they are voluntary sellers or traffickers supplying other human beings. The equilibrium quantity of both sexual services and prostitutes will thus depend on a function of demand and supply, as basic economic theory predicts.

In this hypothetical market for purchased sex, making it legal both to sell and buy sex should increase the prevalence of prostitution.[77] On both the demand and the supply side, some of those who

is an empirical question—and one worth pursuing in future research). However, in the model, as we shall see, traffickers may still benefit from legalized prostitution insofar as it affects the demand for purchased sex.

74.   On the supply side, the reservation price refers to the lowest price at which a seller is willing to sell a good or service.

75.   If the reservation price of voluntary sellers were to, in fact, be higher than the reservation price of traffickers, reducing the demand for purchased sex could eventually lead to a scenario where the whole market for prostitution is supplied by traffickers, since all voluntary sellers might be priced out of the market. By contrast, if the reservation price of voluntary sellers is lower than the reservation price of traffickers, then targeting the demand for prostitution would make perfect sense from an anti-trafficking perspective since a sufficiently low level of demand would cause the market to be completely supplied by voluntary sellers. For a longer discussion on the economics of prostitution, see generally Robert Skidelsky, *The Economist's Concubine*, Project Syndicate (Mar. 22, 2016), https://www.project-syndicate.org/commentary/economics-of-prostitution-by-robert-skidelsky-2016-03.

76.   There are many determinants of the demand for paid sex, but one of the most important factors is probably a discrepancy between supply and demand in the parallel "market" of non-commercialized sex. If there is an undersupply of non-commercialized sex, due, for example, to skewed ratios of men to women, there will likely be greater demand for paid sex. *See, e.g.,* Lena Edlund & Evelyn Korn, *A Theory of Prostitution*, 110 J. Pol. Econ. 181, 205 (2002) (arguing that "a surplus of males may be an important determinant of prostitution. For instance, prostitution was common in the American frontier towns and mining camps, where men outnumbered women massively"); Nishith Prakash et al., *Girls for Sale? Child Sex Ratio and Girls Trafficking in India*, IZA Discussion Paper No. 8293, June 2014, at 21–22, http://www.iza.org/en/webcontent/publications/papers/viewAbstract?dp_id=8293.

77.   There are important differences between *legalization* and *decriminalization. See* Weitzer, *supra* note 11, at 21–22 ("Full decriminalization would remove all criminal penalties and leave prostitution unregulated, albeit subject to conventional norms against nuisances, sex in public, or disorderly conduct. Under full decriminalization, street prostitution could exist on any street, so long as the workers and customers did not disturb the peace or violate other ordinances. Partial decriminalization would reduce but not eliminate penalties—the penalty might be a fine instead of incarceration or the charge may be reduced from a felony to a misdemeanor or violation. A third possibility is de facto decriminalization, which simply means that the existing law is not enforced, yet the offense remains in the penal code. . . . Unlike decriminalization, legalization implies regulation of some kind: vetting and licensing business owners, registering workers, zoning street prostitution, mandatory medical exams,

were previously discouraged from participating in the market be-
cause of the risk of legal sanctions will now enter the market,
increasing both demand and supply of commercial sexual services.
The equilibrium quantity of sexual services and of individuals who
sell sex will be higher than when it was illegal to sell and buy sex.
With respect to sex trafficking, however, it is not possible to deter-
mine, based on the assumptions made thus far, whether it will
increase or decrease as a result of making prostitution legal. This
uncertainty is in line with the existing literature (both theoretical
and empirical), which, as previously mentioned, provides evidence
in both directions. To answer that question for this hypothetical
market, further assumptions are necessary.

One approach would be to assume that the proportion of people
selling sex who are victims of trafficking remains constant over
time.[78] Making prostitution legal in this hypothetical market will, as
stated, increase demand for purchased sex and create economic
profits for suppliers already active in the market. Both the increase
in demand and the removal of criminal sanctions for sellers of sex
will lead new sellers to enter the market. If assumed that the share
of sellers who are trafficking victims will remain constant, then an
increase in supply will lead to an increase in the total number of sex
trafficking victims, i.e. an increase in the prevalence of sex traffick-
ing. Indeed, some previous studies have argued that there will be
such a "scale effect."[79]

Yet, it seems highly implausible to assume that the proportion of
trafficking victims will simply remain constant when prostitution

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special business taxes, or officials' periodic site visits and inspections of legal establishments.
A segment of the American public favors legalization, but only in Nevada do legal brothels
exist, since 1971. The 30 brothels are relegated to rural areas of the state and are prohibited
in Las Vegas and Reno due largely to opposition from the gaming industry." (citations
omitted)).

However, for the purpose of this Article no distinction is drawn between legalization and
decriminalization, in order to focus the theoretical framework and quantitative analysis more
narrowly on whether prostitution is legal or not. Distinguishing between the two and investi-
gating whether decriminalization and legalization, respectively, have different effects on the
prevalence of sex trafficking is a compelling topic for future research.

78.   The implication is that if, for instance, one-tenth of all sellers of sexual services are
trafficking victims, the share (in percent) remains constant regardless of the size of the mar-
ket for prostitution. A smaller market for prostitution therefore implies lower levels of sex
trafficking, since the absolute number of victims will be smaller.

79.   *See* Cho et al., *supra* note 2, at 69. By scale effect, this Article specifically refers to an
increase in the size of the market for prostitution that is also associated with some increase in
the number of people who are victims of sex trafficking. If the market grows without causing
a greater number of individuals to be trafficked, this would not be considered a scale effect,
because *effect* in this Article generally means effect on sex trafficking specifically. Any changes
in the size of the market for prostitution that do not affect the prevalence of sex trafficking
will therefore not be deemed scale effects.

laws change, for at least three reasons. First, some customers will buy sex only when it is legal, because they find that facing criminal charges is not a risk worth taking. One may presume that at least some of these buyers are more risk-averse in general than those who will buy sex regardless of whether prostitution is legal. If that is true, then those customers who will buy only when prostitution is legal may, on average, differ from other buyers in other important respects as well.[80] If the predominant reason why they do not participate in the market if buying sex is illegal is indeed risk aversion, then it seems reasonable that they also would want to avoid being arrested for buying sex with trafficking victims, which in this market, as previously stated, is assumed to still be illegal even if prostitution is made permissible.[81] Thus, if the buyers who would enter the market if prostitution is made legal have a stronger preference for avoiding the risk of criminal charges, permitting prostitution will lead to a lower proportion of trafficking victims in the market for prostitution, as new buyers to a greater extent than old buyers demand sex provided only by individuals who do so voluntarily.[82] If everything else is held constant, particularly with respect to the behavior of the economic agents who participate in the market even when prostitution is illegal, then the absolute number of sex trafficking victims will remain the same rather than increase following a reform of prostitution laws that makes it legal to buy and sell sex. In other words, there is no change in sex trafficking prevalence.

Importantly, this result clearly would depend on two key assumptions: that the new sex buyers who enter the market if prostitution is made legal both are able to and in practice are going to differentiate between trafficking victims and those who sell sex out of free will.[83] As previously mentioned, however, we assume that the consumers in the hypothetical market under consideration do not have complete information, which means in particular that their ability

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80.   The hypothesis that buyers have different reasons for purchasing sex is supported by empirical research. *See, e.g.*, Weitzer, *supra* note 41, at 452 ("Customers vary in their background characteristics, motivation, and behavior, and they buy sex for different reasons.").

81.   The assumption made here is obviously that making prostitution legal does not lead the government to permit trafficking, which is a realistic assumption based on the *de facto* legalization laws that have been implemented in countries such as the Netherlands and Germany, where trafficking still is considered a heinous crime.

82.   However, in this scenario, the absolute number of trafficking victims would still remain the same, everything else held constant; the difference would be that the fraction of individuals who are selling sex because they are coerced or deceived will be smaller after legalization or decriminalization than prior to it because the total market for prostitution will be bigger.

83.   This is an assumption that can be made in theory, but whether it is actually observed in reality is a different matter, and an important empirical question.

to differentiate between victims and non-victims is limited. In other words, buyers may be unaware that they are paying to have sex with trafficking victims, and therefore may end up doing so even if they are risk-averse and would strongly prefer to purchase sex from a voluntary seller. The extent to which this may be true will be discussed later on in this subpart.

A second reason why the proportion of trafficking victims may fall if prostitution is made legal is that the buyers who are already participating in the market and are currently purchasing sex with victims of trafficking may switch to purchasing sex with non-trafficked sellers to avoid criminal sanctions.[84] This shift in consumer preferences will lead to a temporary increase in the price for sex with individuals who are selling voluntarily, which will lead some new voluntary sellers to enter the market. There will also be a temporary decrease in the price for sex with trafficking victims. The price changes lead to a substitution effect that crowds out some trafficking victims from the market, thereby reducing the prevalence of sex trafficking. As alluded to in the previous subpart, this form of substitution effect differs from the kind of substitution effect that other studies employ.[85]

Whether there will be such a substitution effect, driven by a change in consumer preferences, depends on the two key assumptions just mentioned: that current sex buyers will be both able to and willing to differentiate between trafficking victims and voluntary sellers. Only then may the voluntary/involuntary make-up of the supply change. And, again, because (it is assumed) consumers

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84. Buyers who pay to have sex with victims of sex trafficking arguably seem to not care much that they are having sex with trafficking victims since it is illegal and they still do it. Since it is assumed that there is some variation in type and quality of sexual services provided and that buyers do not have complete information, they may have a preference for sex with trafficking victims, or they may not be aware that the person that they are having sex with is a victim. However, if paying for consensual sex becomes legal, it is possible that they care enough about avoiding criminal sanctions (although this seemingly is not very important to them) to start purchasing sex from voluntary sellers rather than with involuntary sellers.

Although beyond the scope of this basic model, this form of substitution is probably realistic insofar as making prostitution legal may shift limited law enforcement resources from enforcing a ban on prostitution to root out sex trafficking specifically. If the police are using limited resources to enforce laws against prostitution by arresting sellers and buyers, an individual buyer's risk of being arrested will be significantly lower than the risk of arrest for an individual customer who pays to have sex with trafficking victims if those same resources were shifted to be dedicated to arrest only buyers who pay to have sex with trafficking victims. This is because the latter population is much smaller—although its members may be harder to catch.

85. *See supra* note 65. What some other papers term *substitution effect* generally resembles what this Article dubs a *replacement effect.*

lack complete information, they may not be able to identify trafficking victims, which may limit the magnitude of the substitution effect.[86]

A third reason why the proportion of trafficking victims may change if prostitution is made legal is that there may be a form of replacement effect that is driven by "firm" (i.e. seller) behavior. If prostitution is made legal, in other words, potential sellers who did not participate in the market (when selling sex was illegal) may now enter the market.[87] Potentially, these new sellers could replace existing sellers in the market, including victims of trafficking, by better reaching customers or by offering preferred services—a possibility allowed by our assumption that there is some variation in type and quality of sexual services available.[88] This replacement effect would have an impact on sex trafficking prevalence very similar to the substitution effect: crowding out trafficking victims from the market and thereby reducing the prevalence of sex trafficking. The difference, of course, is that the substitution effect applies to buyers who are already active in the market (based on a shift in consumer preferences following prostitution law reforms), whereas the replacement effect captures the response by new sellers who enter the market (caused by firm behavior in the wake of legal reforms). In other words, the substitution effect starts on the demand side, whereas the replacement effect starts on the supply side, although both lead to a similar result of voluntary sellers crowding out trafficking victims from the market for prostitution.

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86.   Another factor, beyond the scope of this Article, that may limit the magnitude of the substitution effect is the design of the laws that prohibit buying sex with trafficking victims, and more specifically the weight put by the legal system on criminal intent. If such a law requires that a person *knowingly* purchases sex with a trafficking victim, the average effort made by risk-averse buyers to avoid having sex with trafficking victims will likely be less than if a strict liability standard is applied.

87.   The entry of new sellers into the market makes sense if a primary barrier to entry is the prohibition of prostitution, which in this scenario has been removed. Some of the new sellers will enter as a response to increased demand (and the prospects of, at least temporary, economic profits), while other sellers will enter simply as a response to the removal of a major barrier to entry.

88.   Although it is beyond the scope of this Article, it should still be noted that in a real-life situation, if brothel-owning and pimping are permitted, managers and pimps may well make efforts to avoid selling trafficking victims since they, like buyers, would presumably prefer to avoid criminal sanctions and could legally facilitate commercial-sex transactions as long as they are consensual. There could therefore be incentives under a legal regime to increase the share of supply that comprises non-trafficked sellers, which would likely further crowd out trafficking victims from the market, thereby contributing to a reduction in the prevalence of sex trafficking.

B. A Simple Theoretical Framework for Analyzing the Scale, Substitution, and Replacement Effects of Prostitution Legislation

There may be some truth to each of the four possible outcomes of prostitution law reform previously outlined. Yet, further assumptions must be made in order to differentiate between them. This Article, makes the following four. First: Even if the proportion of trafficking victims among all individuals who sell sex does change, making prostitution legal could still have a scale effect on sex trafficking. A decrease in the share of trafficking victims and an increase in the absolute number of trafficking victims are not mutually exclusive scenarios. Second: Potential buyers who enter the market after prostitution is permitted, though perhaps more risk-averse, may still end up purchasing sex from trafficking victims because they lack complete information. Third: Making prostitution legal would lead to a substitution effect; some consumers already active in the market would change their preferences and demand sex from voluntary sellers. This effect will directly counteract the scale effect (since the substitution effect reduces trafficking), although the relative magnitude of each effect is unclear. Fourth: If prostitution is made legal, then the substitution effect will be complemented by a replacement effect that works in the same direction, as potential sellers who sell sex voluntarily will enter the market once the risk of incurring punishment for selling sex is gone. The replacement effect (also of an unknown magnitude) will similarly reduce the prevalence of sex trafficking by crowding out trafficking victims from the market.

Based on the very simple framework developed thus far, we can conclude that making legal only the act of *buying* sex would lead to a scale effect that increases sex trafficking (since some of the new buyers will purchase sex from trafficking victims) and a substitution effect that reduces sex trafficking (since some of the consumers who already pay for sex with trafficking victims will substitute for paid sex with non-victims). By contrast, making legal only the act of *selling* sex leads to a replacement effect that reduces sex trafficking (since some of the new voluntary sellers will crowd out trafficking victims from the market), but no scale effect associated with increased trafficking.[89]

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89.   Even though the removal of a major barrier to entry may increase competition and lead to better services being offered, which in turn could attract more consumers to enter the market, this should not increase trafficking. These new consumers would respond to the availability of new sellers, and the new sellers are assumed to be voluntary sellers. The consumers that enter the market would thus purchase sex only from non-victims. This would

One final assumption, regarding the relative magnitude of the effects, clears the way. This Article will take it as a given that, for any possible reforms of prostitution laws, the magnitude of the scale effect on the prevalence of sex trafficking dominates the magnitude of the substitution effect and replacement effect combined.[90] Since both the substitution effect and the replacement effect reduce the prevalence of sex trafficking (that is, their mathematical signs point in the same direction), it also follows that that the substitution effect on trafficking prevalence that is driven by changing consumer preferences is smaller than the scale effect that follows changes in aggregate demand.[91] In other words, on the demand side, scale is more important than substitution in determining the prevalence of sex trafficking.

This rudimentary framework allows us to formulate and, to some extent in the empirical parts of the Article, test hypotheses about the potential impact of prostitution law reforms on sex trafficking. This Article will classify prostitution legislation based on a combination of two binary characteristics: whether, under the legislation, it is legal or illegal to sell sex; and whether, under the legislation, it is

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therefore be an example of when the size of the market for prostitution grows without affecting trafficking prevalence. *See supra* note 79.

90.   While there are good reasons to think that this assumption may not hold, there are also compelling reasons for thinking that it may be a realistic one. As discussed in *supra* note 86, the substitution effect may be very limited. And if the assumption made in this Article that the variation in sexual services offered by sellers is relatively small, then the ability of new voluntary sellers to crowd out trafficking victims through replacement would be expected to similarly be quite limited.

There are reasons why this assumption may turn out to be true. For instance, regarding the replacement effect specifically, the act of selling sex might be more stigmatized than buying sex. Few individuals appear to grow up wanting to sell sex, and even among sex buyers, the proportion of individuals who want their children to enter prostitution is very small. If the stigma associated with selling sex remains high compared with buying sex regardless of prostitution law reforms, it seems reasonable to believe that the number of new voluntary sellers that are willing to enter the market is small compared with the number of new buyers that are willing to enter the market if prostitution is made legal. One could therefore hypothesize that when selling sex is legal, the replacement with respect to trafficking prevalence may be limited in magnitude compared with the scale effect that is produced by permitting buying sex. Some empirical evidence suggests as much. *See, e.g.*, Cho et al., *supra* note 2, at 75–76; Di Nicola et al., *supra* note 66, at 132; Jakobsson & Kotsadam, *supra* note 6, at 16–17.

91.   One may question whether it is reasonable to assume that the substitution driven by changes in consumer preferences in favor of consensual commercial sex is of such limited scope. However, it is important to note that such a substitution will only occur if buyers who are currently paying for sex with trafficking victims change their behavior when prostitution laws are reformed. This implies that there must be customers who under criminalization of prostitution do not mind paying for sex with trafficking victims, but when it is legal a) no longer want to do so and b) have sufficient access to information to be able to differentiate between victims and non-victims. It therefore seems reasonable to assume that the number of individuals who meet both conditions a and b will be relatively small.

legal or illegal to buy sex.[92] The predicted impact of the scale, substitution, and replacement effects on sex trafficking for each of the four possible aspects of prostitution laws is shown in Table 1. By Δt^c, we denote the scale effect, where Δt represents a change in trafficking prevalence and Δt^c specifically represents a change in trafficking prevalence caused by the scale effect. Similarly, by Δt^u, we denote the substitution effect, and by Δt^r the replacement effect. As the table shows, we assume that there is no scale effect on trafficking caused by changes to prostitution laws aimed only at sellers.

Each coefficient represents the expected causal impact of a given effect on the total number of sex-trafficking victims. So, for example, making it legal to buy sex in a jurisdiction where it is currently illegal will cause two opposing effects: an increase in trafficking prevalence, due to the scale effect, and a decrease in trafficking prevalence, due to the substitution effect. However, because this Article assumes that the scale effect will outweigh the substitution effect, it follows that $|\Delta t^c| > |-\Delta t^u|$. All else equal, then, the net effect of making it permissible to buy sex will therefore be an increase in the prevalence of sex trafficking. By contrast, making it illegal to buy sex in a jurisdiction where it is presently legal will, all else equal, produce a decrease in trafficking, due to a negative scale effect.

TABLE 1: THE PREDICTED IMPACT OF SCALE, SUBSTITUTION, AND REPLACEMENT EFFECTS ON SEX TRAFFICKING, BY LEGISLATION COMPONENT

	Illegal to sell sex	Legal to sell sex	Illegal to buy sex	Legal to buy sex
Scale effect	* * *	* * *	Δt^c	Δt^c
Substitution effect	* * *	* * *	Δt^u	Δt^u
Replacement effect	Δt^r	$-\Delta t^r$	* * *	* * *

Δt^c denotes the scale effect, Δt^u the substitution effect, and Δt^r the replacement effect. The signs reflect the expected impact on the prevalence of sex trafficking; thus the substitution and replacement effects have negative signs, as they reduce the prevalence of sex trafficking.

Changes in prostitution laws with respect to sellers lead to the following net results: making it illegal to sell sex should increase sex trafficking, while permitting the sale of sex should decrease it. For instance, if selling sex is criminalized in a market where selling currently is legal, then some of those who are selling sex freely would be expected to leave the market whereas those who are operating in

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92.   As discussed below, this produces four distinct sets of prostitution laws; as it turns out, all four been implemented in various European jurisdictions. *See infra* Part III.B.

the market because of coercion, fraud, or force would not. The exit of sellers from the market is likely to result in an undersupply of commercial sexual services—a void that may be filled by additional trafficking victims, thereby leading to a negative substitution effect that has a positive effect[93] on trafficking.

Using the assumption that the scale effect is greater than the sum of the substitution and replacement effects, we can simplify the results in Table 1 in the following way. This assumption, that $|-\Delta t^c| > (|\Delta t^u| + |-\Delta t^r|)$, implies that $(|-\Delta t^c| - |\Delta t^u|) > |-\Delta t^r|$, which means that making it illegal to buy sex will reduce sex-trafficking prevalence to a greater extent than making it legal to sell sex, in accordance with Table 2. Naturally, this also implies that making it legal to buy sex will produce a larger increase in the prevalence of trafficking than will making it illegal to sell sex, as that table also indicates.

TABLE 2: THE PREDICTED RELATIVE IMPACT OF SCALE, SUBSTITUTION, AND REPLACEMENT EFFECTS ON SEX TRAFFICKING, BY LEGISLATION COMPONENT

	Illegal to sell sex	Legal to sell sex	Illegal to buy sex	Legal to buy sex
Net impact of scale, substitution, and replacement effects combined	Smaller increase	Smaller decrease	Larger decrease	Larger increase

Based on the theoretical results displayed in Table 2, the four possible types of prostitution laws[94] have net effects on sex trafficking with two different signs and of four different magnitudes. This is clear from combining a prostitution regime for sellers with a regime for buyers and then putting together the effects of the two regimes. Making it illegal to buy sex should reduce the prevalence of sex trafficking, but the magnitude of the net effect depends on whether selling sex is illegal or legal. Similarly, making legal the act of purchasing sex is expected to overall increase sex trafficking, but the net effect again depends on whether selling sex is legal or illegal. The following subpart explores the four different types of prostitution laws, as well as their predicted net effects on sex trafficking, in greater depth.

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93.   Positive here means an increase, not a desirable outcome.

94.   Again, these are: 1) illegal to sell but legal to buy; 2) legal to sell and legal to buy; 3) illegal to sell and illegal to buy; and 4) legal to sell but illegal to buy.

C. Beyond the Binary Model: Four Types of Prostitution Laws

As mentioned earlier, one study found that the scale effect dominates the substitution effect,[95] which suggests that legalizing or decriminalizing prostitution is associated with increases in trafficking. The theoretical framework presented in this Article is consistent with that study's empirical results, as we assume that the scale effect dominates the substitution and replacement effects combined. At the same time, though, that particular study, and many others, have used an insufficiently discriminating, binary classification of prostitution laws. Thus, it is unclear to what extent such studies' conclusions will hold true once prostitution laws are grouped into four basic types, instead of two.

Implicitly or explicitly, most existing studies quantify prostitution laws as a binary variable, where 1 signifies that prostitution is legal, and 0 that prostitution is illegal (or vice versa).[96] But, as the previous subpart argued, this is simply too crude a measure; in both theory and practice, there are at the very least four types of prostitution laws. Accordingly, this Article divides prostitution laws into the four categories already mentioned: 1) illegal to sell sex, but legal to buy sex; 2) legal to sell sex and to buy sex; 3) illegal to sell sex and to buy sex; and 4) legal to sell sex, but illegal to buy sex.[97]

In their study, Cho and her coauthors make the important contribution of distinguishing between the scale effect and (their version of) a substitution effect, and hypothesizing that these two effects have opposing influences on sex trafficking.[98] Generally, their paper highlights the complexity of the relationship between prostitution laws and sex trafficking underscoring that it is not obvious what prostitution policy is optimal for combating trafficking, let alone for maximizing other desirable outcomes.

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95.   Recall, though, that the cited study uses a version of the substitution effect that differs from the one employed in this Article. *See supra* note 65.

96.   *See, e.g.*, Cho et al. *supra* note 2, at 81 ("Dummy indicating whether or not a country allows prostitution. 1 being legal and 0 otherwise."); Akee et al., *supra* note 62, at 20 (". . . we include whether host and source countries have laws banning prostitution . . ."). There are, however, some notable exceptions, including Jakobsson & Kotsadam, *supra* note 6, at 23 (using a three-point variable rather than a binary variable: "Categorical variable where 1 implies it is illegal to buy and/or sell sex; 2 that prostitution is legal but procuring is illegal; and 3 that prostitution and procuring is legal.").

97.   While it is beyond the scope of the Article, it should be noted that there are many more ways, of categorizing prostitution laws. The framework developed in this Article analyzes only two dimensions of prostitution: buying and selling, simply defined. But there are others, including brothel-owning and pimping, and whether prostitution is legalized or decriminalized, which would produce many more categories of prostitution laws that even better reflect the action policies implemented in different jurisdictions.

98.   Cho et al., *supra* note 2, at 68.

But, without diminishing the value of their contributions, their work does only capture a limited dimension of prostitution laws.

The authors' methodological approach is too blunt, in that it assumes that prostitution can be only legal or illegal, and hence that prostitution laws are to be coded as a binary variable.[99]

As already noted, however, the reality on the ground cannot be well captured by a binary variable. While some European countries (such as Montenegro,[100] Serbia,[101] and, prior to its reform, Romania[102]) criminalize[103] selling but not buying sex, others (such as Sweden,[104] Norway,[105] and Iceland[106]) criminalize purchasing but not selling sex. If only a binary variable is used, it is unclear how the prostitution laws of these six countries should be rated. For any of them, is prostitution legal or illegal? Using four, rather than two, categories of prostitution laws help to better capture some of the real variation in policies toward the market for paid sex.

So, what are the effects of each of the four categories of prostitution laws on sex trafficking? If a country where both selling and buying sex are legal (such as the Netherlands[107]), were to make both practices illegal, this theoretical framework predicts an increase in sex trafficking, due to negative substitution (as some existing buyers may change their preferences from non-trafficked sellers to trafficking victims) and negative replacement (as certain non-trafficked sellers exit the market and are replaced by trafficking victims), but overall a stronger decrease in sex trafficking due to a negative scale effect (as existing buyers leave the market the size of the market for prostitution shrinks, putting traffickers out of business).[108] However, if the country in question makes only buying sex

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99. *See supra* note 95.

100. *See* U.S. Dep't of State, Bureau of Democracy, H.R. and Lab., 2009 Human Rights Report: Montenegro (2010), http://www.state.gov/j/drl/rls/hrrpt/2009/eur/136048.htm ("Prostitution and offering sexual services are crimes, but using the services of a prostituted person is not a criminal offense.").

101. *See* U.S. Dep't of State, Bureau of Democracy, H.R. and Lab., 2008 Human Rights Report: Serbia (2009), http://www.state.gov/j/drl/rls/hrrpt/2008/eur/119103.htm ("Prostitution is illegal, although being a client of a prostitute is not a criminal offense.").

102. *See* U.S. Dep't of State, Bureau of Democracy, H.R. and Lab., *supra* note 100.

103. This reflects the state of the countries' prostitution laws between 2008 and 2010, the time period covered by the EU data used in this Article. Since then, some laws have changed. In 2014, for example, Romania decriminalized the sale of sex. *See* Madeline Fetterly et al., Presentation Abstract, Romania: Policy Approach to Prostitution and Protection of Vulnerable Women and Girls from Sexual Exploitation (2015), https://perma.cc/8MUZ-T7UU.

104. *See, e.g.*, McClelland, *supra* note 23.

105. *Id.*

106. *Id.*

107. *See generally* Daalder, *supra* note 15.

108. Note that non-trafficked sellers will also be put out of business as buyers exit the market, which is why a comprehensive approach to prostitution laws must consider effects

illegal, while continuing to permit the selling of sex,[109] the framework predicts an even greater net decrease in sex trafficking, as there will be not only a negative scale effect (albeit one inevitably offset to some extent by a negative substitution effect), but also no negative replacement effect (since no voluntary sellers would not be expected to leave the market and thereafter be replaced by trafficking victims).

In sum, even the very basic framework adopted by this Article makes clear that prostitution laws like those of the United States may have quite different effects on rates of sex trafficking from laws like those of Sweden. And yet many existing studies, because they have coded prostitution laws as binary, have been forced either to omit "mixed" prostitution law jurisdictions like Sweden or to lump them in with either the United States, on the one hand, or Germany, on the other. Thus, a number of countries—Serbia, Montenegro, Romania (prior to its reform), Iceland, Norway, and Sweden, for instance—would have to be either omitted from the analysis or else lumped together with countries that take significantly different approaches to prostitution. Clearly, neither of those options is analytically ideal. This Article, by contrast, by developing a new variable that quantifies four types of prostitution regimes, can capture more variation than approaches based on a legal/illegal binary variable.[110]

If the theory this Article proposes is correct, one would expect to see the most trafficking in countries where it is illegal to sell but legal to buy sex, and to see the lowest trafficking in countries where it is legal to sell but illegal to buy sex. The full results of what this Article's theoretical framework predicts[111] regarding the four types of prostitution laws and sex trafficking prevalence are shown in Table 3.

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beyond sex trafficking. There may be significant costs associated with combating trafficking, including depriving voluntary sellers of their livelihood; this includes voluntary sellers who are forced to exit the market due not only to substantial reductions in demand but also to significant reductions in income following falling price levels for sellers who remain active in the market.

109. This is also Canada's approach. *See* McClelland, *supra* note 23.

110. As previously noted, it would be possible to create a measurement scale with more than four points to capture an even greater variation in prostitution laws. But using a four-point scale both avoids making the analysis too complex and also, as Part V reveals, might be enough to yield some fruitful results. Furthermore, it serves as a good initial step. Still, searching for further principles of differentiation, in an attempt to capture even greater variance in prostitution laws, would certainly be a worthwhile area for future research.

111. These predictions are just that: predictions. They depend on the assumptions discussed above, some of which may strike the reader as implausible, and others which are very difficult to verify empirically. If any of the assumptions prove incorrect, these predictions would likely change, perhaps drastically.

Table 3: The predicted relationship between the four types of prostitution laws and the prevalence of sex trafficking, and between the four types of prostitution laws and the signs of the scale, substitution, and replacement effects

	Criminalize sellers only	Criminalize neither	Criminalize both	Criminalize buyers only
Predicted prevalence of sex trafficking	Highest	Higher	Lower	Lowest
Predicted scale effect	Positive	Positive	Negative	Negative
Predicted substitution effect	Positive	Positive	Negative	Negative
Predicted replacement effect	Negative	Positive	Negative	Positive

Recall that the scale effect has a positive impact on sex trafficking whereas the substitution effect and replacement effect have a negative impact. This means that, for instance, a negative substitution effect (under regimes that criminalize buyers only or that criminalize both sellers and buyers) increases sex trafficking whereas a negative scale effect decreases trafficking.

Using the summarized results in Table 3, this Article now proceeds to develop a new and very simple measure of prostitution laws, which it dubs the Prostitution Law Index (PLI, or Index). The Index is based on the extent to which each of the four types of prostitution laws is expected to reduce or increase sex trafficking. For reasons discussed in greater detail in the next Part, the PLI codes jurisdictions according to their laws as follows: criminalizing sellers only is a 1; criminalizing neither sellers nor buyers is a 2; criminalizing both sellers and buyers is a 3; and criminalizing buyers only is as 4. In light of the discussion thus far, that means that higher score indicates a greater expected prevalence in sex trafficking.

D. The Demand Model

Sweden pioneered efforts to combat prostitution by reducing the demand for purchased sex.[112] In 1999, the country implemented the Demand Model—that is, it passed laws that targeted sex buyers by making it illegal to buy sex, but still allowing people to sell sex.[113]

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112.   *See, e.g.*, Rubin, *supra* note 17, at 2 ("A few countries, now including France, penalize customers. Sweden was a pioneer, enacting such a law in 1999.").

113.   *See* Waltman, *supra* note 31, at 135.

Before the law came into effect, pimping was illegal, but prostitution was permitted.[114] The new law therefore effectively criminalized the act of buying sex, while leaving sellers free to continue selling sex.

One might wonder if there is really any meaningful difference between the Swedish law and a law banning prostitution altogether. After all, if it is illegal to purchase sex, would that not have the same, or at least very similar effects as a law that penalizes the act of selling sex, too? Defenders of the Swedish law might give three reasons why not. First, those who sell sex do not risk being arrested for selling sex when it is legal to do so.[115] This means that those who are voluntary sellers may keep some trafficking victims out of the market through absence of a negative replacement effect. Second, law enforcement resources could be focused on arresting sex buyers instead of sellers, which might drive down the demand for purchased sex to a greater extent than an overall ban (because of an increased negative scale effect).[116] Third, the prostitution law might function as a signal that what is normatively undesirable is not selling sex but purchasing it; such signaling could, at least in theory, shift the stigma from sellers to buyers and lead to even greater reductions in the demand for commercial sex.

The Demand Model has gained further traction in recent years. Following passage in Norway (in 2008) and Iceland (2009), it was quickly adopted in Northern Ireland, Canada, and France. And in February 2014, a 343-to-139 majority of the European Parliament voted to back a resolution urging EU member states to adopt similar legislation. Of the outcome, Mary Honeywell, the resolution's sponsor, said, "Rather than blanket legalization, [the European]

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114. *Id.*

115. It should be noted, however, that sellers may still be arrested for prostitution-related activities, such as procuring sex. Indeed, this has given rise to repeated criticism of the law, since it means that sellers may be frequently arrested, even when selling sex is legal. *See, e.g.*, Don Kulick, *Sex in the New Europe: The Criminalization of Clients and Swedish Fear of Penetration*, 3 ANTHROPOLOGICAL THEORY 201 (2003) ("It is illegal to profit in any way from sexual services performed by anyone else. This is positive in the sense that it makes the exploitation of sex workers and others by unscrupulous profiteers illegal. But it also makes it illegal for sex workers to rent apartments or commercial spaces for work, it makes it illegal for them to hire anyone to book their appointments, it makes it illegal to openly advertise their services in newspapers and magazines, and it even makes it difficult for them to live with anybody, since their lover, roommate or friend could be seen as profiting from the sex worker's income, in cases where they share expenses or have joint bank accounts.").

116. This argument fits the simple theoretical model considered in this Article; while it was assumed that resources devoted to combating prostitution and trafficking were independent of each other, this assumption would not affect the ability to shift around resources to, for example, target buyers rather than sellers of sex.

parliament has backed the more nuanced approach already practiced in Sweden as a means of tackling prostitution. This punishes men who treat women's bodies as a commodity, without criminalizing women who are driven into sex work."[117]

The big question still remains: does the Demand Model have its intended effect? Its backers have claimed that, in addition to combating prostitution, it may reduce sex trafficking as well. And, in theory, the approach may sound compelling. But whether the Model actually works in practice—and in particular, whether it has the potential to curb sex trafficking—is an empirical question, which has not been conclusively answered. This Article attempts to provide (very) tentative results from a quasi-experimental analysis, which suggest that adoption of the Model may in fact potentially have helped reduce sex trafficking in Norway.[118] Nevertheless, while this Article finds that certain combinations of prostitution laws seem to be associated with lower levels of sex trafficking, those combinations may or may not be effective at achieving other desirable outcomes, such as the aforementioned welfare of voluntary sellers of sex.

III. Data

A. *The Recent EU Data on Sex Trafficking and Human Trafficking*

In January 2012, the European Commission (the EU's executive arm) mandated the use of standardized data-collection methodologies, with the goal of producing reliable country-by-country statistics

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117. Maya Oppenheim, *MEPs Vote to Criminalise Buying Sex*, The Guardian (Feb. 26, 2014), http://www.theguardian.com/global-development/2014/feb/26/meps-vote-criminalise-buying-sex-european-parliament.

118. It is worth reiterating that, while the focus of this Article is sex trafficking, many other issues may be equally important to a jurisdiction's choice of prostitution laws. As previously mentioned, many advocates of the Demand Model, keen to use prostitution laws to eliminate prostitution altogether, think that the Model helps further that ambitious goal. Scholars and policymakers have also pointed to other issues to be taken into account when drafting prostitution laws, such as violence against sellers, individual autonomy of sellers, health risks, and opportunities to make a livelihood. This Article intentionally leaves the bigger normative inquiry aside, but that should in no way be seen as playing down its importance.

   It would be highly worthwhile for future research on prostitution laws to address the effects that different types of legislation may have on violent crime against sellers, on sexual assault in general, and on the welfare of those who sell sex voluntarily. And these are only some of the many considerations that policymakers should take into account when they design prostitution laws. Sex trafficking, while certainly critical, is but one consideration.

on sex trafficking and human trafficking across the EU.[119] The first data collected in accordance with that mandate was released in fairly short order in 2013, and was accompanied by an official report.[120] The dataset, which covers the years 2008–2010, provides estimates of the number of human-trafficking victims in a country in a given year, albeit with a significant number of missing observations.[121] While its principal source of information on victims is the police,[122] the report also incorporates data provided by NGOs, immigration authorities, and border guards. All of the trafficking numbers in this Article come from this new European Union dataset.[123]

The data includes identified victims as well as presumed victims, for both sex trafficking[124] and other types of human trafficking (such as labor trafficking and trafficking in human organs).[125] That allows this Article to examine not only the link between prostitution laws and sex trafficking but also the link between prostitution laws and human trafficking generally. Making good on that possibility,

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119. *See* The European Comm'n, Communication from the Commission to the European Parliament and the Council: Measuring Crime in the EU 4 (2012), http://ec.europa.eu/dgs/home-affairs/doc_centre/crime/docs/1_en_act_part1_v5.pdf#zoom=100 (discussing the need for "collection of comparable and harmonised data at EU level").

120. Eurostat, Trafficking in Human Beings: 2013 Edition (2013).

121. *Id.* at 21, 24 (defining trafficking as "the recruitment, transportation, transfer, harbouring 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. Exploitation shall include, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labour or services, slavery or practices similar to slavery, servitude or the removal of organs." Sexual exploitation "includes exploitation for forced prostitution or other forms in the areas of street prostitution, window prostitution, private flats, brothels, strip clubs/bars, pornography production companies, escort services, massage parlours, modelling agencies, hotels, private clubs.").

122. *See* Eurostat, *supra* note 120, at 38–40 (listing various forms of data gathered by the police, including identified victims, investigations against pimps, and reported offenses).

123. For more information about the European Commission's data, see European Comm'n, *Organised Crime & Human Trafficking: Statistics*, Migration and Home Aff., http://.europa.eu///-do//-and-human-trafficking//_en.htm (last updated Feb. 4, 2015).

124. See Eurostat, *supra* note 120, at 22 (defining an identified victim as "a person who has been formally identified as a victim of trafficking in human beings according to the relevant formal authority in Member States," and a presumed victim as "a person who has met the criteria of EU regulations and international Conventions but has not been formally identified by the relevant authorities (police) as a trafficking victim or who has declined to be formally or legally identified as trafficked").

125. Although sex trafficking is a subset of human trafficking in this dataset, a victim can be a subject to more than one type of exploitation. With respect to trafficking victims, the subsets are therefore collectively exhaustive, but not mutually exclusive. Simply adding victims of sex trafficking, labor trafficking, and other types of human trafficking together will yield a number greater than the total number of human trafficking victims. The total numbers in the study have accounted for all duplicates and thus avoided overcounting.

the Article includes human trafficking as a second outcome variable.

Not limiting the analysis to sex trafficking alone is important for at least two reasons. First, data on sex trafficking is notoriously hard to collect.[126] But to the extent that sex trafficking and human trafficking are correlated, the latter can serve as a proxy for the former.[127] Moreover, for many countries, there are estimates of the prevalence of human trafficking in general but no numbers on sex trafficking specifically; indeed, this is the case for some of the countries included in the EU trafficking dataset used in this Article.[128] It therefore makes sense to run separate analyses of human trafficking data to increase the sample size, with the goal of making the analysis more reliable. If the relationship between prostitution laws and the two types of trafficking are both significant, the results are likely to be more robust.

Second, one might worry about possible harmful spillover effects from curbing sex trafficking. For instance, if cost-benefit ratios change so that it becomes more rewarding for traffickers to supply labor instead of sexual services, one might in certain cases see an increase in labor trafficking accompanying a decrease in sex trafficking.[129] Since sex trafficking is a subset of human trafficking, it is possible that there would then be merely a change in the relative prevalence of different forms of human trafficking, rather than an overall reduction. But, if statistically significant results were to show that outcomes for sex trafficking and human trafficking tended in the same direction, one would not have to worry as much about the risk of negative spillover effects from legislation meant to combat sex trafficking.

Despite the relative quality of the dataset compared with some other datasets, several important caveats are, as always when studying trafficking, in order. First, more reported cases of trafficking do not necessarily mean that the number of victims has increased; increased reports of trafficking may equally well be the result of improvements in reporting by non-governmental organizations or of intensified police efforts to identify trafficking victims. The fact

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126.   *See,* Frank Laczko & Marco A. Gramegna, *Developing Better Indicators of Human Trafficking,* 10 Brown J. World Aff. 179, 183 (2003).

127.   Although the author has not been able to locate other scholarship making this claim, it is a tenable position, because sex trafficking constitutes a major subset of all human trafficking.

128.   In other words, the dataset used in this Article provides more complete data with respect to human trafficking than with respect to sex trafficking. Looking in addition at human trafficking will therefore increase the statistical power of the analysis.

129.   This scenario envisions that sex traffickers would exit the market for prostitution and enter the market for trafficked labor instead.

that some countries in the dataset have very low levels of trafficking may reflect poor data rather than minimal trafficking. Similarly, high reported levels of trafficking could reflect a prioritization by the government to try to measure and root out trafficking. However, as long as the data quality is not statistically related to a country's type of prostitution laws, the sign and magnitude of the coefficients in the regression analyses should not be biased, and should only make it less likely that the coefficients are statistically significant. Unfortunately, though, it is very difficult, if not impossible, to test whether the quality of the data is related to prostitution laws. It may be, for example, that countries in which both selling and buying sex are legal make greater efforts than other countries to report instances of trafficking; that would explain why some countries that have legalized or decriminalized prostitution see relatively high levels of trafficking prevalence. If so, a correlation between legal prostitution and higher levels of trafficking would incorrectly suggest that making prostitution legal may increase trafficking.

While the dataset thus has its limitations, it represents a promising, if small, step on the way to resolving perhaps the biggest preliminary challenge facing current sex-trafficking research: gathering reliable data that will allow comparisons over both time and space. Because trafficking is an illegal and clandestine activity, many of its victims are part of a "hidden population" that is exceptionally difficult to quantify and study.[130] Even the estimates that do exist[131] must be interpreted with great caution.[132] Even still, the new EU dataset goes beyond previous reports; it allows comparisons that single-country reports[133] and other, cruder international surveys[134] simply do not.

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130. *See* Guri Tyldum & Anette Brunovskis, *Describing the Unobserved: Methodological Challenges in Empirical Studies on Human Trafficking, in* DATA AND RESEARCH ON HUMAN TRAFFICKING: A GLOBAL SURVEY 17–34 (Frank Laczko & Elzbieta Gozdziak eds., 2005).

131. *See, e.g.*, PATRICK BELSER ET AL., ILO MINIMUM ESTIMATE OF FORCED LABOUR IN THE WORLD (2005).

132. *See, e.g.*, Weitzer, *supra* note 11, at 456 (writing about data on both prostitution and trafficking that, "[g]iven the underground nature of this economy, estimates of both its current magnitude and changes over time are highly dubious").

133. Data on trafficking is often subcategorized into three groups: trafficking routes, country reports, and victim characteristics. *See, e.g.,* Kristiina Kangaspunta, *Mapping the Inhuman Trade: Preliminary Findings of the Database of Trafficking in Human Beings*, 3 F. ON CRIME AND SOC'Y 81, 87 (2003). Conducted well, single-country reports can mitigate the issue of comparing data across time; but if the data is not collected in a standardized way across countries, conducting a robust comparative analysis will remain difficult.

134. One such alternative is the dataset from UNITED NATIONS OFFICE ON DRUGS AND CRIME (UNODC), GLOBAL REPORT ON TRAFFICKING IN PERSONS (2009). While covering over 160 countries, the dataset is nonetheless limited by the fact that its dependent variable is

While some readers might object that restricting the analysis to European Union data forms a major limitation of this Article, such a narrow focus still has its advantages. Because data on sex trafficking commonly suffers from a lack of reliability, it may be most appropriate to restrict analysis of sex trafficking to regions whose countries are comparatively similar in terms of law, economics, politics, history, and culture. These and many other similarities pervade the EU: its countries share not only a common history, but also a common present. The Union has its own budget, legislative body, laws, courts, and other institutions. And it is thanks to one of those institutions, the EC, that we now have a first attempt at harmonized data collection on sex trafficking and human trafficking, which makes more robust quantitative analysis possible.

B. The Prostitution Law Index (PLI)

Building on the theoretical framework developed in the previous Part,[135] this Subpart presents a new quantification of prostitution laws based on their expected impact on the prevalence of sex trafficking. As mentioned, several previous studies seem to have quantified only whether prostitution is legal or illegal. In many cases,[136] the main independent variable is a binary variable where 1 implies legal (or criminalized) prostitution and 0 means criminalized (or legal) prostitution. This means that a country like Sweden, where it is legal to sell sex but not to buy sex, could end up being coded identically to Croatia, where it is illegal both to buy and to sell sex. Or that Serbia and Germany are both coded as "0," despite the fact that Germans can both buy and sell sex whereas Serbians may buy but not sell sex.

Because it collapses these and other differences, the analytical purchase of the binary approach is limited. In particular, it ignores the fact that, at the very least, four categories are needed to describe the differences between current European prostitution laws. In an attempt to capture these differences, this Article proposes quantifying prostitution laws on a four-point rather than a two-point scale. This proposed index captures how well different types of prostitution laws are predicted to reduce the prevalence of sex

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ordinal, placed along a six-point scale that measures human trafficking inflows. The new European Union dataset on trafficking has the advantage of measuring the actual quantity of trafficking in persons, which allows for greater variation over time. And, as mentioned already above, it has the benefit of measuring both sex trafficking and human trafficking.

135.   *See supra* Part II.

136.   *See supra* note 96.

trafficking, based on the assumptions made in the theoretical model. Since there are four types of prostitution laws in the framework presented in this Article, the index scores prostitution laws from 1 to 4. Table 4 displays the suggested quantification. The Prostitution Law Index (PLI) score for any individual country is based on the information provided in the United States Department of State's annual Human Rights Report for the period 2008–2010.[137]

TABLE 4: THE PROSTITUTION LAW INDEX (PLI)

Prostitution Law Index score	Prostitution law category
4	Buying sex is illegal, but selling sex is legal
3	Both buying and selling sex are illegal
2	Neither buying nor selling sex is illegal
1	Buying sex is legal, but selling sex is illegal

On the basic theory this Article has proposed, a scale effect should increase sex trafficking, while a substitution and a replacement effect will reduce trafficking. It is reasonable, therefore, to assign higher scores to laws that tend to produce a substitution effect or a replacement effect, and to assign lower scores to laws that tend to produce a scale effect. Laws that promote replacement but discourage scale (and, inevitably, also substitution), such as Sweden's and Norway's, thus receive a score of 4, whereas laws like Croatia's, which discourage not only scale but also substitution and replacement, receive a score of 3. Laws like those in Germany and the Netherlands, which permit both selling and buying sex and thereby promote scale, substitution, and replacement, are assigned a score of 2, while prostitution laws in countries such as Serbia and Montenegro,[138] which penalize only sellers—and thereby discourage substitution and replacement while promoting scale—are scored as a 1. This ordering of national laws is based entirely on the

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137. *See* Bureau of Democracy, Human Rights, and Labor, *Human Rights, Reports: Years 2008, 2009, 2010*, U.S. Dep't of State, http://www.state.gov/j/drl/rls/hrrp/index.htm (last visited Nov. 1, 2016).

138. While many readers will be familiar with the prostitution laws that correspond to scores 2, 3, and 4, they may never have heard of a case where buying sex is legal, but selling sex is illegal. To demonstrate what such laws may look like in practice, one can therefore consider the case of Romania prior to its recent prostitution law reform. In Romania, prostitution was illegal, and the police regularly fined sellers of sex for loitering and disturbing the peace. At the same time, however, no laws existed to punish clients of prostitution, unless they knowingly purchased sex with a minor.

theory laid out in previous subparts, and comports with Tables 1, 2, and 3.

Because the Prostitution Law Index is an ordinal rather than a binary variable, the variance in the main independent variable will be higher than in several of the previous studies on prostitution laws and trafficking.

At the same time, it is appropriate to emphasize the limits of the Index. First, it captures only the *de jure* prostitution laws of a given country, not the *de facto* regulatory regime that may arise from selective enforcement of laws on the books. If a country has criminalized both buying and selling sex, for example, but in reality punishes predominantly sellers (which may well be the case in much of the United States[139]), then that country's prostitution laws will be coded as a 3 in the Index, despite the fact that, if laws were coded based on actual enforcement, they would have received a 1. The simple reason for this is the lack of good data on actual enforcement of prostitution laws across European countries.

Second, while using a four-point scale to capture the variation in prostitution laws certainly is an improvement compared with previous studies that only use a binary scale, there is clearly much more variation in prostitution laws than that encoded in the PLI—for example, laws governing pimping and brothel-owning. It would be interesting to see what results would emerge with fuller account taken of such variation. It could also be worthwhile for future studies to factor in both the certainty of punishment and the severity of punishment with respect to prostitution laws, to see if, for instance, higher certainty and lower severity of punishment for sex buyers (if buying is illegal) has a similar impact on the prevalence of sex trafficking as lower certainty and higher severity of punishment.

IV. Method

A. Cross-Section Analysis with Time-Fixed Effects

This Article employs two basic regression models: one cross-section regression analysis with time-fixed effects, and one based on Difference-in-Differences estimators. The following two regression models are used for the cross-section analysis, the only difference between them being the dependent variable:

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139.   *See supra* note 14.

$$Sextrafficking_{it} = \alpha + \beta_1 Prostitutionlawindexscore_{it} +$$
$$\beta_2 Democracy_{it} + \beta_3 Ruleoflaw_{it} + \beta_4 Population_{it} +$$
$$\beta_5 Populationdensity_{it} + \beta_6 Urbanization_{it} +$$
$$\beta_7 Immigration_{it} + \beta_8 Foreigners_{it} + \beta_9 Tourism_{it} +$$
$$\beta_{10} PPP_{it} + \beta_{11} Unemployment_{it} + \beta_{12} Povertyrisk_{it} +$$
$$\beta_{13} Imports_{it} + \beta_{14} Year_t + \varepsilon_{it}$$
(1)

and

$$Humantrafficking_{it} =$$
$$\alpha + \beta_1 Prostitutionlawindexscore_{it} + \beta_2 Democracy_{it} +$$
$$\beta_3 Ruleoflaw_{it} + \beta_4 Population_{it} +$$
$$\beta_5 Populationdensity_{it} + \beta_6 Urbanization_{it} +$$
$$\beta_7 Immigration_{it} + \beta_8 Foreigners_{it} + \beta_9 Tourism_{it} +$$
$$\beta_{10} PPP_{it} + \beta_{11} Unemployment_{it} + \beta_{12} Povertyrisk_{it} +$$
$$\beta_{13} Imports_{it} + \beta_{14} Year_t + \varepsilon_{it}$$
(2)

Sextrafficking represents the identified and presumed number of trafficking victims in country *i* in year *t*, while *Prostitutionlawindexscore* is the four-point scale variable and the main independent variable. *Democracy* comprises a twenty-one-point scale variable that measures how democratic or authoritarian a country is, *Ruleoflaw* quantifies rule of law, *Population* is the size of the country's population, and *Populationdensity* captures how densely populated the country is. *Urbanization* is the urbanization rate, *Immigration* measures immigration flows, *Foreigners* controls for the stock of foreign-born citizens, *Tourism* is the number of tourists per capita, and *PPP* measures income per capita based on purchasing power standards. *Unemployment* is the annual average unemployment rate, *Povertyrisk* is the proportion of people living at the risk of falling below the poverty threshold, *Imports* is imports per capita. *Year* is a set of dummy variables to capture time-fixed effects.

B. *Difference-in-Differences*

In 2008, Norway followed Sweden's example and introduced legislation that penalized purchasing sex without criminalizing selling sex. The law came into effect in 2009.[140] Because the new European Union dataset runs from 2008 to 2010, it presents an opportunity to

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140.   *See, e.g., Norway's Closely Watched Prostitution Ban Works, Study Finds,* Reuters (Aug. 11, 2014), http://www.reuters.com/article/us-norway-prostitution-idUSKBN0GB1BL20140811.

make some (very) tentative estimates of the potential causal impact of Norway's implementation of the Demand Model, and set the stage for future analyses of prostitution laws based on the same analytical framework. This article uses a quasi-experimental method, estimating the potential causal effect by regarding the prostitution law reform in Norway as an intervention and using similar Nordic countries as a baseline for comparison. It follows a Difference-in-Differences approach, an analytical framework commonly used to estimate the effect of the implementation of a particular law or policy where it would not be feasible to run an experiment.[141]

The validity of a Difference-in-Differences analysis depends on one crucial assumption above all, the parallel-trends assumption. This particular mode of analysis assumes, counterfactually, that the observed time trend in the outcome variable for the intervention group before the policy was introduced would, but for the intervention, have closely tracked that of the comparison group. Here, the assumption is that, had the country not introduced demand-targeting prostitution legislation, Norway would have followed the trends in trafficking observed over the same time span in three other Nordic countries: Sweden, Denmark, and Finland.

The parallel-trends assumption is shaky for at least two general reasons. First, the comparison group may not be sufficiently similar to the intervention group.[142] Second, another event may have occurred during the time period in question (here, when the Demand Model was introduced), and that other intervention may be responsible, in part or in whole, for any estimated causal effect. In the present context, one might worry that Sweden, Denmark, and Finland are not sufficiently similar to Norway with respect to trends in trafficking prevalence or that some other policy or event in Norway during the same time period as its prostitution law reform materially affected its prevalence of trafficking. Either situation would likely lead to incorrectly attributing a causal impact to the reform of prostitution laws.

In theory, the first reason to question the validity of the Difference-in-Differences model can be partially tested by comparing time trends in the intervention and comparison countries before the reform was implemented. Unfortunately, however, because the new European Union dataset has only one data point from before

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141.   *See, e.g.*, Gaynor et al., *supra* note 38.

142.   "Similar" here refers to similar time trends in the outcome variable, such as in the prevalence of sex trafficking and human trafficking. Whether the prevalence levels are similar does not actually matter at all, because such gaps can easily be taken into account. What matters is the direction and the pace at which the outcome variable is moving.

Norway's reform came into effect, such a test is not feasible here. Instead, we are thrown back to intuition and other types of evidence. This is true for the second reason as well; indeed, in almost all Difference-in-Differences analyses, it is notoriously hard, if not impossible, to develop an empirical test capable of testing and ruling out other possible causes.

In the language of scientific experiment, Norway in this case constitutes the "treatment group," while the Norwegian prostitution law reform is the "treatment" (the equivalent of a new drug in a clinical medical trial), and Sweden, Denmark, and Finland, the three countries that did not reform their prostitution laws, form the "control group." If the parallel-trends assumption holds and the quality of the data is sufficiently high, then the regression model should properly estimate the potential causal impact of the Norwegian reform. At that point, there will be at least a (very) tentative answer to the question of whether targeting demand for purchased sex (according to the Demand Model) may have reduced the prevalence of sex trafficking in Norway.

The following Difference-in-Differences regression models are employed:

$$Sextrafficking_{it} = \alpha + \beta_1 Norwegianreform_{it} + \beta_2 Year_{it} + \beta_3 Interaction_{it} + \beta_4 Democracy_{it} + \beta_5 Ruleoflaw_{it} + \beta_6 Population_{it} + \beta_7 Populationdensity_{it} + \beta_8 Urbanization_{it} + \beta_9 Immigration_{it} + \beta_{10} Foreigners_{it} + \beta_{11} Tourism_{it} + \varepsilon_{it}$$
$$(3)$$

and

$$Humantrafficking_{it} = \alpha + \beta_1 Norwegianreform_{it} + \beta_2 Year_{it} + \beta_3 Interaction_{it} + \beta_4 Democracy_{it} + \beta_5 Ruleoflaw_i + \beta_6 Population_{it} + \beta_7 Populationdensity_{it} + \beta_8 Urbanization_{it} + \beta_9 Immigration_{it} + \beta_{10} Foreigners_{it} + \beta_{11} Tourism_{it} + \varepsilon_{it}$$
$$(4)$$

Estimation equations (3) and (4), while similar to (1) and (2), differ from them in four ways. First, *Norwegianreform* is included, to assign Norway to the intervention group and the other three countries to the comparison group. Second, *Year* is recoded as a single binary variable that marks whether a given year came before Norway's new prostitution law went into effect, to capture pre- and post-reform effects. Third, *Interaction* is an interaction variable; based on

a multiplication of *Norwegianreform* and *Year*, it will be the main variable of interest in estimating the potential causal impact of Norway's prostitution law reform. Fourth, all economic controls are excluded, because they increase the value of R^2 to 1.[143]

V. Results

A. *A Brief Overview of Sex Trafficking and Prostitution Laws*

We begin by summarizing the dataset to be analyzed. As one might expect, the vast majority of sex-trafficking victims are female. In addition to the gender distribution of the main outcome variable, Figure 1 shows the distribution of the four categories of prostitution laws in 2010. While all four types of laws are represented, one is clearly dominant: more than three-quarters of countries criminalized neither buyers nor sellers. One might think that broader distribution of PLI scores would have allowed a more robust analysis, but as the next subpart discusses, the relationships that are presented still hold when additional, non-EU countries are included. In the enlarged sample for year 2010, for example, Norway receives a PLI of 4, while Montenegro and Serbia each receive a 1. This increases the variance in the *Prostitution Law Index score* variable without changing the mathematical sign of the key coefficients or rendering insignificant any otherwise statistically significant result.

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143.   For more in-depth discussion of this issue, in conjunction with the results of the regressions analyses, *see infra* Part V.

FIGURE 1: DISTRIBUTION OF CATEGORIES OF PROSTITUTION LAWS
AMONG EU MEMBER STATES, 2010
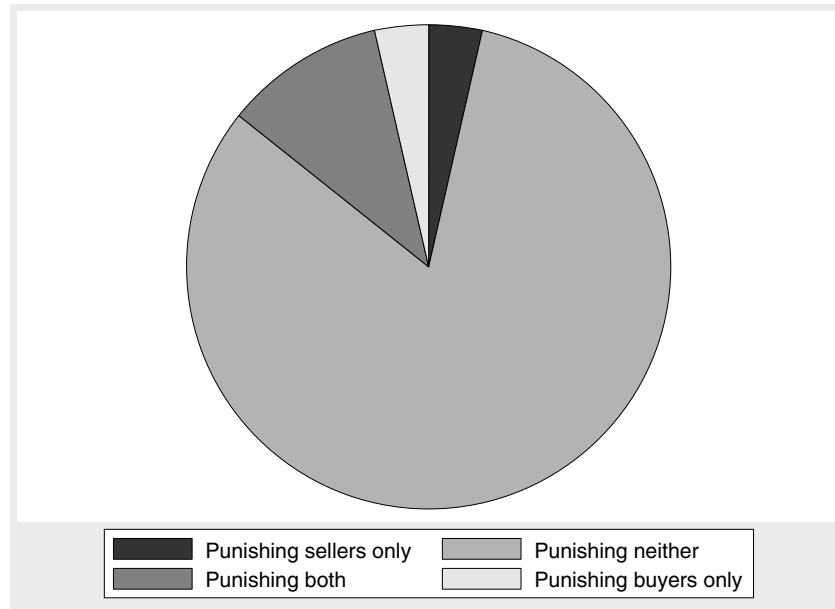
Once the number of sex-trafficking victims per capita in each country for each year of the dataset is computed, the countries may be divided into four groups according to their prostitution laws. One can then compute the mean trafficking-prevalence rate to yield descriptive data on the average prevalence of trafficking in countries under each of the four prostitution law regimes.

If the theory spelled out in previous subparts is correct, then the average trafficking prevalence figures should be highest in countries that punish only sellers and lowest in countries that punish only buyers. And that is precisely what the figures show. Figure 2 gives the full descriptive results.

FIGURE 2: AVERAGE NUMBER OF SEX-TRAFFICKING VICTIMS PER
MILLION PEOPLE IN EU MEMBER STATES, SORTED BY
CATEGORY OF PROSTITUTION LAWS
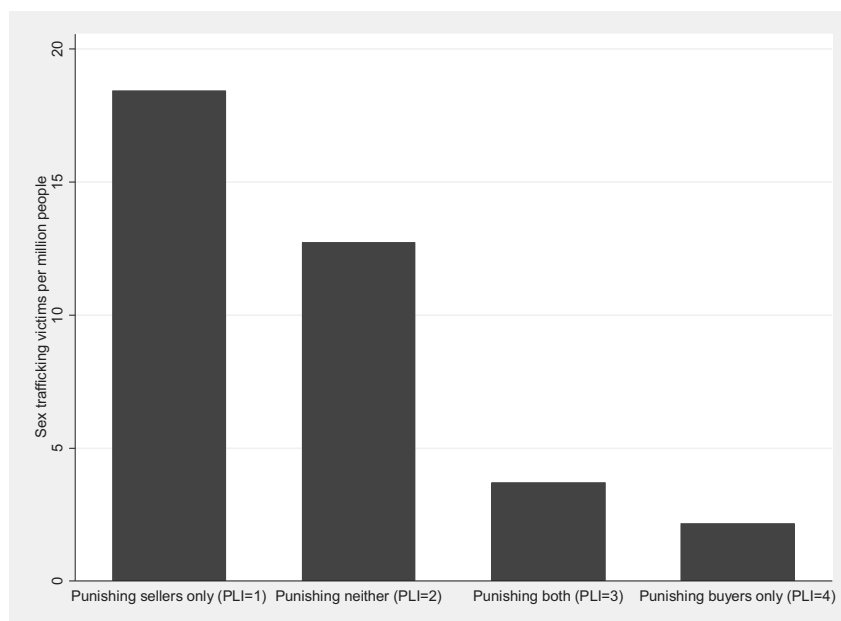
The graph shows that, on average, European Union countries that punish only buyers of sex (yielding a PLI score of 4) have the fewest identified sex-trafficking victims per million people. Countries that punish both sellers and buyers (yielding a PLI score of 3) have slightly higher rates, but still have substantially lower levels than countries that punish neither sellers nor buyers (a PLI score of 2). Countries that punish only those who sell sex (a PLI score of 1) have, on average, the highest prevalence of sex trafficking. In other words, these merely descriptive results align well with the theoretical results predicted in Part II. But because these results are merely descriptive, they do not yield any good explanation for the apparent correlation between prostitution laws and sex trafficking, and whether such a relationship should be attributed to prostitution laws or to some other factor not included in the figure. The following analysis thus digs deeper into the nature of the relationship between sex trafficking and prostitution laws. Table 5 shows the variables used, along with their full quantitative definitions; the list includes the two dependent variables, the main independent variable, and a host of control variables.

TABLE 5: VARIABLES AND DEFINITIONS

Variable name	Description
Sex trafficking	The main dependent variable, which measures the identified and presumed number of sex trafficking victims per million people in a given country in a given year.
Human trafficking	The alternative dependent variable, which measures the identified and presumed number of human trafficking victims per million people in a given country in a given year.
Prostitution Law Index score	The main independent variable, measuring on a four-point scale the extent to which a country's prostitution laws are expected to reduce the prevalence of sex trafficking.
Democracy	An aggregate measure of democracy based on the "polity2" variable in the Polity IV dataset.
Rule of law	A measure of rule of law from the World Governance Indicators.
Population	Total population in millions of people.
Population density	Number of inhabitants per km^2.
Urbanization	Degree of urbanization in percent.
Immigration	Size of annual international immigration flows per million people.
Foreigners	Number of foreign-born citizens per million people.
Tourism	Number of arrivals of residents/non-residents at tourist accommodation establishments per million people.
PPP	Indexed GDP per capita in purchasing power standards (PPS). European Union average = 100.
Unemployment	Annual average unemployment rate, in percent.
Poverty risk	At-risk-of-poverty rate by national poverty threshold, in percent.
Imports	The value of annual imports per million people.
Interaction	An interaction term based on multiplication of the Difference-in-Differences intervention variable and a dummy variable for the post-reform period. In the Difference-in-Differences specifications, this variable reveals an estimate of the potential causal effect of the implementation of the Demand Model in Norway. As such, this is the main variable of interest.

As previously explained, the variables *Sex trafficking* and *Human trafficking* are used in separate analyses, in order to improve the robustness of the results. Since the European Union has gathered more data on human trafficking than on sex trafficking, there are fewer missing observations for the *Human trafficking* variable. Table 6 shows summary statistics for the variables listed in Table 5.

TABLE 6: SUMMARY STATISTICS

Variable	Mean	Std. Dev.	Min	Max
Sex trafficking	11.23	12.98	0.29	65.88
Human trafficking	18.73	23.54	0.75	141.80
Prostitution Law Index score	2.1	0.54	1	4
Democracy	9.56	0.76	8	10
Rule of law	1.28	0.58	−0.16	1.98
Population	19.79	25.13	0.48	82.21
Population density	144.24	118.11	17.5	492.2
Urbanization	40.67	13.73	17.8	68
Immigration	9449	7873.28	161.78	36705.32
Foreigners	87407.97	100471.4	1212.34	435355.6
Tourism	818180.7	509959.1	98084.71	1978526
PPP	107.22	46.61	44	264
Unemployment	8.13	3.98	3.1	20.1
Poverty risk	14.75	4.18	8.6	26.4
Imports	11585.55	9315.6	1811.65	45192.32
Interaction	0.25	0.45	0	1

B. *The Inverse Relationship between Prostitution Law Index Scores and Prevalence of Sex Trafficking and Human Trafficking*

As highlighted above, the theoretical framework developed in this Article predicts that Prostitution Law Index scores and the prevalence of sex trafficking will stand in an inverse relationship. Figure 3 demonstrates the negative linear relationship between sex trafficking and Prostitution Law Index scores for all countries in the main sample (EU member states only) between 2008 and 2010. It therefore includes multiple observations for individual countries. The figure shows that countries with laws that are expected to increase replacement, increase substitution, or decrease scale had, on average, a lower prevalence of sex trafficking between 2008 and 2010—just as the theory developed in Part II predicts.

FIGURE 3: THE RELATIONSHIP BETWEEN SEX TRAFFICKING AND PLI
SCORES
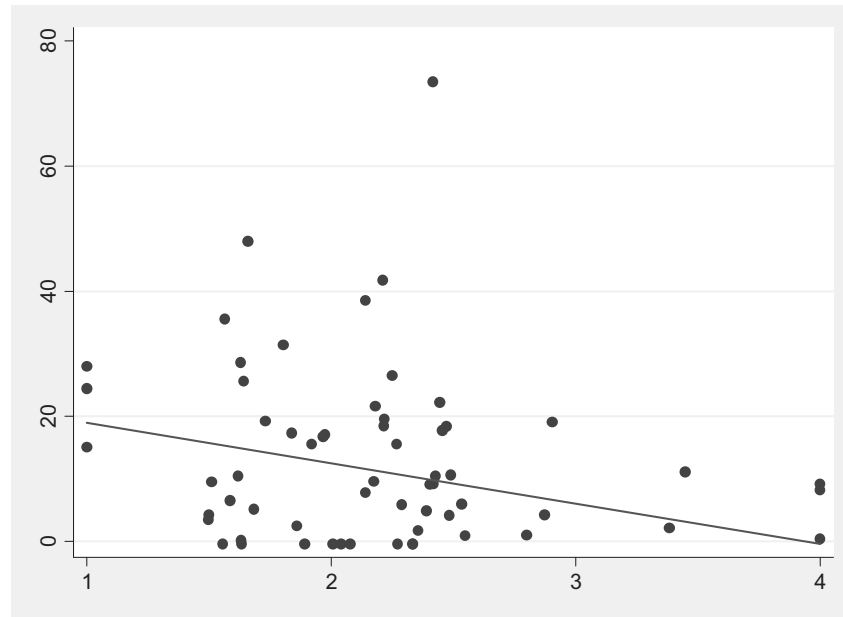
Note that the data points have been slightly spread out using a graphic function called "jitter" in order to make the graph visually easier to interpret. Since the horizontal axis is represented by a four-point scale, the observations would otherwise be stacked on top of each other. Importantly, "jittering" the data points does not affect the trend line in any way, including its direction and magnitude.

Table 7 provides the results from a cross-sectional analysis of the relationship between sex trafficking and prostitution laws. Column (1) shows the regression output for the linear relationship depicted in Figure 3. The negative coefficient of –6.43 suggests that a 1-point increase in the Prostitution Law Index score of a given European Union member state is associated with a lower prevalence of sex trafficking, which corresponds to, on average, roughly six fewer sex-trafficking victims per million people. The effect is statistically significant at the one percent level. The effect size is relatively substantial, considering that the average number of sex trafficking victims per million people is about eleven, and that Prostitution Law Index scores—as opposed to the binary variables typical in the existing literature—are based on a four-point scale, allowing for greater increases and decreases. Still, this finding should be interpreted with great caution, both because gathering reliable and comparable data on trafficking is so difficult and because this result demonstrates only correlation, not any form of causation.

Table 7: Sex trafficking and prostitution laws

	(1)	(2)	(3)	(4)	(5)
Prostitution Law	−6.43***	−6.50***	−5.90**	−6.49	−7.87
Index score	(1.67)	(1.74)	(2.63)	(4.61)	(5.10)
Time fixed effects	NO	YES	YES	YES	YES
Political controls	NO	NO	YES	YES	YES
Geographic controls	NO	NO	NO	YES	YES
Economic controls	NO	NO	NO	NO	YES
R^2	0.08	0.10	0.17	0.64	0.67
Number of countries	22	22	21	20	20

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust (clustered) standard errors in parentheses. Political controls include *Democracy* and *Rule of law*. Geographic controls include *Population, Population density, Urbanization, Immigration, Foreigners*, and *Tourism*. Economic controls include *PPP, Unemployment, Poverty risk*, and *Imports*.

Column (2) adds time-fixed effects, to control for unobservable characteristics that vary across time but remain constant across countries. Ideally, country-fixed effects should also be used, to capture unobservable characteristics that vary across countries but are constant across time. Due to the lack of variation in prostitution laws for any given country between 2008 and 2010, however, country-fixed effects are excluded; in any case, such an analysis would not yield meaningful results in the instant case.[144]

Column (3) adds a set of political variables as controls. Democracies may have better institutions and thus be better able to fight trafficking. Rule of law is also expected to be negatively correlated with sex trafficking, since traffickers under the rule of law might be likely to face a higher risk of prosecution. The size of the coefficient for Prostitution Law Index scores is smaller than in previous columns and the standard error is slightly larger, but the relationship is still significant at the five percent level. Column (4) adds control variables with geographic characteristics. Population, population density, and urbanization capture potential interactions between people; in countries where any of these measures is high, there may be a relatively higher prevalence of sex trafficking. Immigration flows, the stock of immigrants, and tourism may also potentially be correlated with sex trafficking. When controlling for time-fixed effects, political variables, and geographic controls, the coefficient is no longer significant, because of the relatively large standard error.

144. A separate analysis with country-fixed effects added to the specification in Column (1) found that the inverse relationship between human trafficking and Prostitution Law Index scores held for European Union member states as well as for European Union member and candidate states. By contrast, the corresponding results for sex trafficking and Prostitution Law Index scores were insignificant.

Finally, Column (5) adds economic variables to the regression. On an international level, poorer countries may experience lower sex trafficking because of poorer consumers and hence lower potential revenues for traffickers. But in the European Union, where most countries are rich, one might expect PPP per capita to be negatively correlated with sex trafficking, implying that this form of exploitation is generally more common in poorer countries, perhaps because the government has fewer resources to spend on anti-trafficking efforts. Higher unemployment may also make prostitution a more lucrative business, which could increase sex trafficking if it attracts traffickers looking for vulnerable individuals to exploit, or decrease trafficking if voluntary prostitutes crowd out trafficking victims from the market. The risk of poverty is included for similar reasons. Finally, imports are controlled for, as they tend to indicate the openness of a country and could therefore potentially be correlated with trafficking flows. The size of the coefficient for Prostitution Law Index scores in this column is larger than in any of the other specifications. But so, too, is the standard error, and hence the primary relationship of interest, the relationship between sex trafficking and prostitution laws, is not significant.

Since the relationship between sex trafficking and Prostitution Law Index scores is significant in three out of five tests, it appears that higher PLI scores may be associated with, on average, lower levels of sex trafficking. But there is also a great deal of unexplained variation in the data. The coefficients in Columns (4) and (5) are, as stated, relatively large, but there is a one-sixth reduction in the number of observations, which contributes in part to the much larger standard errors and lack of statistical significance.

It cannot be emphasized enough that the results must be viewed with great caution, given both the lack of reliable data on human and sex trafficking and the many caveats associated with the EU trafficking dataset. That said, it seems that categorizing prostitution laws according to this Article's basic theoretical framework regarding expected effectiveness in tackling sex trafficking may have some analytical purchase. This Article may indicate that it could be fruitful in subsequent quantitative research to try to study a greater variation of prostitution laws.[145]

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145. This conclusion further supported by additional regression specifications with dummy variables for each of the four categories. These tests show, for instance, that compared with punishing neither buyers nor sellers (PLI = 2), only punishing sellers (PLI = 1) is associated with, on average, higher levels of sex trafficking, whereas punishing both sellers and buyers (PLI = 3) is associated with, on average, lower levels of sex trafficking.

Because it is so hard to find reliable data on sex trafficking, data on human trafficking can be used as a robustness check. To the extent that sex trafficking and human trafficking are correlated, the latter can serve as a proxy for the former, especially in this case. Looking at human trafficking rather than sex trafficking allows for an analysis that encompasses many more data points, which increases the statistical power of the analysis. If the relationships between prostitution laws and the two types of trafficking are both significant, the results should probably be interpreted as a bit more robust. Including data on human trafficking as a robustness check also brings the additional benefit of being able to check for any potential spillover effect.[146]

Table 8 repeats the regression specifications in Table 7, with the only difference being the outcome variable; instead of (identified and presumed) sex-trafficking victims per million people, the outcome variable is now (identified and presumed) human-trafficking victims per million people.[147]

Table 8: Prostitution laws and (all forms of) human trafficking

	(1)	(2)	(3)	(4)	(5)
Prostitution Law Index score	−13.69*** (4.40)	−13.63*** (4.46)	−12.86** (5.11)	−13.12*** (3.42)	−10.79** (4.44)
Time fixed effects	NO	YES	YES	YES	YES
Political controls	NO	NO	YES	YES	YES
Geographic controls	NO	NO	NO	YES	YES
Economic controls	NO	NO	NO	NO	YES
R^2	0.10	0.10	0.10	0.52	0.60
Number of countries	28	28	27	26	26

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust (clustered) standard errors in parentheses. Political controls include democracy and rule of law. Geographic controls include population, population density, urbanization, immigration, foreigners, and tourism. Economic controls include PPP, unemployment, poverty risk, and imports.

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146.   If sex trafficking becomes less prevalent and the ratio of costs and benefits changes (so that it becomes more beneficial to traffickers to sell labor, for example, rather than sexual services), one would expect to see increases in labor trafficking appearing alongside decreases in sex trafficking. This negative spillover effect could cancel out, or even exceed, any decrease in sex trafficking. One would see a mere shift in the composition of human trafficking, without any overall reduction in human trafficking. If the results were significant for both sex trafficking and human trafficking as outcome variables, by contrast, then there would be less reason to worry about either the risk of bad data on sex trafficking or the risk of a negative spillover effect. *See supra* Part III.A (discussing spillover effects).

147.   As stated earlier, sex trafficking is a subset of human trafficking, and the coefficients are therefore expected to be larger when human trafficking is analyzed.

All five regression specifications are statistically significant, and they suggest that a one-point increase in the Prostitution Law Index score of a given European Union country is associated with a lower prevalence of human trafficking, equivalent to about eleven to thirteen victims per million people in that country. This suggests that any negative spillover effect from targeting sex trafficking through a higher PLI score, if it exists at all, may be relatively limited: the results imply that higher PLI scores, lower prevalence of sex trafficking, and lower prevalence of human trafficking are all to some extent correlated.

More specifically, the results in Columns (1) to (5) are significant at the five percent level or the one percent level. These results are in line with the results of the sex trafficking analyses in Table 7, although they are notably more consistent in their statistical significance than are the sex trafficking results. There are at least three reasons why the link between human trafficking and PLI scores appears more statistically significant than the link between sex trafficking and PLI scores.

First, the relationship between human trafficking and Prostitution Law Index scores may simply be stronger than the relationship between sex trafficking and Prostitution Law Index scores. Second, the discrepancy could be a result of the simple fact that less data is available on sex trafficking than on human trafficking, which could help explain why the standard errors in the human trafficking analyses in Columns (4) and (5) of Table 8 are smaller than those in the corresponding columns for sex trafficking in Table 7, even though the effect sizes are larger in the former. Third, the quality of the data on sex trafficking may be worse than the data on human trafficking (indeed, this was one of the arguments that was raised in favor of including data on total human trafficking as a robustness check[148]). Further research is needed to uncover which of these three reasons, if any, best explains the differences between sex trafficking and PLI scores, on the one hand, and human trafficking and PLI scores, on the other.

It may be fruitfully noted, in closing, that the basic conclusion holds even as one moves slightly beyond the borders of the EU. The results in Tables 7 and 8 remain valid for larger samples, such as the prevalence of sex trafficking and all human trafficking in the EU, plus some of the European countries that are not presently member states (e.g. Norway, Serbia, and Montenegro).

As stated, however, these analyses speak only to correlation, not causation; from these results alone, one cannot infer that changes

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148. *See supra* Part III.A (discussing the merits of using human trafficking data).

to prostitution laws will, in fact, bring about an increase or decrease in sex trafficking. The next subpart will therefore complement the results presented thus far by providing some very tentative estimates of the potential causal impact of Norway's 2009 implementation of the Demand Model.

C. Suggestive Estimates of the Causal Effect of the Demand Model on Sex Trafficking and Human Trafficking in Norway

In 2009, Norway followed Sweden's approach to prostitution and made the act of buying sex illegal while still permitting the act of selling sex. To tentatively estimate what, if any, causal impact the implementation of the Demand Model may have had on the prevalence of sex trafficking in the country, this Article deploys a Difference-in-Differences model.[149] The primary result suggests that the Model may possibly have led to a reduction in trafficking, but because of the extremely limited dataset, the most valuable implication of this exercise is likely to be the analytical approach (using Difference-in-Differences to study prostitution laws and trafficking), rather than the statistical finding in itself.

The main variable of interest is the interaction term based on the intervention variable and the pre-post variable. As previously explained, the intervention variable separates Norway from three other Nordic countries and the pre-post variable indicates whether a given year was before or after the Norwegian reform came into effect. The coefficient on the interaction variable is thus the estimated potential causal impact of introducing the Demand Model in Norway. As in the preceding subpart, human trafficking is again used as a robustness check.

Table 9 displays the results. This Differences-in-Differences analysis uses the same control variables as the previous analyses, with a few exceptions. *Democracy* is removed because all countries have the same score, underlining the fact that these Nordic countries are fairly similar, making a Difference-in-Differences analysis more

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149. To reiterate, the purpose of a Difference-in-Differences analysis is to compare the change over time in an outcome variable for a certain group exposed to a given policy intervention with the change over time in the same outcome variable for a different group that was not exposed to the policy. In other words, the result of interest is the difference in the differences (or changes). As previously discussed, a valid Difference-in-Differences analysis crucially depends on the assumption that the changes in the two groups would have been identical (or at least highly similar) had it not been for the policy. If this assumption holds, then the resulting difference in the two time trends can be properly ascribed to the policy intervention.

likely to be suitable. The number of tourists has to be omitted because the relevant information is missing data for all three years for Norway. Also omitted are the economic controls (PPP, unemployment, poverty risk, and imports), because R^2 reaches 1.00 when they are included, thereby rendering the analysis less meaningful.[150]

TABLE 9: ESTIMATES OF THE CAUSAL IMPACT OF INTRODUCING THE
DEMAND MODEL IN NORWAY

	Sex trafficking (1)	Sex trafficking (2)	Sex trafficking (3)	Human trafficking (4)	Human trafficking (5)	Human trafficking (6)
Effect of introducing Demand Model	–4.06* (1.54)	–8.03*** (0.74)	–8.52*** (0.75)	–5.86** (1.45)	–3.92 (2.00)	–4.77** (1.10)
Political controls	NO	YES	YES	NO	YES	YES
Geographic controls	NO	NO	YES	NO	NO	YES
R^2	0.45	0.69	0.93	0.46	0.50	0.98
Number of countries	4	4	4	4	4	4

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust (clustered) standard errors in parentheses. Political controls include democracy and rule of law. Geographic controls include population, population density, urbanization, immigration, foreigners, and tourism.

Excepting the specification in Column (5), all of the results are statistically significant to at least some extent, irrespective both of control variables and of whether sex trafficking or human trafficking is the dependent variable. But their significance levels vary, and it is questionable whether the significance tests make much sense with such an exceptionally limited sample. Indeed, one might want to look at the findings without paying attention to the significance levels. Nonetheless, they are reported here as they may be of interest to the reader. But the results should by no means be interpreted as evidence of a causal effect of the Demand Model—that would be highly inappropriate.

The estimated point estimates in Columns (1) to (6) range from about, on average, four to eight fewer trafficking victims per million inhabitants per year in Norway compared with in the other Nordic

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150. The R^2 denotes the proportion of the dependent variable's variation that is explained by a linear regression model. A high value thus indicates that the independent variables have high explanatory power, which could also indicate that the entities studied are similar along the explanatory factors. The fact that R^2 reaches 1.00 further underlines the fact that these countries are very similar, which, again, supports the feasibility of the methodological approach. However, it also indicates that the number of observations is extremely small, which further demonstrates that the results should be interpreted with great caution.

countries that are used as a comparison group. This suggests, assuming that the Difference-in-Differences model actually is feasible, that trafficking levels might possibly have been lower than they would otherwise have been if Norway had not introduced the Demand Model.

As previously discussed,[151] the validity of these results depends on the parallel-trends assumption. If that assumption does not hold (an issue that future researchers should investigate further), then the results are erroneous. The European Union has not yet gathered sufficient data to reliably establish time trends prior to the implementation of the 2009 reform.

What is already possible, however, is to do a qualitative comparison of the countries. These four Nordic countries share a common history and have similar cultures. In global rankings—whether according to levels of democracy, rule of law, gender equality, or wealth—the Nordic countries usually end up very close to each other.[152] Because of the many similarities among these countries, it may be difficult to think of reasons why the countries would have significantly different trends in trafficking.[153] This bolsters the argument for using a Difference-in-Differences analysis with three other Nordic countries as comparison countries.[154]

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151.   *See supra* Part IV.B.

152.   *See The Nordic Countries: The Next Supermodel*, The Economist (Feb. 2, 2013), http://www.economist.com/news/leaders/21571136-politicians-both-right-and-left-could-learn-nordic-countries-next-supermodel; *Lessons: The Secret of their success*, The Economist (Jan. 31, 2013, 4:02 PM), http://www.economist.com/news/special-report/21570835-nordic-countries-are-probably-best-governed-world-secret-their.

153.   One might argue that Norway stands out because it is not a member of the EU, which potentially could have some impact on trends in trafficking. But that argument would miss two important points. First, a substantial part of sex trafficking in the EU's member states is based on trafficking flows from other countries, and since Norway is a member of the Schengen Area the country already participates in the abolishment of internal borders among European nations. *See* European Comm'n, *Schengen Area*, Migration and Home Aff., http://ec.europa.eu/dgs/home-affairs/what-we-do/policies/borders-and-visas/schengen/index_en.htm (last updated Jan. 29, 2016). Second, even though Norway is not a full member of the EU, it is bound by much of the Union's legislation. *See* Espen Barth Eide, *We Pay, But Have No Say: That's the Reality of Norway's Relationship with the EU*, The Guardian (Oct. 27, 2015, 3:50 PM), https://www.theguardian.com/commentisfree/2015/oct/27/norway-eu-reality-uk-voters-seduced-by-norwegian-model ("[Norway has] incorporated approximately three-quarters of all EU legislative acts into Norwegian legislation – and counting. We have legally secured access to the single market, and we practise the free movement of people, goods, services and capital. Norway is more closely integrated into many aspects of the EU than even some of the EU's members. Our subscription to freedom of movement and our membership of the Schengen area means that Norway has even higher per capita immigration than Britain.").

154.   One might object that Finland is substantially different from Norway, Sweden, and Denmark, for both historical and cultural reasons. The Finnish language, for instance, is from an entirely different language family, while Norwegian, Swedish, and Danish are very close relatives in the Indo-European family tree. It should therefore be noted that the results

There are reasons why Difference-in-Differences estimators (in general; not necessarily using this particular dataset) may correctly identify a causal impact of the implementation of the Demand Model in Norway in 2009. Still, the results in this Article should still be interpreted with great caution due to the limited data on trafficking that is presently available. Hence, the findings are better seen as pointing out directions for future research on this topic rather than as constituting evidence on any causal effect of the Demand Model. Because the trafficking data is so limited over time, more reservations must be made concerning the below results than are typical in Difference-in-Differences analyses.[155]

As far as the author is aware, this Article marks the first attempt to use empirical evidence to study the effect of the Norwegian prostitution law reform on sex trafficking by using a quasi-experimental framework. Further research can shore up the Article's findings. It could be, for example, that the apparent change in trafficking prevalence in Norway was caused, in whole or in part, by another, as-yet-unspecified variable, such as police resources, social programs, law enforcement efforts, or political prioritization. Qualitative research on efforts to curb trafficking prior to and after the Norwegian reform should help shed light on this question.

Another issue, as previously mentioned, is that good data on trafficking is exceedingly hard to come by. It is of course possible that the recent dataset used in this Article is inaccurate and does not well reflect trafficking prevalence in the countries in question. While this is a concern that is common to almost every study based on quantitative data, a reiterated note of caution is especially pertinent here. Prostitution laws and sex trafficking are hot-button issues both in academic and public debate, and no single study can provide conclusive evidence on how the two are related to each other across the globe, or even within a region or a single country.

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in Table 9 were found to be statistically significant even when Finland was excluded from the analysis.

155.   For more typical Difference-in-Difference analyses, with much more data and therefore substantially more robust results, see, *e.g.*, Harold Alderman et al., *Effectiveness of a community-based intervention to improve nutrition in young children in Senegal: a difference in difference analysis*, 12 Pub. Health Nutrition 667 (2009); Kimberly Singer Babiarz et al., *New evidence on the impact of China's New Rural Cooperative Medical Scheme and its implications for rural primary healthcare: multivariate difference-in-difference analysis*, The BMJ (Oct. 21, 2010), http://www.bmj.com/content/341/bmj.c5617.long; Matthew J. Slaughter, *Trade liberalization and per capita income convergence: a difference-in-differences analysis*, 55 J. Int'l Econ. 203.

Investigating to what extent this European Union dataset is accurate and representative is therefore also an important task for future research.[156]

Conclusion

This Article attempted to make three contributions to the literature on the relationship between sex trafficking and prostitution laws. First, it proposed a basic theoretical framework for analyzing that relationship, a framework that incorporated three major effects on trafficking in the market for prostitution: scale, substitution, and replacement. The Article then used this framework to construct a simple ordinal measure of prostitution laws, the Prostitution Law Index. The Index ranked countries according to how well their prostitution laws should combat the prevalence of sex trafficking, on the basis of the theoretical framework and several additional assumptions.

Second, the Article used recent data from the European Union to analyze the relationship between countries' Prostitution Law Index scores and the levels of trafficking within their borders. The results suggested that there generally appears to exist an inverse relationship between Prostitution Law Index scores and the prevalence of both sex trafficking and human trafficking, which is what the theoretical part of the Article predicted. This implies that legislation that seeks to decrease the scale effect and to increase both the substitution effect and the replacement effect in the market for prostitution may possibly have a role to play in anti-trafficking efforts, but only if subsequent research finds that this statistical relationship is actually causative, as opposed to merely correlative, in nature.

Third, the Article used a Difference-in-Differences analysis, with extremely limited data, to provide some initial and tentative estimates of a possible causal effect of Norway's recent introduction of the Demand Model. Using Sweden, Denmark, and Finland as a comparison group, the analysis of the Norwegian data, limited though it is, provided results indicating that the Norwegian prostitution law reform may potentially have helped reduce sex trafficking and human trafficking in the country.

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156. The EU is currently working on gathering trafficking data for more recent years. One ought to keep an eye out for likely revisions of the existing estimates, allowing for analyses similar to that presented in this Article but using data that is more up-to-date and perhaps also more reliable.

While most of the results were statistically significant (albeit at different levels of significance), it is important to underscore that they should nonetheless be interpreted with great caution. The theoretical results in particular are based on multiple assumptions that are hard to confirm or disprove, above all because of a simple lack of evidence. And because all data on trafficking is somewhat unreliable to begin with, the empirical results are not as strong as one would wish. In addition, the supposedly harmonized data-collection methods that the European Union is attempting to develop and deploy are still very much in the testing phase, and will likely undergo major tweaking in the future. The data used in this Article will probably be revised many times, and the results are thus likely to change as better data becomes available. Moreover, the time period for which data was available to this Article is very limited, covering a mere three years. Such narrow scope further limits the empirical reach of the Article. Perhaps the least troublesome results in the Article are those that study the relationship between Prostitution Law Index scores and all forms of human trafficking, both because those are based on the largest number of observations and because they were all statistically significant. Yet, these results only capture correlation, and thus regrettably leave out any conclusions about potential causal effects.

What is needed now is more research, both quantitative and qualitative. Quantitative research, by using methods both similar to[157] and different from the ones used here, can help confirm or reject the existence of a statistical relationship between Prostitution Law Index scores and sex trafficking, and can help delineate the possible effect that adopting the Demand Model may have on reducing sex trafficking. Second, qualitative research can help shed light on the validity of the parallel-trends assumption made in the Difference-in-Differences analysis of the Norwegian prostitution law reform. For if the parallel-trends assumption fails to hold, then this Article's approach would not constitute a sound method for studying the Demand Model and its potential impact on trafficking in Norway. Qualitative research, particularly interviews with participants in the market for prostitution, may shed light on the existence and relevance of substitution and replacement effects. Third, while potentially building on this Article's idea of approaching prostitution laws as a non-binary phenomenon, it may be worthwhile for future research to look at some of the factors that

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157. The author strongly believes that the use of quasi-experimental methods, like the Difference-in-Differences framework used in this Article, has great potential to bear fruit in subsequent studies of prostitution laws and/or sex trafficking.

were beyond the scope of the instant analysis, including legislation related to pimping and brothel-owning, as well as the severity of punishment for violations of different prostitution laws.[158] Fourth, the aforementioned additional considerations for policymakers seeking to address prostitution laws, besides trafficking, must not be forgotten. Issues such as violence against sellers, individual autonomy of sellers, health risks, and the general welfare of voluntary sellers are also very important to study.

The theoretical and statistical analyses presented in this Article suggest that it may be possible for a country, in some instances, to reduce sex trafficking by reforming its prostitution laws, perhaps by introducing reforms that produce a positive replacement effect, a positive substitution effect, or a negative scale effect in the market for prostitution. If the results in this Article were to hold up to future scrutiny, they will likely have some implications for policymaking.

Bearing the analytical caveats in mind, the hope is that the general theoretical framework and overall methodological approaches this Article has presented will contribute to the academic debate on creative ways to think about prostitution laws and to study how different types of legal reform may help combat sex trafficking, a major scourge of our time.

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158.   This may be of particular interest since the severity of punishment tends to vary greatly across different jurisdictions.