

## The Relationship between Prostitution Laws and Sex Trafficking: Theory and Evidence on Scale, Substitution, and Replacement Effects

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*Sex trafficking is a pervasive problem in many parts of the world. This study investigates the relationship between different types of prostitution laws and the prevalence of sex and human trafficking across European countries using data that covers 2008-2010. The Article 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 to create a simple ordinal measure of prostitution laws that better reflects the actual cross-country variation in prostitution laws compared with a binary variable that merely indicates whether prostitution is legal or illegal. The measure is called the Prostitution Law Index and is based on a very rudimentary framework that analyzes forms of scale, substitution, and replacement effects in the market for prostitution. Scale refers to increases in the prevalence of trafficking that are caused by growth in the overall size of the market for prostitution. Substitution refers to when current consumers begin to purchase sex with individuals who voluntarily sell sex rather than with trafficking victims. Replacement refers to when new voluntary sellers of sex enter the market and crowd out trafficking victims. The index ranks prostitution laws across countries on a four-point scale (from 1 to 4) based on expected effectiveness (from least to most effective) in terms of reducing the prevalence of sex trafficking.*

*Second, the study uses a new dataset provided by the European Union to study the relationship between Prostitution Law Index scores and prevalence of sex trafficking. Cross-country analyses suggest that there generally appears to be a negative relationship between a country's Prostitution Law Index score and the prevalence of trafficking. Greater legislative efforts to reduce scale and to increase substitution and replacement—as captured by a higher score in the index—appear to, on average, be associated with lower levels of sex trafficking.*

*Third, the Article presents a basic Difference-in-Differences analysis—with very limited data and thus with many caveats—that seeks to study the causal impact of Norway's implementation in 2009 of a set of prostitution laws that made it legal to sell sex, but illegal to buy sex (the category of laws that receives the highest index score). Tentative results suggest that this legal reform may potentially have caused some reduction in the prevalence of trafficking.*

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## INTRODUCTION

Sex trafficking typically refers to “recruitment, transportation, transfer, harbouring or receipt of persons” through force, fraud, or coercion for the purpose of sexual exploitation.<sup>1</sup>

Because sex trafficking is an underground industry that operates outside the law, it is hard to

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<sup>1</sup> See Jonathan Todres, *Human Trafficking and Film: How Popular Portrayals Influence Law and Public Perception*, 101 CORNELL L. REV. Online 40 (2015) (quoting 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)).

estimate the magnitude of the problem.<sup>2</sup> The United Nations, for instance, has estimated that at any given point in time, 2.4 million people are trafficked around the world, and that 80 percent of them are trafficked for the purpose of sexual exploitation.<sup>3</sup> But these numbers—and any other figures on either human or sex trafficking for that matter, both higher<sup>4</sup> and lower<sup>5</sup>—are uncertain and must be interpreted with a grain (or many grains) of salt.<sup>6</sup> The lack of good data notwithstanding, many would still assert that sex trafficking is a substantial and serious problem in many parts of the world, including Europe and the United States.<sup>7</sup>

While trafficking primarily is an issue of violating human rights, it may yet be worthwhile to approach sex trafficking from an economic perspective in order to better understand the driving factors behind trafficking so that more effective policy responses can be developed. Since the commercial sex industry as a whole is highly profitable, there are economic

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<sup>2</sup> See, e.g., Seo-Young Cho et al., *Does Legalized Prostitution Increase Human Trafficking?*, 41 World Development 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)).

<sup>3</sup> See 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>.

<sup>4</sup> See, e.g., INT’L LABOUR ORG., ILO GLOBAL ESTIMATE OF FORCED LABOUR: RESULTS AND METHODOLOGY 13 (2012) (providing a much higher estimate: “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’”).

<sup>5</sup> 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”).

<sup>6</sup> 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.”).

<sup>7</sup> 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. (2012); Joyce Outshoorn, *The Political Debates on Prostitution and Trafficking of Women*, 12 SOC. POL. (2005); Donna M. Hughes, *The “Natasha” Trade: The Transnational Shadow Market of Trafficking in Women*, 53 J. INT’L AFF. (2000); Lionel Barber, *FT Season Appeal: Letter from the editor*, FINANCIAL 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.”).

incentives for criminals to traffic individuals for the purpose of sexual exploitation.<sup>8</sup> There may therefore potentially be lessons about demand and supply to be applied in the attempts to combat trafficking.

One might view prostitution as a market where the demand side comprises individuals who purchase sex and where the supply side includes both voluntary prostitutes and trafficking victims. Looking at different types of prostitution laws through an economic lens, it is clear that some countries have tried to combat prostitution—and by extension sex trafficking<sup>9</sup>—by focusing on the supply side of the market. In Romania, for instance, it was previously illegal to sell sex, but legal to buy sex.<sup>10</sup> Law enforcement agencies were thus only arresting individuals who were selling sex while the demand side was left untouched.

In other countries, such as America (except for a few counties in Nevada), it is illegal both to sell and to buy sex,<sup>11</sup> and so the laws aim at eradicating a market for paid sex, including both voluntary prostitution and trafficking, by targeting both the supply and the demand side. However, in practice most prostitution-related arrests in the United States are made against those who sell rather than those who purchase sex.<sup>12</sup> Although hard numbers on the seller-buyer arrest

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<sup>8</sup> See, e.g., MEREDITH DANK ET AL., ESTIMATING THE SIZE AND STRUCTURE OF THE UNDERGROUND COMMERCIAL SEX ECONOMY IN EIGHT MAJOR US CITIES (2014); KEVIN BALES, DISPOSABLE PEOPLE: NEW SLAVERY IN THE GLOBAL ECONOMY (3d ed. 2012).

<sup>9</sup> Since sex trafficking is a subset of the total market for prostitution.

<sup>10</sup> See U.S. DEPT OF STATE, BUREAU OF DEMOCRACY, H.R. AND LAB., 2008 HUMAN RIGHTS REPORT: ROMANIA (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.”).

<sup>11</sup> 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.”).

<sup>12</sup> 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. 437 (2009) (“Unfortunately, rather than focusing on

disparity are exceptionally hard, if not impossible, to come by,<sup>13</sup> some estimates suggest that as many as nine out of ten prostitution-related arrests are made against individuals who sell sex.<sup>14</sup> Statutorily speaking, the approaches are different; the Romanian prostitution law focused on the supply whereas American criminal laws (with very few exceptions) target both buyers and sellers. *De facto*, however, law enforcement agencies in both countries have tended to go after the supply of sexual services rather than the demand side.

In other countries such as the Netherlands<sup>15</sup> and Germany,<sup>16</sup> a third approach has been implemented. Both countries have legalized prostitution,<sup>17</sup> and practices such as pimping and running brothels are permissible.<sup>18</sup> Under such systems, there are no efforts made to deter people from selling sex or from buying sex. Law enforcement agencies instead work specifically to root out trafficking and other exploitative forms of prostitution, and may use resources that otherwise would have arrested buyers or sellers of sex to target traffickers instead.<sup>19</sup> Proponents of this

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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)).

<sup>13</sup> A case in point is the fact that the author of this Article has submitted FOIA requests to local law enforcement agencies to receive data on the breakdown of individuals who are arrested for selling sex and buying sex, respectively, without any success thus far. Typically, local law enforcement will respond by stating that such data is not collected and therefore does not exist.

<sup>14</sup> See *The Economist*, *Selling sex: Hold the Backpage*, THE ECONOMIST (Jul. 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.”).

<sup>15</sup> See generally ANNELIES L. DAALDER, PROSTITUTION IN THE NETHERLANDS SINCE THE LIFTING OF THE BROTHEL BAN (2007).

<sup>16</sup> 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 (2007).

<sup>17</sup> 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.”).

<sup>18</sup> See DAALDER, *supra* note X, and *id.*

<sup>19</sup> This view assumes that prostitution is not inherently exploitative and that consensual forms of prostitution should not be prohibited, which stands in stark contrast to the position held by neo-abolitionists. See *infra* note X.

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

approach tend to believe that it is the criminalization of prostitution that attracts organized crime, such as trafficking, in the first place, and that permitting prostitution therefore will help reduce the prevalence<sup>20</sup> of trafficking.<sup>21</sup>

A fourth legislative approach to prostitution—that may also be used to combat sex trafficking—is to only criminalize buying sex. This model (hereafter the Demand Model) targets the demand side in the market for prostitution, and was first introduced by Sweden in 1998, coming into effect a year later in 1999.<sup>22</sup> Similar laws have now been implemented in several other countries, including Norway, Canada, Iceland, Northern Ireland, and France.<sup>23</sup> One reason

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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 others individuals.

<sup>20</sup> 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. This is distinctly different from measuring the proportion of a certain subpopulation—for example, the total number of sellers of sex—that has 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.

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.

<sup>21</sup> *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.”).

<sup>22</sup> Donna M. Hughes, *The “Natasha” Trade: The Transnational Shadow Market of Trafficking in Women*, 53 J. INT’L AFF. 13 (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.”).

<sup>23</sup> *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 targeting

that the Demand Model has grown in popularity is that it to some appears compelling in theory; a focus on the demand side of the sex trade could potentially shrink the market for prostitution and thereby reduce the profitability of sex trafficking, which means that traffickers would supply fewer victims to the market.<sup>24</sup>

The rationale behind the idea to target the demand instead of the supply is simple: it is based on the notion that there will be someone who is willing to supply the market as long as demand exists<sup>25</sup> and individuals are prepared to pay hefty sums for sexual services.<sup>26</sup> Proponents of the Demand Model argue that it is not realistic to imagine that trafficking can be successfully

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the more powerful economic agents, namely men.”); Rubin, *supra* note X (“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 euros, 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 euros (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.”).

<sup>24</sup> 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 FORUM 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. (2010); Jane Scoular & Anna Carline, *A Critical Account of a ‘creeping Neo-abolitionism’: Regulating Prostitution in England and Wales*, 14 CRIMINOLOGY & CRIM. JUST. (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).

<sup>25</sup> 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; there are other factors that are essential, too. See, e.g., Janie Chuang, *Beyond a Snapshot: Preventing Human Trafficking in the Global Economy*, 13 IND. J. GLOBAL LEGAL STUD. 160 (2006) (explaining that human trafficking also has its root causes “in poverty, unemployment, discrimination, and violence against women.”).

<sup>26</sup> See, e.g., DANK ET AL., *supra* note X, at 60 (“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.”)

fought until demand for purchased sex has been substantially reduced, if not eliminated.<sup>27</sup> Because sex trafficking is a lucrative business<sup>28</sup> and the risk of getting caught is perceived as low by actors in the market, such as pimps<sup>29</sup>, it has been argued that by attempting to reduce the demand for paid sex, it may be possible to make it less profitable for traffickers to stay in business. If fewer people were to purchase sex, proponents contend, it would be rational for traffickers to traffic fewer human beings.<sup>30</sup>

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. However, the Model is also based on the notion that criminalizing individuals who are selling sex in an effort to reduce sexual exploitation may turn out to be counterproductive.<sup>31</sup> While criminalization of selling sex may discourage voluntary prostitutes from entering the prostitution industry, sex trafficking victims are by definition forced, deceived, or coerced into selling sex and the risk of legal sanctions will therefore arguably not affect their behavior in the market for prostitution. Criminalization of selling may perhaps not have an effect on traffickers either; trafficking is already illegal in most countries and traffickers are not personally selling sex themselves. The

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<sup>27</sup> 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).

<sup>28</sup> See, e.g., Hughes, *supra* note X, at 14 (The trafficking of women for purposes of sexual exploitation has become a highly profitable shadow market for organized crime networks.”).

<sup>29</sup> See DANK ET AL., *supra* note X, 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.”).

<sup>30</sup> See, e.g., Max Waltman, *Prohibiting Sex Purchasing and Ending Trafficking: The Swedish Prostitution Law*, 33 MICH. J. INT’L L. 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 may 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.

<sup>31</sup> This argument unites those who favor the Demand Model on the one hand and those who support legalization or decriminalization on the other, since neither camp wants to criminalize the act of selling sex.



main result of such a legislative approach may therefore be an increase in arrests of trafficking victims and an increase in the proportion of individuals in the market for prostitution who are subject to force, fraud, or coercion.<sup>32</sup> In the worst-case scenario, advocates of the Model might contend, criminalization of selling sex could even lead to higher prevalence of sex trafficking than if selling sex were legal. If the prostitutes who are selling sex voluntarily are discouraged from doing so by the criminalization of selling, supply may fall, which could drive up the price of buying sex. Traffickers would then enjoy greater profits and may respond to the price increase by trafficking a greater number of victims in order to make more money.

However, while some may find the Demand Model intriguing in theory, there is unfortunately a lack of empirical evidence on the actual effects of the Model. There is little data to either support or reject the idea that sex trafficking could be reduced by enacting this specific type of prostitution laws.<sup>33</sup> Nor is the potential relationship between prostitution laws and sex trafficking through a basic economic lens of demand and supply well understood. This is not surprising since the literature on the relationship between prostitution laws and sex trafficking in general is limited.<sup>34</sup> Using new, in part consolidated, data for the member states of the European Union, however, this Article attempts to shed some light on both the Demand Model as well as the issue of prostitution laws and sex trafficking in a wider context.

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<sup>32</sup> See, e.g., Babb, *supra* note X, 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.”).

<sup>33</sup> The lack of sound empirical evidence is a problem that trafficking research in general suffers from. 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 reports issued by government and non-government agencies. With few empirical studies available, imagination seems to have filled the gaps of our knowledge.”).

<sup>34</sup> See *infra* Part X (discussing the limitations of the existing body of literature).

Specifically, this study 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 to create a very simple ordinal measure of prostitution laws—called the Prostitution Law Index. The index is developed by ranking laws on a four-point scale based on how effective they are predicted to be at reducing the prevalence of sex trafficking, using some basic economic assumptions about certain types of scale, substitution, and replacement effects. Second, it uses a new dataset that has been developed through more harmonized data collection across European Union member states to study the relationship between Prostitution Law Index scores and the prevalence of sex and human trafficking. Third, it uses a Difference-in-Differences model to provide some (highly) tentative estimates of the potential causal impact on trafficking of implementing the so-called Demand Model in Norway.

The Article reports that there generally appears to be a negative and significant relationship between Prostitution Law Index scores and prevalence of sex trafficking and human trafficking across European Union member states. Increased legislative focus on decreasing the scale effect and increasing the substitution and replacement effects—as captured by receiving a higher Prostitution Law Index score—appears to, on average, be associated with lower levels of trafficking.

Furthermore, a Difference-in-Differences analysis of Norway’s recent introduction of prostitution laws mirroring the Demand Model provides some suggestive evidence that it may possibly have reduced the prevalence of sex trafficking. However, the data is very limited and

the findings must therefore be interpreted with extreme caution and should be seen as potentially indicative at best.<sup>35</sup>

The remainder of the Article will proceed as follows. Part I reviews some of the existing literature on prostitution laws, sex trafficking, and human trafficking. Part II sets up a basic theoretical framework for analyzing prostitution 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 that is linked to the framework and that produces four distinct categories of laws. Part III discusses the new, consolidated European Union dataset on sex trafficking and human trafficking. In addition, the proposed quantification of prostitution laws through the so-called Prostitution Law Index is introduced. The index ranks prostitution laws on a four-point scale based on how well they are expected to tackle sex trafficking, using some basic assumptions about the demand and supply in the market for prostitution. Part IV presents the regression models that are later employed. Important assumptions and caveats in the research design are also reviewed. Part V presents the results from cross-country regression and Difference-in-Differences analyses. Finally, a brief conclusion summarizes the findings, reiterates important caveats, and points out directions for future research.

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<sup>35</sup> The many caveats notwithstanding, the author of the Article strongly believes that the method itself is sound. Regardless of whether these particular results are valid or not, using quasi-experimental methods in future research to try to uncover potential causal effects of prostitution laws on sex trafficking may yield high returns.

## I.

EXISTING RESEARCH ON THE RELATIONSHIP BETWEEN PROSTITUTION  
AND SEX TRAFFICKING

The view that prostitution is inherently harmful is not new,<sup>36</sup> and it has been relatively influential with respect to both the academic and the public debate, notwithstanding some sharp criticism.<sup>37</sup> The same is true for the theory that it is necessary to curb prostitution in order to reduce the prevalence of sex trafficking and human trafficking.<sup>38</sup> However, the empirical evidence is scarce, and the link between prostitution and trafficking has been debated for decades without coming close to a consensus.<sup>39</sup> The United Nations International Convention for the Suppression of the Traffic in Persons, for instance, urged countries to reduce the prevalence of prostitution already in 1949.<sup>40</sup> Proponents of this abolitionist view have 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.”<sup>41</sup> Furthermore, it has also been claimed that “wherever prostitution is legalized, trafficking to sex industry marketplaces in that

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<sup>36</sup> See generally Ronald Weitzer, *The Social Construction of Sex Trafficking: Ideology and Institutionalization of a Moral Crusade*, 35 POL. SOC. 451 (2007) (citing advocates who believe that prostitution “is evil by definition.”). See also Ole Martin Moen, *Is prostitution harmful?*, 40 J. MEDICAL ETHICS 73 (2014) (“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.”).

<sup>37</sup> See, e.g., 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.”).

<sup>38</sup> See, e.g., McClelland, *supra* note X (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.”).

<sup>39</sup> See STEPHANIE A. LIMONCELLI, *THE POLITICS OF TRAFFICKING* (2010) (providing a comprehensive overview).

<sup>40</sup> See Outshoorn, *supra* note X.

<sup>41</sup> Hughes, *supra* note X, at 651.

region increases.”<sup>42</sup> The United States Department of State has written in its annual report on human trafficking that “[s]ex trafficking would not exist without the demand for commercial sex flourishing around the world.”<sup>43</sup> These views seem to suggest that sex trafficking can be or perhaps even should be combated by eradicating the market for all forms of prostitution.

Those who think that prostitution is inherently harmful and those who believe that sex trafficking is inevitable as long as the demand for commercial sex is high may end up favoring the same policy position: rejecting making prostitution legal (the latter group may do so because of the argument that permitting prostitution would fuel demand and increase trafficking). But others disagree with that view.<sup>44</sup> The Bureau of the Dutch National Rapporteur on Trafficking in Human Beings, for example, has suggested that legalizing prostitution benefits voluntary prostitutes who will replace trafficking victims in the market and, at the same time, make trafficked women less attractive to buyers, both of which would reduce sex trafficking.<sup>45</sup> Another study has found that the prostitution law reform introduced in New Zealand in 2003 that decriminalized prostitution helped improve the relationship between the police and individuals who sell sex.<sup>46</sup> This could potentially reduce the prevalence of trafficking as sellers are 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). Another argument in favor of making

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<sup>42</sup> Melissa Farley, *Theory Versus Reality: Commentary on Four Articles About Trafficking for Prostitution*, 32 WOMEN'S STUD. INT'L FORUM 313 (2009).

<sup>43</sup> U.S. DEP'T OF STATE, TRAFFICKING IN PERSONS REPORT 27 (2007).

<sup>44</sup> See, e.g., Weitzer, *supra* note X, 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.”)

<sup>45</sup> BUREAU OF THE DUTCH NATIONAL RAPPOURTEUR ON TRAFFICKING IN HUMAN BEINGS, TRAFFICKING IN HUMAN BEINGS (2005). See also Segrave, *supra* note X, at 253 (discussing the argument that “legalization of sex work, better working conditions and benefits and protection for sex workers will combat trafficking”).

<sup>46</sup> Lynzi Armstrong, *From Law Enforcement to Protection? Interactions between Sex Workers and Police in a Decriminalized Street-Based Sex Industry*, BRITISH J. CRIMINOLOGY (2016).

prostitution legal is that it is the criminalization that attracts traffickers in the first place. Kamala Kempadoo, for example, writes:

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.<sup>47</sup>

These two (opposing) views notwithstanding, one might still ask if prostitution laws really affect trafficking independently of trafficking laws. Does it truly matter whether prostitution is legal or illegal? The reason that prostitution laws may have an effect is that they can change the composition of the supply of sexual services—leading to either more or fewer individuals being coerced or deceived to sell sex—through effects on both the demand and the supply side in the market. It may be argued that the prostitution industry is an atypical industry and that it might therefore not operate like a normal market. It is true, for example, that prostitution is different from many other services, in part because of the attached stigma. In Germany, for instance, the government found in a 2007 evaluation that fewer than 8% of individuals who sell sex are “officially insured as a prostitute,” which suggests that many sellers have other jobs, but it may also perhaps indicate that there is stigma attached to the profession that makes sellers less likely to disclose that they engage in prostitution.<sup>48</sup> Even in New Zealand, where prostitution has been decriminalized, reports suggest that sellers are subject to “continuing

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<sup>47</sup> Kamala Kempadoo, *Introduction: Globalizing Sex Workers' Rights*, in *GLOBAL SEX WORKERS: RIGHTS, RESISTANCE, AND REDEFINITION* 17 (Kamala Kempadoo & Jo Doezema eds., 1998).

<sup>48</sup> GERMAN FEDERAL MINISTRY FOR FAMILY AFFAIRS, SENIOR CITIZENS, WOMEN AND YOUTH, *supra* note X, at 26.

stigma” and “harassment by the general public.”<sup>49</sup> But in some aspects the market for prostitution is similar to other service industries; buyers do, for instance, recommend and rate prostitution businesses as if they were hairdressers or restaurants.<sup>50</sup>

The argument that making prostitution permissible distorts the market in favor of the group of people who sell sexual services by choice rather than by force does imply that legalization or decriminalization would lower the prevalence of trafficking. It emphasizes the role of both supply-side effects and consumer preferences in order to combat trafficking.<sup>51</sup> However, 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 then, *ceteris paribus*, one may expect more victims being trafficked as a result.<sup>52</sup>

The empirical evidence on the relationship between prostitution laws and human trafficking is mixed. One study, for instance, employed a fixed effects zero-inflated, negative binomial gravity-type model, and the results suggested that regulation of commercial sex

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<sup>49</sup> GILLIAN M. ABEL ET AL., THE IMPACT OF THE PROSTITUTION REFORM ACT ON THE HEALTH AND SAFETY PRACTICES OF SEX WORKERS 11 (2007)

<sup>50</sup> There are, for example, websites where customers can rate the individuals with whom they purchase sex—a practice similar to leaving reviews of businesses 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 796 (2012) (“The review website of interest to this study was The Erotic Review.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.”).

<sup>51</sup> However, some would argue that there may be other important demand-side effects of legalization that are unrelated to both supply and 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.”).

<sup>52</sup> *See, e.g.*, Cho et al., *supra* note X.

services does not affect the pattern of trafficking flows.<sup>53</sup> In other words, the causal relationship between prostitution and trafficking appeared to be insignificant, neither positive, nor negative. Another study used a global sample of countries and found initially, too, that prostitution laws have no effect on trafficking flows between pairs of countries.<sup>54</sup> However, when instrumental variables—as part of the same study—were used to estimate the causal impact, it was instead found that banning prostitution has a positive impact on the prevalence of trafficking.<sup>55</sup>

In sharp contrast, an analysis of European countries found that legalizing prostitution is positively related to human trafficking.<sup>56</sup> These results are consistent with a separate, global study, which similarly found that, on average, countries where prostitution is legal have a higher prevalence of human trafficking than countries where prostitution is illegal.<sup>57</sup> The findings also confirm an analysis of prostitution laws that have suggested that stricter prostitution laws are associated with lower human trafficking flows.<sup>58</sup>

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<sup>53</sup> Diego Hernandez & Alexandra Rudolph, *Modern Day Slavery: What Drives Human-Trafficking in Europe?*, 38 EUR. J. POL. ECONOMY 118 (2011).

<sup>54</sup> Randall Akee et al., *Transnational Trafficking, Law Enforcement and Victim Protection: A Middleman's Perspective*, IZA DISCUSSION PAPERS (2010).

<sup>55</sup> *Id.* This result supports the line of reasoning proposed by many non-abolitionists. See *supra* note X.

<sup>56</sup> Jakobsson & Kotsadam, *supra* note X, at 102 (“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.”).

<sup>57</sup> Cho et al., *supra*, note X, at 75 (“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)).

<sup>58</sup> ANDREA DI NICOLA ET AL., STUDY ON NATIONAL LEGISLATION ON PROSTITUTION (2005).



## II. THEORY

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

To explore the theory of the relationship between total prostitution and the subset of prostitution that constitutes sex trafficking, this Article will start by considering a country with a single market for prostitution.<sup>59</sup> Although the potential impact of pimping and brothel-owning on the prevalence of sex trafficking (which could be either positive or negative) is an intriguing question, these two factors are not considered as independent variables in this study in order to limit the scope of the analysis. For this reason, it is therefore assumed that the economic agents in this market fall into one of only four categories: 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 that it is illegal both to sell and to buy sex; that human trafficking is illegal; that purchasing sex with victims of trafficking is illegal regardless of any changes to the prostitution laws<sup>60</sup>; that some proportion of sellers or buyers are deterred from being active in the market when selling or buying sex, respectively, is illegal; that law enforcement agencies are actively

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<sup>59</sup> This approach is inspired in part by the steps outlined in Cho et al., *supra* note X.

<sup>60</sup> Assuming that it is always illegal to pay for sex with trafficking victims makes it easier to predict consumer behavior under a legal prostitution regime, and it helps to isolate effects that prostitution laws have on trafficking prevalence independently 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.

trying to enforce both prostitution and trafficking laws<sup>61</sup>; and that the resources devoted to combating prostitution and trafficking are independent of each other such that increasing (decreasing) the resources devoted to combating one will not decrease (increase) the resources devoted to combating the other.

Let us also take as given that this market for prostitution is similar to a competitive market in some aspects, but different in others. The market structure will resemble perfect competition in that “firms” (e.g. traffickers and individuals who sell sex) are price-takers hold small market shares, in contrast to a monopoly or an oligopoly. The market will be slightly similar to, but still different from, perfect competition in the sense that sellers provide services with some, but limited, variation in type and quality, and that there is relatively high freedom of entry and exit, except for the clear barrier to entry that prostitution, at least initially, is illegal. In addition, the market structure will starkly differ from that of perfect competition when it comes to complete information; it shall instead be presumed that buyers have limited information about the service that is being provided.<sup>62</sup> For simplicity’s sake, it is further assumed that each seller, whether voluntary or trafficked, always supplies the same quantity of sexual services both across entity and time. Importantly, this implies that any change in supply will affect only the extensive

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<sup>61</sup> 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.

<sup>62</sup> The important implication that follows is 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 the existing evidence. *See, e.g.*, Scott R. Peppet, *Prostitution 3.0?*, 98 IOWA L. REV. 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.”).

margin and not the intensive margin.<sup>63</sup> To make the analysis even simpler, it is also presumed that traffickers do not benefit from a regime where it is legal to sell sex<sup>64</sup>, and that the reservation price of voluntary sellers is equal to the reservation price of traffickers.<sup>65</sup>

As in markets for other illegal products and services, such as markets for illegal drugs today or alcohol historically under the prohibition, banning prostitution in this market will not eliminate transactions of sexual services from taking place. As long as demand exists,<sup>66</sup> the barriers to entry are comparatively low, and the price that buyers are willing to pay exceeds or at least equals the marginal cost, some individuals are expected to supply the market for economic reasons, 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 expected based on basic economic theory.

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<sup>63</sup> 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 of course is interesting, but is even harder to measure).

<sup>64</sup> 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 in reality or not is an empirical question worthy to pursue in future research.

<sup>65</sup> 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. Similarly, if the reservation price of voluntary sellers is lower, than 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 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>.

<sup>66</sup> There are many determinants of the demand for paid sex, but one of the most important factors is probably a discrepancy between demand and supply in the parallel “market” of non-commercialized sex. If there is an undersupply of non-commercialized sex, for example due to skewed sex ratios, there will likely be demand for paid sex. See, e.g., Lena Edlund & Evelyn Korn, *A Theory of Prostitution*, 110 J. POL. ECONOMY 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.” (citation omitted)); Nishith Prakash et al., *Girls for Sale? Child Sex Ratio and Girls Trafficking in India* (IZA Discussion Paper No. 8293, 2014), [http://www.iza.org/en/webcontent/publications/papers/viewAbstract?dp\\_id=8293](http://www.iza.org/en/webcontent/publications/papers/viewAbstract?dp_id=8293).

In this particular hypothetical market for purchased sex, making it legal both to sell and buy sex would be expected to increase the prevalence of prostitution.<sup>67</sup> On both the demand and the supply side, some of those who were previously discouraged from being active in the market due to the risk of facing legal sanctions will now enter the market, increasing both demand and supply of commercial sexual services. The equilibrium quantity of sexual services and individuals who sell sex will be higher compared with when it was illegal to sell and buy sex. With respect to the subset of sellers of sex that comprises sex trafficking, however, it is not possible yet, based on the assumptions made so far, to tell whether the prevalence has increased or decreased as a result of making prostitution legal. As previously mentioned, the existing literature (both theoretical and empirical) provides evidence in both directions. Hence, to provide an answer to that question specifically for this hypothetical market, more assumptions need to be made.

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<sup>67</sup> In practice, there are important differences between *legalization* and *decriminalization*. See Weitzer, *supra* note X, 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, 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." (references and 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 investigating whether decriminalization and legalization, respectively, have different effects on the prevalence of sex trafficking is a compelling topic for future research.

One approach would be to assume that the proportion of people who sell sex that are victims of trafficking, under all circumstances, remains constant over time.<sup>68</sup> 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 we were to assume that the share of sellers who are trafficking victims always is constant, then an increase in supply will lead to an *increase in the absolute number of sex trafficking victims*, i.e. an increase in the prevalence of sex trafficking, according to what some previous studies identify as a “scale effect.”<sup>69</sup>

However, the assumption that the proportion of trafficking victims remains constant when prostitution laws change does not necessarily hold in reality, and one might argue that it seems highly implausible. First, there are customers who only buy sex when it is legal and do not participate in the market for prostitution when prostitution is banned because they do not think that the risk of criminal charges is worth taking. One may presume that these buyers are more risk-averse in general than those who buy sex irrespective of whether prostitution is illegal. If this is true, then the customers who only buy when prostitution is legal may, on average,

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<sup>68</sup> 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 market for prostitution. A smaller market for prostitution therefore implies lower levels of sex trafficking.

<sup>69</sup> See primarily Cho et al., *supra* note X. 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 total number of 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.

significantly differ from other buyers in other important aspects, too.<sup>70</sup> If the predominant reason that they do not participate in the market if prostitution is illegal indeed is due to risk aversion and to avoid criminal sanctions, then it seems reasonable to assume that they also would want to avoid being arrested for buying trafficking victims, which in this market, as previously stated, is assumed to still be illegal even if prostitution is made permissible.<sup>71</sup> 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 the new buyers to a greater extent demand sex specifically provided by individuals who do so voluntarily.<sup>72</sup> 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. However, this result clearly depends 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.<sup>73</sup> As previously mentioned, in the hypothetical market considered in this Article, it is assumed that consumers do not have

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<sup>70</sup> The general hypothesis that buyers may have different characteristics and motivations for purchasing sex is supported by empirical research. *See, e.g.,* Weitzer, *supra* note X, at 452 (“Customers vary in their background characteristics, motivation, and behavior, and they buy sex for different reasons.”).

<sup>71</sup> 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.

<sup>72</sup> 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.

<sup>73</sup> 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.

complete information, which means that the ability to differentiate between victims and non-victims is limited. Sex buyers may, in other words, be unaware that they are paying to have sex with victims, and they may therefore end up doing so even if they are risk-averse and would 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 not stay constant if prostitution is made legal is that the buyers who are already participating in the market may switch from purchasing sex with victims of trafficking to non-trafficked sellers in order to avoid criminal sanctions (since buying consensual sex then will be legal).<sup>74</sup> This could then produce a form of a substitution effect that crowds out trafficking victims from the market and thereby *reduces the prevalence of sex trafficking*, as a result of making prostitution legal. As alluded to in the previous subpart, this form of substitution effect differs from the kind of substitution effect that other studies employ.<sup>75</sup>

Whether this substitution effect that is driven by a change in consumer preferences exists is naturally dependent on two key assumptions similar to those that were mentioned before: that

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<sup>74</sup> Buyers who pay to have sex with victims of sex trafficking appear 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.

Setting aside the simple theoretical market at hand for a brief moment, this form of substitution could realistically happen because making prostitution legal may shift law enforcement resources from enforcing a ban on prostitution to root out sex trafficking specifically. If the police is using limited resources to enforce laws against prostitution by arresting sellers and buyers, the risk for an individual buyer to get arrested will be significantly lower than the risk of arrest for an individual customer that pays to have sex with trafficking victims if those same resources were shifted to be dedicated to only arrest buyers who pay to have sex with trafficking victims. This is because the latter population is much smaller—although they may, perhaps, be harder to catch.

<sup>75</sup> See *supra* note X. What some other papers term *substitution effect* resembles to a greater extent what this Article deems a *replacement effect*.

current sex buyers are both able to and are in practice going to differentiate between trafficking victims and those who sell sex out of free will. Again, because of the assumption that consumers do not have complete information, they may not be able to identify trafficking victims, and the substitution effect will therefore likely be limited in magnitude.

A third reason why the proportion of trafficking victims may not stay constant if prostitution is made legal is that there may be a form of replacement effect that is driven by “firm” (e.g. seller) behavior. If prostitution is made legal, potential sellers who did not previously want to participate in the market while selling sex was illegal may now enter the market.<sup>76</sup> These new sellers could then potentially replace existing sellers in the market, including victims of trafficking, by better reaching customers or by offering preferred services, since it is assumed that there is some variation in type and quality of sexual services provided in this market.<sup>77</sup> This replacement effect would have an impact on sex trafficking prevalence similar to the substitution effect in that it crowds out trafficking victims from the market and thereby *reduces the prevalence of sex trafficking*, as a result of making prostitution legal. The difference is that the substitution effect applies to buyers who are already active in the market (leading to a shift in consumer preferences), whereas the replacement effect applies to new sellers entering the market (caused by firm behavior).

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<sup>76</sup> The entry of new sellers makes sense since it is assumed that the 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) whereas other sellers will enter simply as a response to the removal of a major barrier to entry.

<sup>77</sup> 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 were to be permitted, managers and pimps may make efforts to avoid selling trafficking victims since they—like the buyers—presumably would want to avoid criminal sanctions and then 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 is expected to further crowd out trafficking victims of the market, thereby contributing to the reduction of the prevalence of sex trafficking.



*B. Simple Theoretical Framework to Analyze Prostitution Legislation and Scale, Substitution, and Replacement Effects*

Now, perhaps there is actually some truth to each of the four scenarios that have been considered. This Article will consequently make the following four additional assumptions based on the discussed scenarios. First, even if the share of trafficking victims among all individuals who sell sex does not remain constant (for any combination of the three reasons discussed), there could still be a scale effect on sex trafficking caused by making prostitution legal. Clearly, a decrease in the share of trafficking victims and an increase in the absolute number of trafficking victims need not to be mutually exclusive. Second, it seems reasonable to further take as given that potential buyers that enter the market after prostitution is permitted indeed are more risk-averse, but nonetheless may end up purchasing sex from trafficking victims because they suffer from incomplete information. As will be discussed in greater detail, this assumption will limit the scale effect, but only to a smaller extent. Third, it is presumed that making prostitution legal would lead to a substitution effect, whereby consumers already active in the market will change their preferences and demand sex from voluntary sellers. This effect will directly counteract the scale effect (since the substitution effect reduces the trafficking prevalence), although the magnitude of either effect is yet unclear. Fourth and lastly, it is assumed that if prostitution is made legal then the substitution effect will be complemented by a replacement effect as potential sellers who sell sex voluntarily will enter the market now that the risk of getting punished for selling sex is absent. The replacement effect, so far also of unknown magnitude, will similarly reduce the prevalence of sex trafficking.

Based on the very simple framework that has been developed thus far, we can thus conclude that making only the act of buying sex legal would lead to a scale effect that increases

the prevalence of sex trafficking (since some of the new buyers will purchase sex from trafficking victims) and a substitution effect that reduces the prevalence of 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 only the act of selling sex legal leads to a replacement effect that reduces the prevalence of 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.<sup>78</sup>

Now, let us make one assumption about the relative magnitudes of the effects. This this Article will take as 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.<sup>79</sup> Since both the substitution effect and the replacement effect reduce the prevalence of sex trafficking (i.e. their mathematical signs point in the same direction), it also follows that that the substitution effect on trafficking prevalence that is driven

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<sup>78</sup> Even though the removal a major barrier to entry may increase competition and lead to better services offered—which could attract more consumers to enter the market—this should not increase the prevalence of 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 therefore be an example of when the size of the market for prostitution grows without affecting trafficking prevalence. *See supra* note X.

<sup>79</sup> There are clearly reasons why this assumption may not hold, but there are also reasons why it might be a realistic one to make. As discussed in *supra* note X, 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 it would be expected that the ability of new voluntary sellers to crowd out trafficking victims through replacement also is quite limited.

Beyond the theoretical market considered here, there are additional reasons why in reality 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 that this may be true. *See, e.g.,* Cho et al., *supra* note X; DI NICOLA ET AL., *supra* note X; Jakobsson & Kotsadam, *supra* note X.

by changing consumer preferences is smaller than the scale effect that follows changes in aggregate demand.<sup>80</sup> In other words, on the demand side, scale is more important in determining the prevalence of sex trafficking than is substitution.

This rudimentary framework allows us to analyze and concoct hypotheses about the impact of prostitution law reforms on sex trafficking. This Article will consider prostitution legislation based on a combination of four different regimes: illegal to sell sex; legal to sell sex; illegal to buy sex; and legal to buy sex.<sup>81</sup> The predicted impact of the scale, substitution, and replacement effects on sex trafficking for each of the four components of prostitution laws is shown in Table 1. Let  $\Delta t^c$  denote the scale effect, where  $\Delta t$  represents a change in trafficking prevalence and  $\Delta t^c$  specifically represents a change in trafficking prevalence caused by the scale effect. Similarly, let  $\Delta t^u$  denote the substitution effect and let  $\Delta t^r$  denote the replacement effect. As the table shows, it is assumed that there is no scale effect on trafficking caused by changes to prostitution laws specifically aimed at sellers.

Each coefficient represents some value that is the expected causal impact on the total number of victims of sex trafficking. 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.

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<sup>80</sup> 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.

<sup>81</sup> As will subsequently be discussed, a combination of either of the first two components and either of the latter two produces four distinct sets of prostitution laws that have all been implemented and tested in various European jurisdictions.

However, because it is assumed in this Article that the substitution effect will be dominated by the scale effect, it implies that  $|\Delta t^c| > |-\Delta t^u|$ . The net effect of making it permissible to buy sex will therefore be, *ceteris paribus*, an increase in the prevalence of sex trafficking. By contrast, it therefore follows that making it illegal to buy sex in a jurisdiction where it is presently legal will, everything else held constant, produce a decrease in trafficking prevalence 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	* * *	* * *	$-\Delta t^c$	$\Delta t^c$
Substitution effect	* * *	* * *	$\Delta t^u$	$-\Delta t^u$
Replacement effect	$\Delta t^r$	$-\Delta t^r$	* * *	* * *

$\Delta t^c$  denotes the scale effect,  $\Delta t^u$  denotes the substitution effect, and  $\Delta t^r$  denotes the replacement effect. The signs reflect the expected impact on the prevalence of sex trafficking, which explains why the substitution effect and replacement effect have negative signs since they reduce sex trafficking prevalence.

Changes in prostitution laws with respect to sellers lead to the following net results, with only one effect at work: making it illegal to sell sex should increase sex trafficking whereas making it permissible to sell sex is expected to 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 the market because of coercion, fraud, or force would not. The sellers who exit the market are likely to cause an undersupply of commercial sexual services—a void that may be filled by additional trafficking victims, and thereby leading to a negative substitution effect that has a positive effect (positive here meaning an increase, not a desirable outcome) on trafficking prevalence.

Using the assumption that the scale effect dominates the combined magnitude of the substitution effect and the replacement effect, we can simplify the results in Table 1 in the following way. This assumption implies that  $|\Delta t^c| > (|\Delta t^u| + |\Delta t^f|)$ , and so then it follows that  $(|\Delta t^c| - |\Delta t^u|) > |\Delta t^f|$ , which means that it can be deduced 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 trafficking prevalence than making it illegal to sell sex, as the table indicates as well.

**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
<b>Net impact of scale, substitution, and replacement effects combined</b>	Smaller increase	Smaller decrease	Larger decrease	Larger increase

Based on the theoretical results displayed in Table 2, as will be demonstrated, the four possible types of prostitution laws<sup>82</sup> will 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 adding the effects together. Making it illegal to buy sex is predicted to reduce the prevalence of sex trafficking, but the magnitude of the net effect depends on whether it is illegal or legal to sell sex. Similarly, making legal the act of purchasing sex is expected to overall increase sex trafficking, but the net effect does again depend on whether it is

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<sup>82</sup> 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.

illegal or legal to sell sex. These four different types of prostitution laws and their predicted effects on sex trafficking will be explored in greater depth in the following subpart.

### *C. Four Types of Prostitution Laws*

As previously mentioned, a previous study found that the scale effect dominates the substitution effect,<sup>83</sup> which suggests that legalizing or decriminalizing prostitution is associated with higher prevalence of trafficking. The theoretical framework presented in this Article has in part been reconciled with these particular empirical results by assuming that the scale effect dominates the substitution and replacement effects combined. However, by recognizing that some countries have made it illegal to sell sex, but legal to buy sex whereas others have made it legal to sell sex, but illegal to buy sex, it is apparent that the binary classification according to which prostitution laws have been categorized by many of the previous studies is insufficient.

In many of the existing studies, the standard seems to be to quantify prostitution laws as a binary variable where, for instance, 1 means that prostitution is legal whereas 0 indicates that prostitution is illegal.<sup>84</sup> As the previous subpart partly demonstrated, this is too crude; both in theory and practice there are at an absolute minimum at least four types of prostitution laws. Prostitution laws in this Article are consequently divided into the following four categories: 1)

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<sup>83</sup> Although, as noted, the cited study uses a version of the substitution effect that is different from the one employed in this Article. *See supra* note X.

<sup>84</sup> *See, e.g.,* Cho et al. *supra* note X, at 81 (“Dummy indicating whether or not a country allows prostitution. 1 being legal and 0 otherwise.”) and Akee et al., *supra* note X, at 20 (“...we include whether host and source countries have laws banning prostitution ...”). There are, however, some notable exceptions, including Jakobsson & Kotsadam, *supra* note X, at 104 (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.”).

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.<sup>85</sup>

The distinction that Cho et al. made in their study between the scale effect and their version of a substitution effect is important. Equally of great value is the authors' notion that these two effects have opposing effects on the prevalence of sex trafficking. Their paper also serves to highlight the complexity of the relationship between prostitution laws and sex trafficking, and that it is not obvious what prostitution policy is optimal for the purpose of combating trafficking, let alone for maximizing other desirable outcomes.<sup>86</sup> But Cho et al. used an empirical strategy that did not capture the variation among prostitution laws in an optimal way. They contended with respect to their thoughts on a substitution effect, for example, that:

[s]ex businesses wishing to take advantage of their 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.<sup>87</sup>

But this is substitution effect among sex businesses only exists if “legality of prostitution” and “newly achieved legal status” mean that it is legal *both* to buy sex and to sell sex. The authors' methodological approach is therefore to some extent blunt, because it assumes

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<sup>85</sup> While it is beyond the scope of the Article, it should be noted that there are many more, additional ways, of categorizing prostitution laws. The framework developed in this Article analyzes only two dimensions of prostitution: buying and selling. But there are others, including brothel-owning and pimping, and whether prostitution is legalized or decriminalized.

<sup>86</sup> And this paper by no means attempts to settle that contentious policy debate.

<sup>87</sup> Cho et al., *supra* note X, at 69.

that prostitution can only be either legal or illegal; that prostitution laws are to be coded as a binary variable.<sup>88</sup>

The fact is that some European countries have criminalized selling sex, but not purchasing sex (like Montenegro, Serbia, and also Romania prior to its latest prostitution law reform<sup>89</sup>) whereas other nations have criminalized purchasing sex, but not selling sex (such as Sweden, Norway, and Iceland). In Romania under the criminalization of selling sex, one would thus not expect to be able to observe the authors' version of the substitution effect that they discussed in the aforementioned quote since there was no "achieved legal status" for sellers. Based both on the model considered by Cho et al. and the simple framework developed in this Article, the prevalence of sex trafficking would therefore be expected to be higher under such a regime than in a country where both selling and buying are legal. Similarly, the effect of penalizing sex buyers in Sweden without criminalizing sellers should lead to lower rates of trafficking, everything else held constant, than in countries where both selling and buying are illegal.

If a country where both selling and buying sex is legal (such as the Netherlands)<sup>90</sup> decides to penalize both practices (which brings its laws in line with most of the United States, except for a few counties in Nevada), the theoretical framework presented here would predict an increase in sex trafficking due to negative substitution (existing buyers change their preferences from non-trafficked sellers to trafficking victims) and negative replacement (non-trafficked sellers exit the market and get replaced by trafficking victims), but a stronger decrease in sex

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<sup>88</sup> See *supra* note X.

<sup>89</sup> This statement reflects their prostitution laws during the time period considered in this Article, 2008-2010. Romania, for example, has since then decriminalized selling sex.

<sup>90</sup> See *generally* DAALDER, *supra* note X.



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<sup>91</sup>). However, if the country in question only makes illegal buying sex and allows selling sex to remain legal (which is in accordance with the prostitution laws also of Canada), the framework predicts an even greater decrease in sex trafficking due to a negative scale effect (although it is inevitably offset to some extent by a negative substitution effect), and no negative replacement effect (since voluntary sellers are not expected to leave the market and be replaced by trafficking victims).

Based on the very basic theoretical framework laid out in this Article, it is therefore clear that the distinction between prostitution laws similar to those in the United States on the one hand and those akin to the Swedish laws on the other may potentially be important in determining the prevalence of sex trafficking. As previously mentioned, however, many existing studies have unfortunately coded prostitution laws as binary to indicate that prostitution either is legal or illegal. In practice, this means that countries like Romania prior to its reform, Montenegro, Serbia, Iceland, Norway, and Sweden either have to be omitted from the analysis or else lumped together with other countries that have significantly different prostitution laws. Clearly neither option is ideal. In this Article, a new variable to quantify all four types of prostitution laws is therefore developed to capture the variation in legislation on a four-point scale rather than on a binary scale.<sup>92</sup>

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<sup>91</sup> It should be noted that also non-trafficked sellers will be put out of business as buyers exit the market, which is why a comprehensive approach to prostitution laws should consider effects beyond sex trafficking. There may be significant costs associated with combating trafficking, including deprivation of livelihood for voluntary sellers of sexual services, which includes not only voluntary sellers who are forced to exit the market due to substantial reductions of demand, but also possibly significant reductions in income due to falling price levels for sellers who remain active in the market.

<sup>92</sup> As previously alluded to, it would clearly be possible to create a scale with even more points to capture an even greater variation in prostitution laws. However, using a four-point scale rather than a binary variable seems as an appropriate step for this Article to avoid making the analysis too complex. Exploring the feasibility of using a

If the theory that this Article has proposed is correct, one would expect to see the highest prevalence in countries where it is illegal to sell sex and legal to buy sex, whereas the lowest trafficking prevalence would be in countries where it is legal to sell sex and illegal to buy sex. The full results of what this Article’s theoretical framework predicts<sup>93</sup> regarding the four types of prostitution laws and sex trafficking prevalence are shown in Table 3.

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

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

Using the summarized results in Table 3, a new measure of prostitution laws—called the Prostitution Law Index—is developed in this Article. It is based on the extent to which each of the four types of prostitution laws are expected to reduce or increase the prevalence of sex trafficking. As later subparts will discuss in greater detail, on a four-point scale, criminalizing

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variable that allows for greater variance in prostitution laws is a topic that future research should pursue, and ideally subsequent empirical research on prostitution laws will incrementally increase the number of discrete points on a scale that quantifies those laws.

<sup>93</sup> It goes without saying that these predictions are just that—predictions. They are dependent on the host of assumptions that has previously been discussed in this Article, some that may seem implausible and others that are extremely difficult to empirically verify. If any of the assumptions are found to be incorrect these predictions would likely change drastically.

sellers only will be coded as 1; criminalizing neither sellers nor buyers will be coded as 2; criminalizing both sellers and buyers will be coded as 3; and criminalizing buyers only will be coded as 4, where a higher score indicates a greater predicted reduction in sex trafficking.

#### *D. The Demand Model*

Sweden has pioneered the efforts to focus on eradicating prostitution specifically by reducing the demand for purchased sex.<sup>94</sup> In 1999, the country implemented the Demand Model (legislation that targets sex buyers by making it illegal to buy sex, but still allowing people to sell sex).<sup>95</sup> Before the law came into effect, brothels were illegal, but prostitution was permissible.<sup>96</sup> The new law therefore effectively criminalized the act of buying sex while still permitting selling sex.

One may ask if there is any difference between the Swedish law and a law that bans prostitution altogether: if it is illegal to purchase sex, would that not have the same or at least a very similar effect as a law that penalizes also the act of selling sex? Advocates of the Swedish law may argue that the answer is no for the following three reasons. First, those who sell sex do not risk being arrested for selling sex<sup>97</sup> when it is legal to do so, which means that those who are

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<sup>94</sup> See, e.g., Rubin, *supra* note X (“A few countries, now including France, penalize customers. Sweden was a pioneer, enacting such a law in 1999.”).

<sup>95</sup> See Waltman, *supra* note X, at 135 (“The Swedish law criminalizes only those who buy prostituted persons, not those being bought.”).

<sup>96</sup> See *id.* (“Before this law was passed, neither the purchase of sex from adults nor being prostituted was criminalized, but procuring sex was.” (footnote omitted)).

<sup>97</sup> It should be noted though that sellers still may be arrested for activities related to prostitution, such as procuring sex. Indeed, this has been a repeated point of criticism of the law, since it means that sellers, who oftentimes belong to vulnerable populations, are arrested even if it is not explicitly for the act of selling sex. 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

voluntary sellers may keep some trafficking victims out of the market (through absence of negative replacement). Second, law enforcement resources could focus on arresting sex buyers instead of sellers, which may drive down the demand for purchase sex to a greater extent (through an increased negative scale effect). Third, the legal system may transmit a normative signal that what is impermissible is purchasing sex, not selling sex, which could, at least in theory, shift the stigma from sellers to buyers and could thereby reduce demand for purchased sex even further.

The Demand Model has in recent years gained traction and was adopted by Norway in 2008 and Iceland in 2009, and more recently also in Northern Ireland, Canada, and France. In February 2014, a 343-to-139 majority in the European Parliament voted in favor of a resolution that urged member states of the European Union to adopt legislation based on the Demand Model. The sponsor of the resolution, Member of the European Parliament Mary Honeyball, said of the outcome:

Rather than blanket legalization, [the European] 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.<sup>98</sup>

The question, however, is: does the Demand Model have its intended effect? It is supposed to tackle prostitution and thereby also reduce the prevalence of sex trafficking. In theory, it may sound compelling. However, whether the model actually works in practice—and

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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.”)

<sup>98</sup> 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>.

in particular whether it has the potential to combat sex trafficking or not—is an empirical question that has so far not been conclusively answered. This Article makes an attempt at providing some (very) tentative quasiexperimental evidence that may help shed some light on a potential causal effect of the Model.

As a final note of this Part, it is worth reiterating that while the subject of inquiry of this Article is sex trafficking, there are many other issues related to prostitution that are important. Indeed, as previously mentioned, some advocates of the Demand Model are keen to use prostitution laws to eliminate prostitution because they think that it is inherently harmful. Proponents of legalization and decriminalization point to other factors, such as violence against sellers, individual autonomy of sellers, health risks, and opportunities to make a livelihood. This Article intentionally addresses none of these questions and leaves them aside for future studies to pursue.

It would therefore be highly beneficial if subsequent research on prostitution laws addressed what effect different types of legislation may have on violent crime against sellers, sexual assault in general, and the welfare of those who sell sex voluntarily. There are many considerations that policymakers must take into account when they design prostitution laws. Sex trafficking, while important, is only one factor. While this Article finds that certain types of prostitution laws are associated with lower levels of sex trafficking, they may or may not be effective at achieving other desirable outcomes, and could even be counterproductive. As mentioned, however, that question, is beyond the scope of this Article and should be explored in future studies.

### III. DATA

#### *A. An Attempt at Collecting Harmonized Data on Sex Trafficking and Human Trafficking*

In January 2012, the European Commission put forward a Communication on European Crime Statistics, mandating harmonized data collection methodologies to produce statistics on sex trafficking and human trafficking among the European Union's member states.<sup>99</sup> The first report, which included the initial wave of data, was released in 2013.<sup>100</sup> The dataset covers the years 2008-2010 and provides estimates of the number of trafficking victims in a country in a given year, albeit with a significant number of missing observations.<sup>101</sup> The principal source of information on victims is the police. However, data from NGOs, immigration authorities, and border guards has been included as well. All data on trafficking in this Article is extracted from this new European Union dataset.<sup>102</sup>

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<sup>99</sup> THE EUROPEAN COMMISSION, *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](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.”).

<sup>100</sup> EUROSTAT, *TRAFFICKING IN HUMAN BEINGS: 2013 EDITION* (2013).

<sup>101</sup> *Id.* at 21, 24 (trafficking is defined 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.” Sex trafficking “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.”).

<sup>102</sup> See the website at [http://ec.europa.eu/dgs/home-affairs/what-we-do/policies/organized-crime-and-human-trafficking/statistics/index\\_en.htm](http://ec.europa.eu/dgs/home-affairs/what-we-do/policies/organized-crime-and-human-trafficking/statistics/index_en.htm) (containing more information about the European Commission's data on sex and human trafficking).

The data includes both identified and presumed victims of sex trafficking<sup>103</sup> and identified and presumed victims of other types of human trafficking, such as trafficking for the purpose of labor or organ exploitation.<sup>104</sup> In this Article, both the link between prostitution laws and sex trafficking as well as the relationship between prostitution laws and all human trafficking are explored. The focus is on sex trafficking, but human trafficking is also included as a second outcome variable, primarily for the following two reasons.

First, data on sex trafficking is notoriously hard to collect<sup>105</sup> and to the extent that sex trafficking and human trafficking are correlated the latter could act as a proxy for the former.<sup>106</sup> This is also for the practical reason that in some instances for certain countries, there are estimates of the prevalence of human trafficking in general, but no specific numbers on sex trafficking, which happens to be true for some countries included in the trafficking dataset used in this Article.<sup>107</sup> It therefore makes sense to run separate analyses of human trafficking data, too, to increase the sample size with the hope of making the analysis more reliable (or less unreliable). If the relationship between prostitution laws and the two types of trafficking are both significant, the results are likely to be more robust.

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<sup>103</sup> See EUROSTAT, *supra* note X, at 22 (an identified victim is defined 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.” A presumed victim is defined 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.”).

<sup>104</sup> Although sex trafficking is a subset of human trafficking in this dataset, a victim can be a subject to several types 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 (from which duplicates have been removed).

<sup>105</sup> See, e.g., Frank Laczko & Marco A. Gramegna, *Developing Better Indicators of Human Trafficking*, 10 BROWN J. WORLD AFF. (2003).

<sup>106</sup> This does not seem like an unreasonable proposition since sex trafficking constitutes a major subset of all human trafficking.

<sup>107</sup> 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 also at human trafficking will therefore increase the statistical power of the analysis.

Second, one might worry that there is a negative spillover effect<sup>108</sup> from curbing sex trafficking. For instance, if the cost-benefit ratio changes due to efforts to combat sex trafficking such that it becomes more beneficial for traffickers to sell labor compared with sexual services, one may expect to see a decrease in sex trafficking and a corresponding increase in labor trafficking.<sup>109</sup> Since sex trafficking is a subset of human trafficking, it is possible that there would then be merely a change in the composition of human trafficking, rather than an overall reduction. If the results are significant and the statistical relationships are consistent in direction, for both sex trafficking and human trafficking as outcome variables, one would not have to worry to the same extent about the risk of a negative spillover effect from legislative efforts to combat sex trafficking.

There are several caveats about the dataset that are necessary to mention. One problem that cannot be mitigated, for example, and that should be kept in mind as the results are interpreted is that more reported cases of trafficking does not necessarily have to mean an increase in the actual number of victims; this may be a result of an improvement in the reporting by non-governmental organizations or in police efforts to identify trafficking victims. The fact that some countries in the dataset have very low levels of trafficking may thus reflect poor data quality rather than an absence of trafficking. However, as long as the data quality is not statistically related to a country's type of prostitution laws, the sign and the 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, it is very difficult, if at all possible, to test whether the quality of the data is related to prostitution laws. It may for example

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<sup>108</sup> Negative in this regard means undesirable and harmful.

<sup>109</sup> This hypothesis implies that sex traffickers would exit the market for prostitution and instead enter the market for trafficked labor.



be the case that countries that make legal both selling and buying sex make greater efforts than other countries to report cases of trafficking, which in that case would explain why some countries that have legalized or decriminalized prostitution see relatively high levels of trafficking prevalence.

While the dataset has its limitations, it is still a promising, albeit very small, step toward solving perhaps the biggest challenge of doing research on sex trafficking; to find reliable data that is comparable across time and space. Because trafficking is an illegal and clandestine activity, many of the victims are part of a “hidden population” that is difficult to quantify and study.<sup>110</sup> The true number of trafficking victims is not known and the estimates that exist<sup>111</sup> need to be interpreted with great caution.<sup>112</sup>

Data on trafficking is often subcategorized into three groups: trafficking routes, country reports, and characteristics of victims.<sup>113</sup> Country reports, if conducted well, can mitigate the issue of comparing data across time, but if the data is not collected in a standardized way in each country, it is still hard to conduct a robust cross-section analysis.

One alternative dataset is the Global Report on Trafficking in Persons.<sup>114</sup> While data is available for over 160 countries, the dataset is limited because the dependent variable is ordinal and constitutes a six-point scale that measures human trafficking inflows. The new European

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<sup>110</sup> 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* (Frank Laczko & Elzbieta Gozdzia ed., 2005).

<sup>111</sup> See, e.g., PATRICK BELSER ET AL., *ILO MINIMUM ESTIMATE OF FORCED LABOUR IN THE WORLD* (2005).

<sup>112</sup> See, e.g., Weitzer, *supra* note X, 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”).

<sup>113</sup> See Kristiina Kangaspunta, *Mapping the Inhuman Trade: Preliminary Findings of the Database on Trafficking in Human Beings*, 3 *F. ON CRIME AND SOC’Y* (2003).

<sup>114</sup> UNITED NATIONS OFFICE ON DRUGS AND CRIME (UNODC), *GLOBAL REPORT ON TRAFFICKING IN PERSONS* (2009).

Union dataset on trafficking has the advantage of measuring the actual quantity of trafficking in persons, which allows for greater variation over time. It further has the benefit of measuring both sex trafficking and human trafficking. With two different dependent variables, this Article can analyze potential spillover effects.<sup>115</sup> In addition, it is also possible to use human trafficking as a proxy for sex trafficking in order to make the analysis more robust. Since some countries thus far only report data on human trafficking overall, using human trafficking data will increase the sample size and the total number of observations.

Restricting the analysis to European Union data only may be perceived as a limitation of this Article, but that is not necessarily the case. Because the data on sex trafficking is already suffering from lack of reliability, it may be more appropriate to restrict analysis of sex trafficking to regions where countries are more similar in terms of law, economics, politics, history, and culture. This is true in particular for the European Union since the Union has a common budget, legislative body, laws, courts, and now also, to some extent, more similar data-collection methods with respect to sex trafficking and human trafficking.

### *B. The Prostitution Law Index (PLI)*

This subpart presents a simple approach to quantifying prostitution laws based on their expected impact on the prevalence of sex trafficking, building on the theoretical framework developed in earlier subparts of the Article. As previously discussed, the prevailing standard in some existing studies seems to be to analyze whether prostitution is legal or not. In many cases, the main independent variable is a binary variable where “1” implies legal (or criminalized)

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<sup>115</sup> Perhaps reducing the prevalence of sex trafficking increases other types of human trafficking as solicitors of trafficked prostitutes may, for example, supply trafficking victims for labor instead.

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, can end up being coded identically as a country such as Croatia, where it is illegal both to sell sex and buy sex. Furthermore, according to this methodological approach, Serbia and Germany may both be coded as “0” in spite of the fact that Germans can both buy and sell sex whereas it is legal to buy sex in Serbia but illegal to sell.

The binary approach to prostitution laws is limited because it ignores the fact that there are at the very least four categories of prostitution laws. In an attempt to allow for a greater variation in prostitution laws, this Article therefore proposes quantifying prostitution laws on a four-point scale rather than on a two-point scale. What is proposed here is an index that captures how well different types of prostitution laws are predicted, based on the many assumptions made in this Article, to reduce the prevalence of sex trafficking. Since there are four types of prostitution laws in the framework presented in this Article, the index will score prostitution laws from 1 to 4. The suggested quantification is displayed in Table 4. The Prostitution Law Index (PLI) proposed in the Article has been manually coded based on information on prostitution laws in the United States Department of State’s Human Rights Reports.<sup>116</sup>

**Table 4: The Prostitution Law Index (PLI)**

<b>Prostitution Law Index score</b>	<b>Prostitution law category</b>
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

<sup>116</sup> See <http://www.state.gov/j/drl/rls/hrrpt/index.htm> (providing access to the State Department’s human rights reports).

Since the basic theoretical framework that the Article has proposed suggests that a scale effect will increase sex trafficking whereas a substitution effect and a replacement effect will reduce trafficking, it is reasonable that laws that promote a substitution effect or a replacement effect are assigned higher scores whereas those that promote a scale effect receive a lower score. Laws that promote replacement but discourage scale (and inevitably substitution, too), such as Sweden's and Norway's, therefore receive a score of 4, whereas those in countries like Croatia, which discourage scale but also substitution and replacement, receive a score of 3. Laws in Germany, the Netherlands, and other countries that through permitting both selling and buying sex promote scale, substitution, and replacement are assigned a score of 2, and the score of prostitution laws in countries such as Serbia and Romania<sup>117</sup> (prior to reforming its prostitution laws) that only penalize sellers—and thereby discourages substitution and replacement while promoting scale—are coded as 1. These results are all based on the theory laid out in previous subparts, and they are entirely consistent with Tables 1, 2, and 3.

Because the Prostitution Law Index is an ordinal variable rather than a binary variable, the variance in the main independent variable will be higher than in many of the previous studies on prostitution laws and trafficking. This will potentially allow for a more robust analysis, assuming that the theory proposed in this Article generally is correct and that a higher Prostitution Law Index score, in reality, is negatively associated with prevalence of sex trafficking.

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<sup>117</sup> Many readers will be familiar with the type of prostitution laws that correspond to scores 2, 3, and 4, but may not 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 previously illegal and the police regularly fined sellers of sex for loitering and disturbing the peace. However, at the same time, no laws existed to punish clients of prostitution, unless they purchased sex from a minor and the client admitted to being aware of this prior to the sex act.

Some caveats seem appropriate to emphasize. First, this index only captures the *de jure* prostitution laws of a given country, not the *de facto* nature of enforcement of those laws. If a country has criminalized both buying and selling sex, for example, but in reality arrests primarily sellers, which we suspect to be the case in the United States<sup>118</sup>, then that country's prostitution laws will be coded as a 3 in the index, while its laws, if they instead had been coded based on enforcement, perhaps should have been assigned a score of 1.

Second, while using a four-point scale to capture the variation in prostitution laws certainly is an improvement compared with those previous studies that only use a binary scale, there are clearly many more types of prostitution laws, for example regarding pimping and brothel-owning that might be worth to account for in future research. It could also be worthwhile in subsequent studies to look at 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 particular impact on the prevalence of sex trafficking.

## IV.

### METHOD

#### *A. Cross-Section Analysis with Time Fixed Effects*

This Article employs two basic types of regression models: one based on cross-section regression analysis with time fixed effects and another one based on Difference-in-Differences

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<sup>118</sup> See *supra* note X.

estimators. The following two regression models are used for the cross-section analysis, with the only difference being the dependent variable:

$$\begin{aligned}
 \text{Sextrafficking}_{it} = & \\
 & \alpha + \beta_1 \text{Prostitutionlawindexscore}_{it} + \beta_2 \text{Democracy}_{it} + \beta_3 \text{Ruleoflaw}_{it} + \\
 & \beta_4 \text{Population}_{it} + \beta_5 \text{Populationdensity}_{it} + \beta_6 \text{Urbanization}_{it} + \beta_7 \text{Immigration}_{it} + \\
 & \beta_8 \text{Foreigners}_{it} + \beta_9 \text{Tourism}_{it} + \beta_{10} \text{PPP}_{it} + \beta_{11} \text{Unemployment}_{it} + \beta_{12} \text{Povertyrisk}_{it} + \\
 & \beta_{13} \text{Imports}_{it} + \beta_{14} \text{Year}_t + \varepsilon_{it}
 \end{aligned} \tag{1}$$

and

$$\begin{aligned}
 \text{Humantrafficking}_{it} = & \alpha + \beta_1 \text{Prostitutionlawindexscore}_{it} + \beta_2 \text{Democracy}_{it} + \\
 & \beta_3 \text{Ruleoflaw}_{it} + \beta_4 \text{Population}_{it} + \beta_5 \text{Populationdensity}_{it} + \beta_6 \text{Urbanization}_{it} + \\
 & \beta_7 \text{Immigration}_{it} + \beta_8 \text{Foreigners}_{it} + \beta_9 \text{Tourism}_{it} + \beta_{10} \text{PPP}_{it} + \beta_{11} \text{Unemployment}_{it} + \\
 & \beta_{12} \text{Povertyrisk}_{it} + \beta_{13} \text{Imports}_{it} + \beta_{14} \text{Year}_t + \varepsilon_{it}
 \end{aligned} \tag{2}$$

where *Sextrafficking* represents the identified and presumed number of trafficking victims in country *i* in year *t*, and *Prostitutionlawindexscore* is the four-point scale variable that is the main independent variable. *Democracy* comprise 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 the immigration flows, *Foreigners* control for the stock of foreign-born citizens, *Tourism* is the number of tourists per

capita, *PPP* measures income per capita based on purchasing power standards. *Unemployment* is the annual average unemployment rate, *Povertyrisk* is the share of people living at the risk of falling below the poverty threshold, *Imports* is imports per capita, and *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.<sup>119</sup> Because the new European Union dataset provides data from 2008 through 2010, it gives the opportunity to attain some very tentative estimates of the causal impact of implementing the Demand Model in Norway. Using a quasi-experimental method, the causal effect can be estimated by regarding the prostitution law reform in Norway as an intervention and use comparable countries as a comparison group. A common analytical framework to estimate the effect of the implementation of a policy is the so-called Difference-in-Differences model.

The validity of a Difference-in-Differences model depends on a crucial assumption that is sometimes called the parallel trends assumption. This assumption takes as given that the observed time trend in the outcome variable for the intervention group before the policy was introduced would, counter-factually speaking, closely have followed that of the comparison group had it not been for the intervention. For the purposes of this Article, it is thus assumed that Norway—had it not introduced demand-targeting prostitution legislation—would have followed

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<sup>119</sup> See, e.g., Reuters, *Norway's closely watched prostitution ban works, study finds*, REUTERS.COM (Aug. 11, 2014), <http://www.reuters.com/article/us-norway-prostitution-idUSKBN0GB1BL20140811>.

the trends in trafficking observed in three other Nordic countries: Sweden, Denmark, and Finland.

The parallel trends assumption is at risk of being violated for two main reasons. First, the comparison group may not be similar enough to the intervention group.<sup>120</sup> Second, there may have been another type of intervention taking place during the same time period as the Demand Model was introduced that may be responsible for the estimated causal effect. In the context of the Article, one may therefore worry that Sweden, Denmark, and Finland are not sufficiently similar to Norway with respect to trends in trafficking prevalence. Another risk is that some other policy or event took place in Norway during the same time period as the prostitution law reform was implemented that actually affected the prevalence of trafficking, which would make us wrongly attribute the causal impact to the reform of prostitution laws.

The first threat to the validity of the Difference-in-Differences model can in theory partly be tested for by comparing time trends in the intervention and comparison countries before the reform was implemented. However, because the new European Union dataset only has one data point available prior to the prostitution law reform came into effect in Norway, this test is unfortunately not feasible in this case. Instead, an answer has to be found using intuition and other types of evidence. This is true also for the second risk, which is notoriously hard, if not impossible, to properly empirically test and rule out.

If one considers the context of a scientific experiment, Norway in this case comprises the “treatment group”; the Norwegian prostitution law reform is the “treatment” (the equivalent of a new drug in a clinical medical trial); and Sweden, Denmark, and Finland, three countries that did

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<sup>120</sup> By similar it is referred to *similar* time trends in the outcome variable, such as sex trafficking and human trafficking prevalence.



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 causal impact of the Norwegian reform and a tentative answer will be provided to the question of whether targeting demand for purchased sex according to the Demand Model reduces the prevalence of sex trafficking or not.

The following Difference-in-Differences regression models will be employed:

$$\begin{aligned} \text{Sextrafficking}_{it} = & \alpha + \beta_1 \text{Norwegianreform}_{it} + \beta_2 \text{Year}_{it} + \beta_3 \text{Interaction}_{it} + \\ & \beta_4 \text{Democracy}_{it} + \beta_5 \text{Ruleoflaw}_{it} + \beta_6 \text{Population}_{it} + \beta_7 \text{Populationdensity}_{it} + \\ & \beta_8 \text{Urbanization}_{it} + \beta_9 \text{Immigration}_{it} + \beta_{10} \text{Foreigners}_{it} + \beta_{11} \text{Tourism}_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

and

$$\begin{aligned} \text{Humantrafficking}_{it} = & \alpha + \beta_1 \text{Norwegianreform}_{it} + \beta_2 \text{Year}_{it} + \beta_3 \text{Interaction}_{it} + \\ & \beta_4 \text{Democracy}_{it} + \beta_5 \text{Ruleoflaw}_{it} + \beta_6 \text{Population}_{it} + \beta_7 \text{Populationdensity}_{it} + \\ & \beta_8 \text{Urbanization}_{it} + \beta_9 \text{Immigration}_{it} + \beta_{10} \text{Foreigners}_{it} + \beta_{11} \text{Tourism}_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

Estimation equations (3) and (4) are similar to (1) and (2). However, there are four differences. First, *Norwegianreform* is included to statistically assign Norway to the intervention group and the other three countries to the comparison group. Second, *Year* is recoded to a single binary variable that marks whether a given year is prior to the date that the new prostitution law in Norway went into effect. Third, *Interaction* is an interaction variable based on a multiplication of *Norwegianreform* and *Year*, which will be the main variable of interest that estimates the

causal impact of the Norwegian prostitution law reform. Fourth, all economic controls are excluded because they increase the value of  $R^2$  to 1.<sup>121</sup>

## V.

### RESULTS

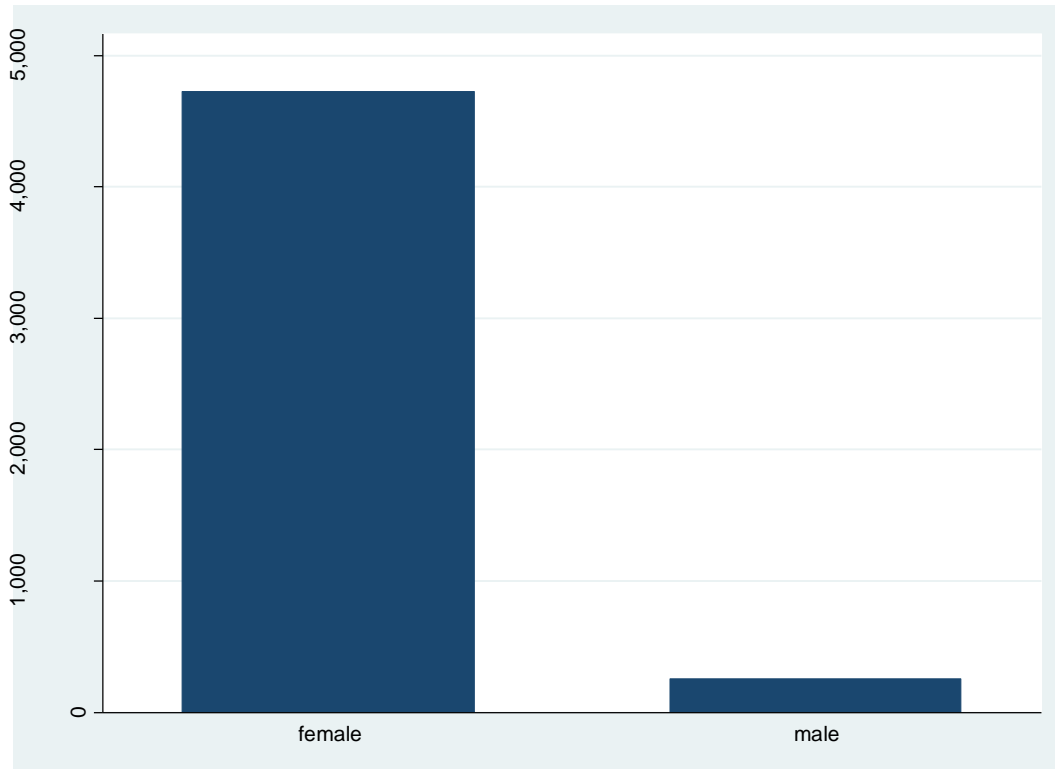
#### *A. Brief Overview of Sex Trafficking and Prostitution Laws*

Before proceeding to the analysis of the potential relationship between prostitution laws and the prevalence of sex trafficking, it is appropriate to first summarize the dataset that will be analyzed. Figure 1 shows the total number of sex trafficking victims in the European Union in 2010 by gender. As one might expect, the vast majority of sex trafficking victims were female whereas only a small fraction of them were male.

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<sup>121</sup> See *infra* Part X (discussing this issue in further depth in conjunction with the results from the regression analyses).

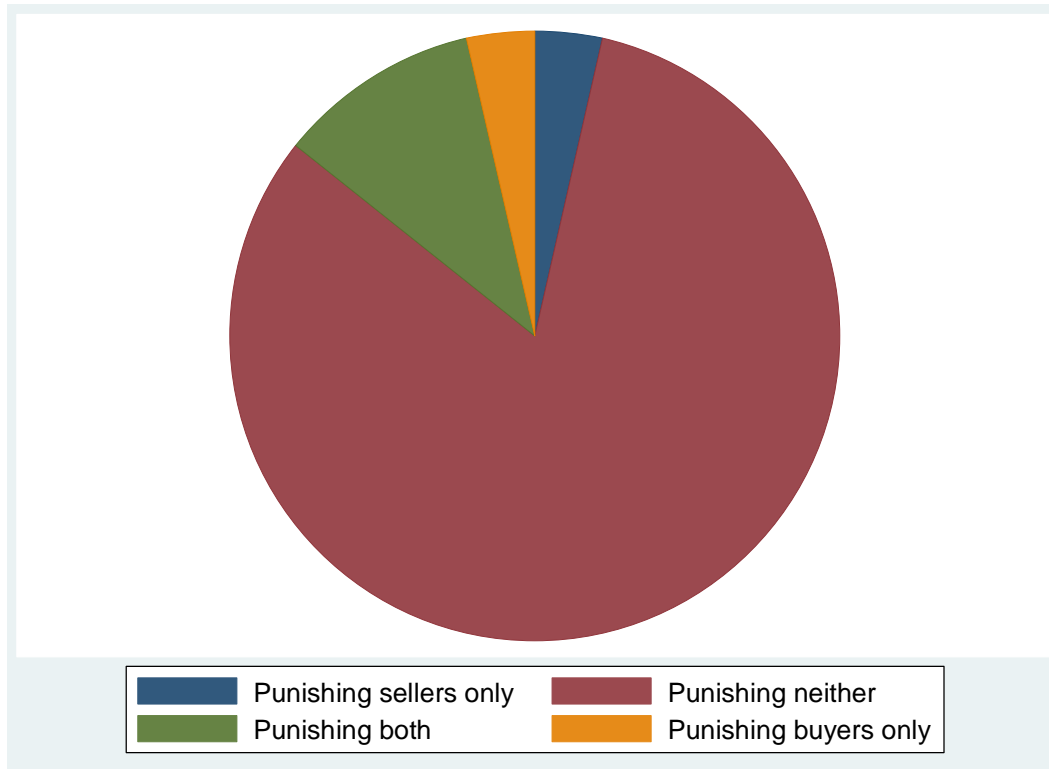
**Figure 1: Total number of sex trafficking victims in the European Union by gender, 2010**



In addition to the gender distribution of the main outcome variable, Figure 2 shows the distribution of the four categories of prostitution laws in 2010. Most countries criminalized neither sellers nor buyers, whereas only smaller fractions had each of the three other types of prostitution laws. One might argue that had the variance in the prostitution law index scores been greater, it would have allowed for a more robust analysis, but as is subsequently discussed in the next subpart, the relationships that are presented do hold in general for inclusion of additional non-EU countries. In the enlarged sample for year 2010, for example, Norway receives a score of 4, Montenegro 1, and Serbia 1, which increases the variance in the prostitution laws variable

without changing the mathematical sign of the key coefficients or making any statistically significant result insignificant.

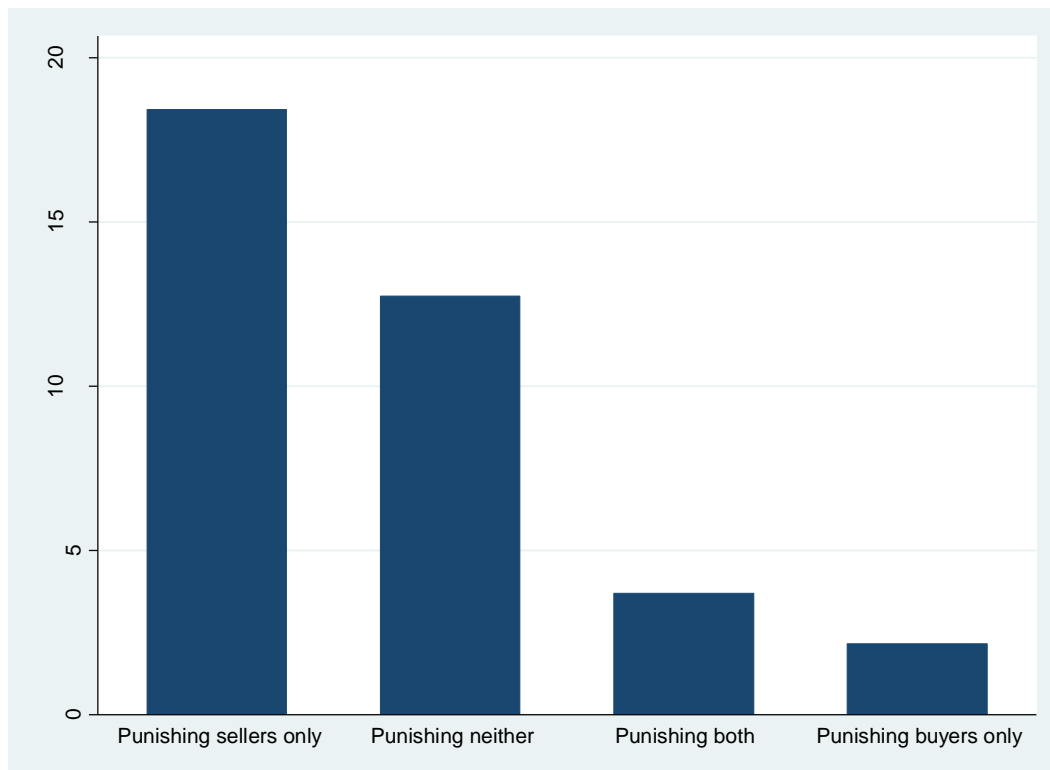
**Figure 2: Distribution of categories of prostitution laws among the European Union's member states, 2010**



After computing the number of identified and presumed sex trafficking victims per capita in each country for each year of the dataset, the countries may be divided into four categories based on their prostitution laws. The mean trafficking prevalence rate can then be computed to yield descriptive data on what the average trafficking prevalence is in countries under each of the four types of prostitution law regimes. If the theory spelled out in previous subparts is correct, then the average trafficking prevalence figures should be highest in the countries that punish only

sellers and lowest in those member states that punish only buyers. The descriptive results are shown in Figure 3.

**Figure 3: Average number of sex trafficking victims per million people in the European Union’s member states, sorted by category of prostitution laws**



The graph shows that, on average, European Union countries that only punish buyers and not sellers of sex have the fewest identified and presumed sex trafficking victims per million people. Countries that punish both sellers and buyers have a slightly higher prevalence of sex trafficking, but still substantially lower levels than countries that punish neither sellers nor buyers. Countries that only punish those who sell sex have, on average, the highest prevalence of sex trafficking. In other words, these descriptive results match quite well the theory that this

Article has developed (displayed in Table 3). However, since these results are merely descriptive they are only at best suggestive. The subsequent analyses digs deeper into the nature of this apparent relationship between sex trafficking and prostitution laws. Table 5 shows the variables and their definitions that are used, including the two dependent variables, the main independent variable, and a host of control variables.

**Table 5: Variables and definitions**

<b>Variable name</b>	<b>Description</b>
<i>Sex trafficking</i>	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.
<i>Human trafficking</i>	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.
<i>Prostitution Law Index score</i>	The main independent variable measuring on a four-point scale to what extent a country's prostitution laws are expected to reduce the prevalence of sex trafficking.
<i>Democracy</i>	An aggregate measure of democracy based on the "polity2" variable in the Polity IV dataset.
<i>Rule of law</i>	A measure of rule of law from the World Governance Indicators.
<i>Population</i>	Total population in millions of people.
<i>Population density</i>	Number of inhabitants per km <sup>2</sup> .
<i>Urbanization</i>	Degree of urbanization in percent.
<i>Immigration</i>	Size of annual international immigration flow per million people.
<i>Foreigners</i>	Number of foreign-born citizens per million people.
<i>Tourism</i>	Number of arrivals of residents/non-residents at tourist accommodation establishments per million people.
<i>PPP</i>	Indexed GDP per capita in purchasing power standards (PPS). European Union average = 100.
<i>Unemployment</i>	Annual average unemployment rate in percent.
<i>Poverty risk</i>	At-risk-of-poverty rate by national poverty threshold in percent.
<i>Imports</i>	The value of annual imports per million people.
<i>DD interaction variable</i>	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 presumed causal effect of the implementation of the Demand Model in Norway. As such, this is the main variable of interest.

The variables sex trafficking and human trafficking, as previously mentioned, are used in separate analyses with the purpose of improving the robustness of the analysis. Most important, the European Union has gathered more data on human trafficking than on sex trafficking, which

means that fewer observations are missing for the human trafficking variable. Table 6 shows summary statistics for the variables listed in Table 5.

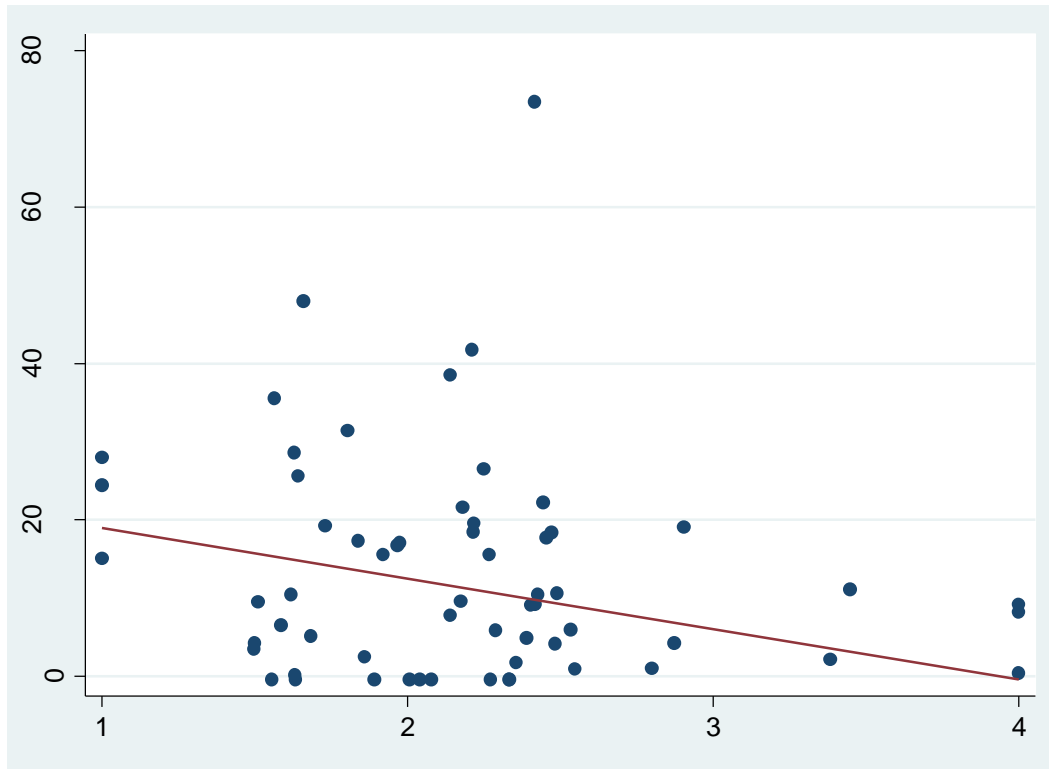
**Table 6: Summary statistics**

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

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

As previously discussed, the theoretical framework developed in this Article predicts a negative relationship between Prostitution Law Index scores and prevalence of sex trafficking. Figure 4 demonstrates the negative linear relationship between sex trafficking and Prostitution Law Index scores for all countries in the main sample (European Union member states only) between 2008 and 2010. It therefore includes multiple observations for individual countries. The figure shows that countries that have implemented laws that are expected to increase replacement, increase substitution, and/or decrease scale experienced, on average, lower prevalence of sex trafficking between 2008 and 2010—as predicted by the theoretical framework developed in Part X.

**Figure 4: The relationship between sex trafficking and category of prostitution laws**



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, spreading out 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 that is depicted in Figure 4. 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 6 sex trafficking victims fewer per million people. The effect is significant at a 0.01 level. The effect size is relatively large considering that the average number of sex trafficking victims per



million people is about 11, and that Prostitution Law Index scores—as opposed to typical binary variables used in the existing literature—are based on a four-point scale, allowing for greater increases and decreases. However, interpreting this finding should be done with extreme caution, both because gathering reliable and comparable data on trafficking is so exceptionally difficult and because this result only demonstrates correlation, not an actual causal effect.

**Table 7: Sex trafficking and prostitution laws**

	(1)	(2)	(3)	(4)	(5)
Prostitution Law Index score	-6.43*** (1.67)	-6.50*** (1.74)	-5.90** (2.63)	-6.49 (4.61)	-7.87 (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 <sup>2</sup>	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.

In Column (2), time fixed effects are added to control for unobservable characteristics that vary across time, but are constant across countries. Ideally, country fixed effects should also be used to capture unobservable characteristics that vary across countries, but are constant across time. However, due to the lack of variation in prostitution laws for a given country between 2008 and 2010, country fixed effects are excluded since such an analysis would not show meaningful results.<sup>122</sup>

<sup>122</sup> A separate analysis with country fixed effects added to the specification in Column (1) found that the negative relationship between human trafficking and Prostitution Law Index scores for European Union member states as

In Column (3), a set of political variables are added 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 are 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 bigger, but the relationship is still significant at the 0.05 level. In Column (4), control variables with geographic characteristics are added. Population, population density, and urbanization capture potential interactions between people and in countries where either is high, a relatively higher prevalence of sex trafficking might be more likely. 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.

Additionally, in Column (5), economic variables are also added to the regression specification. At an international level, poorer countries may experience lower sex trafficking prevalence because of poorer consumers and lower potential revenues for traffickers. But in the European Union, where most countries are rich, one may 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. A higher unemployment rate 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

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well as European Union member and candidate states held. But the corresponding results for sex trafficking and Prostitution Law Index scores, on the other hand, were insignificant.

victims from the market. The risk of poverty is included for similar reasons as PPP. Lastly, imports are controlled for as they 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 is in this column larger than in any of the other specifications, but so is the standard error, and so the primary relationship of interest, 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 as if targeting sex buyers through legislation perhaps may be associated with, on average, lower levels of sex trafficking, but that there is also much noise in the data, which complicates the analysis and makes a real effect harder to detect. 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.

A fact that cannot be emphasized enough is that the results must be interpreted with great caution, especially considering the lack of reliable data on trafficking and given the many caveats associated with the dataset that is used in this Article. But it still seems that categorizing prostitution laws based on the simple theoretical framework set up in this Article regarding expected effectiveness in tackling sex trafficking at least may not be unreasonable.<sup>123</sup>

Because it is so hard to find reliable data on sex trafficking, data on human trafficking can be used in additional tests as a form of robustness check. To the extent that sex trafficking

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<sup>123</sup> This conclusion is 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 (Prostitution Law Index score of 2), only punishing sellers (Prostitution Law Index score of 1) is associated with, on average, higher levels of sex trafficking, whereas punishing both sellers and buyers (Prostitution Law Index score of 3) is associated with, on average, lower levels of sex trafficking.

and human trafficking are correlated, the latter could serve as a proxy for the former, especially in this case where looking at human trafficking rather than sex trafficking allows for an analysis that encompasses many more data points, which will increase 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 more robust. Including data on human trafficking as a robustness check also has the benefit of checking for a potential spillover effect. If the sex trafficking prevalence is reduced and the cost-benefit ratio changes so that it becomes more beneficial to traffickers to sell, for example, labor rather than sexual services, one would expect to see a decrease in sex trafficking, but an increase in labor trafficking. This negative spillover effect could therefore cancel out any decrease in sex trafficking. Since sex trafficking is a component of human trafficking, there would thus merely be a shift in the composition of human trafficking, and no overall reduction in human trafficking. If the results are significant for both sex trafficking and human trafficking as outcome variables, however, 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.

Table 8 repeats the regression specifications in Table 7, with the only difference being that the outcome variable is changed from identified and presumed sex trafficking victims per million people to identified and presumed human trafficking victims per million people.<sup>124</sup>

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<sup>124</sup> 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.

**Table 8: All human trafficking and prostitution laws**

	(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 <sup>2</sup>	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.

All five regression specifications are statistically significant and 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 11 to 13 victims per million people in a given European Union member state. This suggests that if a negative spillover effect from targeting sex buyers exists, it may be relatively small, since the results in this Article imply that a higher Prostitution Law Index score, a lower prevalence of sex trafficking, and a lower prevalence of human trafficking all seem, at least to some extent, to be correlated.

The results in Columns (1) to (5) are significant either at the 0.05 level or the 0.01 level. These results are in line with the results from the sex trafficking analyses in Table 7, although they are notably more consistent in significance than the sex trafficking results. The higher statistical significance between human trafficking and Prostitution Law Index scores compared with sex trafficking and Prostitution Law Index scores could indicate three things.

First, it may simply be the case that the relationship between human trafficking and Prostitution Law Index scores is stronger than the relationship between sex trafficking and Prostitution Law Index scores. Second, it could be a result of less data being 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, which is one of the arguments that was raised in favor of including data on total human trafficking as a robustness check. Further research is needed to uncover which of these three reasons, if any, that can help explain the differences between sex trafficking and Prostitution Law Index scores on the one hand, and human trafficking and Prostitution Law Index scores on the other hand.

In conclusion of this subpart, it should be noted that the results in Table 7 and Table 8 generally hold for specifications that include larger samples, such as prevalence of sex trafficking and all human trafficking also in some of the European countries that are not presently member states of the European Union (e.g. Norway, Serbia, and Montenegro). However, as stated, these analyses only focus on correlation and not causation, which means that one cannot infer from these results alone that changes to prostitution laws causes the prevalence of sex trafficking to increase or decrease. The next subpart will therefore complement the results that have been presented thus far by providing some very tentative estimates of the causal impact of implementing the Demand Model in Norway in 2009.

*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 estimate what, if any, causal impact the implementation of the Demand Model may have had on the prevalence of sex trafficking, a Difference-in-Differences model is used in this Article. 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 the other three 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 causal impact of introducing the Demand Model in Norway. As in the preceding subpart, human trafficking is again used as a robustness check.

The results are displayed in Table 9. The same control variables are used as in 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 likely to be suitable. The number of tourists has to be omitted because of missing observations for all years in Norway. The economic controls have also been omitted because when they are included,  $R^2$  reaches 1.00, rendering the analysis less meaningful.<sup>125</sup>

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<sup>125</sup> The fact that  $R^2$  reaches 1.00 further underlines the fact that these countries are very similar, which, again, increases the feasibility of our methodological approach.

**Table 9: Estimates of the causal impact of introducing the Demand Model in Norway**

	<i>Sex trafficking</i> (1)	<i>Sex trafficking</i> (2)	<i>Sex trafficking</i> (3)	<i>Human trafficking</i> (4)	<i>Human trafficking</i> (5)	<i>Human trafficking</i> (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 <sup>2</sup>	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.

All of the results, except the specification in Column (5), are to some extent significant irrespective of control variables and of whether sex trafficking or human trafficking is the dependent variable—albeit at varying significance levels. The estimated point estimates range from about, on average, 4 to 8 fewer trafficking victims per million inhabitants per year in Norway compared with in the other Nordic countries that are used as a comparison group. This suggests, as long as the Difference-in-Differences model is feasible, that Norway saw a lower trafficking prevalence than it would have had in the counterfactual scenario that the Demand Model had never been introduced in Norway.

As discussed previously, the validity of these results is contingent on the parallel trends assumption. If the assumption does not hold (which future research will be able to look into further) then these results may be entirely incorrect. The European Union has not gathered sufficient data yet for time trends prior to the implementation of the reform in 2009 to be established. It is, however, possible to do a qualitative comparison of the countries. These four



Nordic countries share a common history and similar cultures. In global rankings—whether they rank democracy, rule of law, gender equality, or wealth—the Nordic countries usually end up very close to each other. Because there are so many similarities among these countries, it makes it harder to think of reasons why the countries would have trends in sex trafficking that are significantly different. This gives promise to using a Difference-in-Differences model with three other Nordic countries as comparison countries. However, one may still argue that Finland is substantially different from Norway, Sweden, and Denmark, both for historical and cultural reasons. Finland does, for example, not have a language similar to Norwegian, Swedish, or Danish. It should therefore be noted that the results in Table 9 were found to be statistically significant even when Finland was excluded from the analysis.

There are some reasons why the Difference-in-Differences estimators in Columns (1) to (6) may correctly identify a causal impact of the implementation of the Demand Model in Norway in 2009. However, the results should still be interpreted with great caution, and are better seen as inspiration for future research on this topic rather than as conclusive evidence on the causal effect of the Demand Model. Because the data is so limited over time, more reservations apply to these results than typical Difference-in-Differences analyses in the existing literature (on different topics) that are more robust than this one.

To the extent that the author of the Article is aware, this is the first attempt at evaluating the effect of the Norwegian prostitution law reform on sex trafficking by using quasi-experimental evidence. Further research is therefore needed to confirm or reject whether the results found in this Article are robust and hold up against increased scrutiny. For example, a risk that the Article cannot mitigate is that the apparent change in trafficking prevalence in Norway

compared with other Nordic countries was in fact caused by another variable than the reform, 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 will help shed light on this question.

Another issue, as previously mentioned, is that trafficking data is exceedingly hard to gather, and it is of course possible that the new dataset used in this Article is inaccurate and does not accurately reflect trafficking prevalence. Investigating to what extent this harmonized dataset is accurate is therefore also an important task for future research.<sup>126</sup>

## CONCLUSION

This Article has attempted to contribute to the existing body of literature on the relationship between sex trafficking and prostitution laws in three ways. First, a basic economic framework based on scale, substitution, and replacement effects was presented to support the analysis of the relationship between prostitution laws and sex trafficking. This framework was then used to construct a simple ordinal measure of prostitution laws—the Prostitution Law Index—comprising a four-point scale on which countries were ranked based on how well their prostitution laws were predicted, based on the theoretical framework and several key assumptions, to reduce the prevalence of sex trafficking.

Second, new European Union data was used to analyze the relationship between Prostitution Law Index scores and trafficking prevalence across European Union member states. The results suggested that, in general, there seems to be a negative relationship between

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<sup>126</sup> The European Union 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 similar analyses as those presented in this Article but with data that is more up-to-date and perhaps also more reliable.

Prostitution Law Index scores and sex trafficking prevalence or human trafficking prevalence. 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 potentially have a role to play in anti-trafficking efforts, but only if it is found in subsequent research that this statistical relationship is of a causal nature and that prostitution laws truly do affect the prevalence of trafficking.

Third, a Difference-in-Differences model was used to provide some tentative initial estimates of the potential causal effect of Norway's recent introduction of the Demand Model on the country's sex and human trafficking prevalence. Using Sweden, Denmark, and Finland as a comparison group, the very limited data provided some suggestive results indicating that the Norwegian prostitution law reform may possibly have reduced the prevalence of trafficking.

While the main findings mostly are significant, including in a couple of robustness tests, it is important to underline the fact that each and every result presented in this Article must be interpreted with great caution. The theoretical results are based on multiple assumptions that are hard to confirm or dispute due to lack of evidence, and they may therefore in the future turn out to be implausible or even completely incorrect. The empirical results suffer from questionable validity, which stems from the fact that essentially all data on trafficking, to some extent, is unreliable. In addition, the supposedly harmonized data-collection methods that the European Union is attempting to use are only in their test phase and are subject to major revisions. Moreover, the time period for which data is currently available is very limited and covers only three years, which further limits the empirical analysis of this Article.

Much more research is therefore needed to scrutinize the results presented in the Article and investigate to what extent they appear to be valid. Quantitative research using both similar and different methods to the ones employed in this Article will help confirm or reject both the potential statistical relationship between Prostitution Law Index scores and sex trafficking, and the possible causal effect that the Demand Model may have on sex trafficking prevalence. Future qualitative research could also contribute to the literature, in particular with respect to shedding some light on the validity of the parallel trends assumption made in the Difference-in-Differences analysis of the Norwegian prostitution law reform. If the parallel trends assumption does not hold, then this Article could not present any evidence to suggest that the Demand Model has reduced the prevalence of trafficking in Norway.

The statistical relationships presented in this Article are important to study because they suggest that reducing sex trafficking through prostitution law reforms, particularly by producing a positive replacement effect, a positive substitution effect, and a negative scale effect in the market for prostitution could be of significance. Should the results in this Article hold up against future scrutiny they would possibly have implications for policymaking, especially considering that only a small number of countries worldwide so far have adopted legislation that seeks to simultaneously increase the replacement effect and reduce the scale effect.

Although there are many caveats associated with all of the theoretical and empirical results presented in this Article, the theoretical framework that was developed and the methodological approaches that were used may still perhaps contribute to the much needed academic debate on new, creative ways to study different types of prostitution laws and the extent to which such laws may affect the prevalence of sex trafficking.