

Sonnabend, Hendrik

**Preprint**

## Good Intentions and Unintended Evil? Clients' Punishment in the Market for Sex Services with Voluntary and Involuntary Providers

*Suggested Citation:* Sonnabend, Hendrik (2015) : Good Intentions and Unintended Evil? Clients' Punishment in the Market for Sex Services with Voluntary and Involuntary Providers, ZBW - Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz-Informationszentrum Wirtschaft, Kiel und Hamburg

This Version is available at:

<https://hdl.handle.net/10419/110682>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# Good Intentions and Unintended Evil? Clients' Punishment in the Market for Sex Services with Voluntary and Involuntary Providers

Hendrik Sonnabend\*

June 2015

While there is no consensus concerning the legal and moral judgment towards prostitution, there is an overwhelming agreement on the need to fight sexual slavery. The paper shows the effect of clients' punishment in the market for commercial sex (the so called *neo-abolitionism* or *nordic prostitution regime*) as it concerns sexual slavery. As a result the theoretical analysis reveals that this effect is ambiguous and crucially depends on the size of the deterrence effect and on local properties of the market demand. Policy implications that arise are identified and discussed.

**Keywords:** Prostitution, Regulation, Forced Labor, Sexual Slavery

**JEL Classification:** I18, J3, L51, K42

---

\*University of Hagen, Department of Economics. *Email:* Hendrik.Sonnabend@Fernuni-Hagen.de

# 1 Introduction

Prostitution, i.e., commercial sex, is an important global economic sector and likewise intensively discussed in the public arena. The controversy becomes apparent in the large variety of legislation, ranging from no specific regulation at all to complete criminalization.<sup>1</sup> More specifically, there are four basic forms of regulation:

- *no regulation* (prostitution is treated like an “ordinary” occupation; this is the case, e.g., in New Zealand);
- *regulation* (prostitution is legal, but the market is restricted by special legal requirements; this is the case, e.g., in Germany, where individuals need a license to offer commercial sex);
- *abolitionism* (prostitution itself is legal but considered as “negative”, that is why third parties like brothels or pimps are criminalized; this is the case in the UK and France);
- *prohibitionism* (prostitution is illegal; this is the case, e.g., in most parts of the United States).<sup>2</sup>

The forces that push society towards specific forms of regulation are manifold as well. On the one hand, there is the position of feminist subgroups, religious groups and others, who consider prostitution as harmful occupation per se.<sup>3</sup> On the other hand, there is the position of sex workers’ rights activists.<sup>4</sup>

---

<sup>1</sup>McCarthy, Benoit, Jansson, and Kolar (2012) offer a survey about the legal situation across different countries.

<sup>2</sup>This typology goes back to Outshoorn (2004).

<sup>3</sup>DeRiviere (2006), e.g., describes to the lifelong negative effects of sex work on the individuals involved. Matthews (2014) points out different sources of coercion linked to prostitution and states that “the notion of consent for a significant number of women involved in prostitution becomes problematic” (p.11).

<sup>4</sup>Cf. Outshoorn (2005), Davidson (2006) and Jakobsson and Kotsadam (2013).

However, there is a global consensus concerning the proscription and prohibition of sexual slavery, which is slavery for the purpose of sexual exploitation.<sup>5</sup> Sexual slavery is closely linked to trafficking, which is defined by the *United Nations Convention against Transnational Organized Crime and the Protocols Thereto* 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. ...”  
(UN, 2004).

Despite this international stance against sexual slavery, the proper means of achieving this goal are not clear, especially when it comes to sex market regulations. The question arises whether there is a link between sexual exploitation and the prostitution regime; and if there is, in which direction? On the one hand, some argue that the legality of paid sex facilitates trafficking and sexual slavery because it increases the demand, lowers the slaveholders' costs and facilitates the matching process.<sup>6</sup> On the other hand, the activist network GAATW (*Global Alliance Against Traffic in Women*) argues in Ham (2011) that the incentive for victims and clients to cooperate with the police is much lower under prohibitionism. Moreover, when prostitution becomes an illicit act and thus less visible, the possibilities of control diminish (Scoular, 2010). In addition, Cho, Dreher,

---

<sup>5</sup>Davidson (2006) points out that there are definitional problems regarding slavery. I address this issue later in this paper.

<sup>6</sup>See, among others, Jakobsson and Kotsadam (2013) and Cho, Dreher, and Neumayer (2013).

and Neumayer (2013) emphasize that when consensual commercial sex is decriminalized, there might be a *substitution effect*, i.e., a shift from forced to legal prostitution.

In addition, the empirical research on this issue is ambiguous as well. For example, while Jakobsson and Kotsadam (2013) and Cho, Dreher, and Neumayer (2013) find that sexual slavery increases with the severity of the regime, the New Zealand government's report of the *Prostitution Reform Act 2003* (PLRC, 2008) contradicts this. Hernandez and Rudolph (2015) find no significant relationship at all.

This contribution wants to shed some light on how the legal situation of prostitution affects sexual slavery. The form of regulation at the center of the analysis is the *neo-abolitionism* or *nordic prostitution regime* (Skilbrei and Holmström, 2011). In this variation of abolitionism, it is illegal to purchase sexual services- in other words, it is the client who commits a crime, not the seller. Hence, the focus is clearly on the demand side of the sex market. The first country to adapt this new legislation was Sweden in 1999, followed by Norway and Iceland in 2009.<sup>7</sup>

The fact that there is a vivid discussion in France, Ireland and other countries to introduce a similar law shows the relevance of the question: is the criminalization of buying sexual services an appropriate instrument, when the goal is to reduce the quantity of forced prostitution?

This examination builds upon a formal economic model. In my setup, I assume the paid sex market to consist of two different types of suppliers providing one substitutable sex service. On the one hand, there are individuals who choose to offer “victimless” consensual sex for money. Although “sex work” is a controversial term when used in a normative sense, here it refers to the simple exchange of voluntary sex services for payment. On the other hand, there are victims of sexual slavery who are forced into prostitution. While

---

<sup>7</sup>See Kulick (2003) for a detailed discussion of the Swedish case.

a clear definition of slavery is not easy to find (see, e.g., Davidson (2006)), this paper follows Rogowski (2013, p.194) and refers to “the ownership of another human being and of all of his or her labor”. Furthermore, the model considers that the slaveholder decides on the market price and deploys individuals on the basis of the residual demand.

As a result, I found that when the purchase of sex is criminalized, the effect on forced prostitution strongly depends on the size of the deterrence effect and on local properties of market demand.

The remainder of this article is structured as follows. Section II gives a short review of the related (theoretical economic) literature. In section III, I develop a formal model of the market for paid sex with voluntary and involuntary providers and determine the impact of the *nordic prostitution regime*. The main results are derived. Section IV concludes with a discussion and some policy implications.

## 2 Related literature

Although empirical investigations are growing, theoretical economic literature on prostitution is, to my best knowledge, rather scarce. In a seminal contribution, Edlund and Korn (2002) explain the paradox of high compensation for low-skilled work by linking marriage and the labor market: since prostitution is assumed to block access to the marriage market, an individual will only pursue that occupation if the income is sufficiently high to compensate for this kind of opportunity costs. The paper was subject to intense discussion and has been empirically refuted, see e.g. Cameron (2002) or Arunachalam and Shah (2008). Other contributions focus on the role of stigma and reputation (Della Giusta, Di Tommaso, and Strøm, 2009; Della Giusta, 2010), intermediaries like procurers or brothel owners (Farmer and Horowitz, 2013) or migrants’ decision for or

against an occupation in the sex market, depending on the extent of relative deprivation and the expected choice of the peer group (Stark and Fan, 2011).

The paper most closely related to the issue here is Collins and Judge (2008). The authors restrict their analysis to the client's demand for sex services and found that the client will substitute licensed for unlicensed (that means more risky and socially less desired) sex services, when the relative price, risk or the time costs of the former diminishes. This might be seen as an argument for a more liberal form of legislation. In a further contribution, Collins and Judge (2010) focus on the spill-over effects of a harsher policing on the amount of prostitution in neighboring regions. Given the (strong) assumption that the price of paid sex remains constant, the demand will shift from the more policed to the less policed sector.

This article expands the existing literature by paying attention to sexual slavery. For instance, the model proposed in the next section is based on the idea that slavery grants the employer "much lower marginal labor costs at the price of a higher fixed cost, namely that of buying the slave and maintaining the whole apparatus of compulsion and control" (Rogowski, 2013, p.194). Some seminal contributions on slavery and forced labor exist (Bergstrom, 1971; Barzel, 1977; Lagerlöf, 2009; Acemoglu and Wolitzky, 2011; Dari-Mattiacci, 2013). Other papers that deal with slavery or forced labor are Rogers and Swinnerton (2008), who set up a model including exploitative child labor, and Wheaton, Schauer, and Galli (2010) as well as Akee, Bedi, Basu, and Chau (2014), who analyze certain features of the human trafficking business.

### **3 A formal model**

In this section, I set up the basic analytical framework, starting with the demand side of the market. Here, the client's net utility is given by

$$U_C = u_i - p - E, \tag{1}$$

where  $p$  is the price for a (standardized) sex service and its direct utility  $u_i$  varies across the population according to a (non-degenerate) distribution  $F(u)$  with continuous density  $f(u)$ . This allows for different moral sentiments like feelings of shame and guilt caused by a violation of social norms. The last term of (1) simply accounts for the expected value of being caught and punished. In the basic setting without regulation, the expected punishment is set to  $E = 0$ .<sup>8</sup>

Hence, the individual will demand prostitution services if

$$u_i \geq p + E, \tag{2}$$

which simply means that the benefit of buying has to outweigh its expected costs or, to put it in another way, that the expected net utility is nonnegative.

In the next step, condition (2) is used to derive total demand  $D$  in the sex market, when the population size is normalized to one:

$$D(p, E) := 1 - F(p + E). \tag{3}$$

Surely, demand decreases in monetary and (expected) legal costs of sexual service. The reduction of the client's demand in response to an increased risk of being punished is empirically proven, for instance by Kotsadam and Jakobsson (2014).

Next, I turn to the supply side of the market. An important feature of the model is that the supply is dualistic, i.e., voluntary and involuntary sex services are treated as substitutes.

---

<sup>8</sup>See Cameron (2002, Chapter 10) for a more detailed form of the utility function.



To begin with, the net utility of a free prostitute is given by

$$U_P = p - \theta_i, \tag{4}$$

where  $\theta_i$ , the disutility of prostitution, varies across the population according to a (non-degenerate) distribution  $G(\theta)$  with continuous density  $g(\theta)$ . The reservation wage of sex workers is  $w$ .<sup>9</sup> Hence, the participation condition of an individual to offer sex for money of his or her<sup>10</sup> own free will is given by

$$p - \theta_i \geq w. \tag{5}$$

Thus, the supply of free sex sellers is simply

$$S_F := G(p - w). \tag{6}$$

As mentioned before, there is a second type of supply besides the consensual sex work, that is, individuals forced to prostitute themselves (“*sexual slavery*”). In line with Rogowski (2013), I assume fixed costs  $C$  for the slaveholder, such as trafficking and the formation of a control system, but diminishing variable costs: supervising one slave is extremely costly, but supervising the next ten individuals does not cause notable additional costs when the appropriate structure has been installed already. Moreover, since organized illegal activities generally requires some kind of “enforcers”, it is plausible to assume that the principal has the resources to repel potential rivals.<sup>11</sup> Thus, with enor-

---

<sup>9</sup>The uniform wage is assumed for reasons of simplification. It might, however, reflect the empirical observation that prostitution is “the most lucrative side income available to these low-skilled women” (Edin and Lein (1997), cited in Edlund and Korn (2002, p.188)).

<sup>10</sup>There is no need to be specific here. However, one should note that the vast majority of human beings involved in prostitution (Cameron and Collins (2003), UN (2013)) and sexual slavery (UN, 2009) are female.

<sup>11</sup>Indeed, there is a strong link between sex slavery and organized crime, see e.g. Jakobsson and Kot-sadam (2013).

mous economies of scale and barriers to entry, there are strong economic reasons to expect the slave owner to act as a natural (local) monopolist at least within a certain area.<sup>12</sup> I therefore assume the sex market to consist of one dominant price leader (the slaveholder) and a competitive fringe of small price-taking suppliers (the free prostitutes).<sup>13</sup>

Hence, the slave-owner's expected profit is simply determined by

$$\Pi = pn - C, \tag{7}$$

where  $n$  denotes the number of deployed sexual slaves. Since the slaveholder clearly has an incentive to choose  $n$  as high as possible, for a given price  $p$  the number of sexual slaves simply meets the residual demand  $D - S_F$ :

$$\begin{aligned} n &= D - S_F \\ &= 1 - F(p + E) - G(p - w). \end{aligned} \tag{8}$$

Figure 1 illustrates the market for sexual services. As (6) indicates that the supply curve has a positive slope and that the first free prostitute (with  $\theta_i = 0$ ) enters the market at  $p = w$ , this is where the spread between total and residual demand originates. Furthermore, without sexual slavery, total demand is completely served by the fringe at price  $\bar{p}$  defined by  $D(\bar{p}) = S_F(\bar{p})$ .

In addition, Figure 1 illustrates the slave owner's maximization problem, i.e., to set the price which guarantees the highest possible revenue. Hence, as (7) implies hyperbolic

---

<sup>12</sup>See that Skaperdas (2001, p.186) argues in the same manner regarding the provision of "protection" by organized crime groups.

<sup>13</sup>See, for instance, Lipczynski, Wilson, and Goddard (2005, p.142f).

isoprofit curves for different levels of  $\Pi$ , the slaveholder's optimal price  $p^*$  is found where the highest attainable isoprofit curve  $\Pi^*$  is tangent to the residual demand.

Without further restrictions, there are four potential scenarios that depend on the parameters  $C$  and  $w$  and on the properties of  $F(u)$  and  $G(\theta)$ :

- (i) For  $p^*n < C$  and  $1 - F(w + E) > 0$ , there is no sexual slavery in the market and the demand is completely served by voluntary providers at price  $\bar{p}$ ;
- (ii) For  $p^*n \geq C$  and  $p^* < w$ , no one is willing to offer sexual services voluntarily and it is just sexual slavery that exists in the market;
- (iii) For  $p^*n \geq C$  and  $p^* \geq w$ , the supply side consists of free and forced providers;
- (iv) For  $p^*n < C$  and  $1 - F(w + E) = 0$ , no prostitution exists at all.

Since the problem at hand is to determine the effect of clients' punishment in the market for paid sex with voluntary and involuntary providers, I assume condition (iii) to hold and turn to the formal analysis next.

Using (7) and (8), the first-order condition of (7) with respect to  $p$  is

$$\Omega := p \cdot (-F'(p + E) - G'(p - w)) + n = 0. \quad (9)$$

Given that the second-order condition is satisfied, the optimal price  $p^*(E, w)$  is found where its marginal gain equals its marginal costs, namely a lower (global) demand and a higher supply of competing free prostitutes. Thus, the optimal amount of sex slaves is determined by

$$n^* = 1 - F(p^*(E, w) + E) - G(p^*(E, w) - w), \quad (10)$$

where  $p^*(E, w)$  is given by (9). Then, for  $p^*$  and  $n^*$  as defined above, the total number of prostitutes inside the market is  $N = n^* + S_F(p^*)$ , see Figure 1.

### A ban is imposed

What happens when the buying of sexual services is penalized, i.e.,  $E > 0$ ? Does the desired decline of the amount of forced prostitution, given by (10), take place?

**Proposition 1.** *The deterrence effect c.p. decreases total demand and therefore causes a reduction of free and forced prostitution in the first place. However, if the slaveholder's ex post incentive to lower the price in order to recover clients is sufficiently strong, the law ends up in an unintended increase in sexual slavery. Since free individuals exit and enslaved individuals enter the market, a "revolving door" effect occurs.*

*Proof.* From (10) it follows that

$$\begin{aligned} \frac{dn^*}{dE} &= -\frac{\partial p^*}{\partial E} [F'(p^* + E) + G'(p^* - w)] - F'(p^* + E) \\ &\stackrel{(9)}{=} -\frac{\partial p^*}{\partial E} \frac{n^*}{p} - F'(p^* + E), \end{aligned} \quad (11)$$

so a necessary condition for  $\frac{dn^*}{dE} > 0$  is  $\frac{\partial p^*}{\partial E} < 0$ .

Using (9) and the implicit function theorem, one obtains

$$\text{sign} \left[ \frac{\partial p^*}{\partial E} \right] = \text{sign} \left[ \frac{\partial \Omega}{\partial E} \right] = \text{sign} [-pF''(p + E) - F'(p + E)], \quad (12)$$

given the second-order condition is satisfied.<sup>14</sup>

Equation (12) implies that  $p^*$  decreases in  $E$  if the deterrence effect is sufficiently high (second term) or if lowering the price in terms of “customer recovery” is more profitable to the slaveholder after the law than before (first term); this is the case when  $F$  is convex, at least around  $p^*$ . Thus, the necessary condition for  $\frac{dn^*}{dE} > 0$  can be specified as

$$F'(p + E) > -pF''(p + E) := \underline{\phi}. \quad (13)$$

Given (13) is fulfilled, it follows from (11) that the new law extends slavery *iff*

$$F'(p^* + E) < -\frac{\partial p^*}{\partial E} [F'(p^* + E) + G'(p^* - w)] := \bar{\phi}, \quad (14)$$

which is the sufficient condition for  $\frac{dn^*}{dE} > 0$ .

Consequently, for  $F'' < 0$ , forced prostitution increases in  $E$  if  $\underline{\phi} < F' < \bar{\phi}$ .

Moreover, expression (6) gives the fringe’s reaction to the new law as

$$\frac{\partial G(p^* - w)}{\partial E} = G'(p^* - w) \frac{\partial p^*}{\partial E}. \quad (15)$$

Hence, if we assume (13) and (14) to hold, the extent of voluntary prostitution clearly diminishes and a sort of a “revolving door effect” occurs.<sup>15</sup>

□

---

<sup>14</sup>Note that the second-order condition  $\frac{\partial^2 \Omega}{\partial p^2}$  includes the first and second derivative of  $G(p - w)$ , which means that the magnitude of  $\frac{dn^*}{dE}$  hinges on the supply of free prostitutes, too.

<sup>15</sup>This result may be associated with the substitution effect mentioned in Cho, Dreher, and Neumayer (2013).

The analysis shows that the criminalization of buying sexual services increases sexual slavery under certain conditions. First, the equilibrium market price has to decrease in  $E$ . This is the case if the deterrence effect is sufficient strong or if the cumulative distribution function  $F(u)$  is (locally) convex around  $p^*$ , so that the slaveholder's incentive to lower the price in order to recover clients increases.<sup>16</sup> As a consequence, free prostitutes leave the market. Second, the magnitude of this effect must outweigh the lost demand due to the deterrence effect, as it is clear from (3) that the law reduces the total quantity of prostitution. Figure 2 illustrates the case that clients' punishment leads to more sexual slavery.

### Some more observations on the voluntary supply of sexual services

While proposition 1 already established the ambiguity of clients' punishment in the market for sexual services, some more conclusions can be drawn from the present market structure.

For instance, consider the voluntary prostitutes' **reservation wage**  $w$ . As (6) directly shows, free individuals will leave the market when  $w$  increases. In addition, given (10), the marginal effect of an increase in  $w$  on the optimal number of sexual slaves is determined by

$$\frac{\partial n^*}{\partial w} = -\frac{\partial p^*}{\partial w} \frac{n^*}{p} + G'(p - w), \quad (16)$$

where

---

<sup>16</sup>For instance, if  $u_i \sim \mathcal{N}(\mu, \sigma^2)$ , it follows that  $F''(u_i) = -\frac{u_i - \mu}{\sigma^2} f(u_i)$  and  $F$  is convex for  $u_i < \mu$ . As it is reasonable to assume that those clients with low values of  $u$  leave the market first, we have reason to expect the price to fall.

$$\text{sign} \left[ \frac{\partial p^*}{\partial w} \right] = \text{sign} \left[ \frac{\partial \Omega}{\partial w} \right] = \text{sign} [pG''(p-w) + G'(p-w)], \quad (17)$$

which is ambiguous as well. On the one hand, some free prostitutes will leave the market when their outside option improves. Hence, the residual demand of the slaveholder grows and thus the impact of a marginal increase of  $p$  on  $\Pi$ . This is why the second term of (17) is positive. On the other hand, raising the market price clearly countervails the exit of competitors. More precisely, if  $G$  is concave, the supply of sex workers reacts more sensitively to changes in  $p$  than before the reservation wage growth, which is an incentive for the slaveholder to lower  $p$ .

The result is summarized in proposition 2.

**Proposition 2.** *When  $\frac{\partial p^*}{\partial w} \leq 0$ , the amount of sexual slavery increases in  $w$ . Otherwise, the overall effect is not clear, but it might be more profitable for the slaveholder to send less slaves, i.e.,  $n^*$  decreases.*

Note that as (6) indicates, the supply of free prostitutes consists of individuals with low values of  $\theta_i$ . It therefore seems more plausible to expect  $G'' > 0$  to hold, implying that  $p$  is increasing in  $w$ , and, consequently, that the sign of  $\frac{\partial n^*}{\partial w}$  is ambiguous.<sup>17</sup>

Figure 3 illustrates the right-shift of  $S_F$  caused by the reservation wage growth. Accordingly, the new residual demand curve  $D - S_F$  exhibits a “kink” more to the right. The isoprofit curve in Figure 3 is such that the new equilibrium goes along with a higher market price and more sexual slavery, but as proposition 2 states, this is not necessarily the case.

In general, there might well be other causes for a right-shift of  $S_F$ . If, for example,

---

<sup>17</sup>This applies, for example, to  $\theta_i \sim \mathcal{N}(\mu, \sigma^2)$ .

soliciting is criminalized as well, adding  $E$  to the right side of (5) would have the same effect as rising  $w$ : for a given price  $p$ , a certain amount of free prostitutes to whom (4) no longer applies would leave the market. Other examples are regulatory obligations or forms of stigmatization: while regulatory obligations like licensing procedures or regular health control screenings would involve direct costs, discrimination or stigmatization, e.g. associated with the criminalization of prostitution, would change the distribution of  $\theta$ .

## 4 Discussion and policy implications

The formal analysis reveals that the answer to the question, whether the form of regulation considered in this paper causes more or less slavery, is ambiguous.

The law obviously works in the right direction if one only considers the direct effect, the deterrence of clients. However, taking the slaveholder's strategic behavior into account, the total result is far less clear. In case that there are incentives to lower the price in order to recover clients and to repel the competitive fringe of free prostitutes, it takes a strict enforcement when implementing the new law to guarantee a reduction in sexual enslavement.<sup>18</sup>

Hence, there are serious doubts about the *nordic prostitution regime* being the first best solution to the problem of forced prostitution in the market for sexual services.

First, it is unlikely to expect rising prices after its implementation. For example, Scoular (2010, p.20) reports a drop in prices caused by the decline in demand for Sweden, which gives reason to anticipate a revolving door effect. Moreover, it is to be feared that the remaining prostitutes might have to take more risks and suffer from worse working conditions (ib).

---

<sup>18</sup>Of course, if  $E$  is sufficiently high to induce  $p^*n < C$ , sexual slavery is wiped away.

Note that the conclusion, whereupon a weak deterrence effect with  $\underline{\phi} < F' < \bar{\phi}$  encourages slavery while a crackdown clearly reduces it, resembles the "fine enough or don't fine at all" - result by Lin and Yang (2006).



Second, it seems unlikely that the government provides the resources needed to provoke this collapse of the demand for commercial sex. Instead, “gesture politics” like shifting prostitution from more to less visible locations (see, e.g., Scoular (2010, S.13)) might occur, which unexpectedly gives rise to sexual slavery, as the formal analysis shows.

I therefore propose avoiding regulatory measures that trigger a fall in prices or lead to a deterioration in the working conditions of prostitutes. Instead, the proposed model indicates that it is probably more promising to focus on the slaveholder’s fix costs  $C$ , as the profit function (7) shows that sexual slavery is profitable only if  $C$  does not outweigh the revenue. In other words, a policy that focuses on the costs of slavery may force the slave owners to leave the market or, as the case may be, lower the market entry incentive, without harming free providers of sexual services.

There are several ways to increase the costs of sexual slavery. First, stricter law enforcement towards traffickers and slaveholders would have a direct impact on their expenses. For example, a slave’s price will increase as trafficking becomes more complicated. Second, victim protection programs and similar initiatives would encourage victims to escape and therefore increase costs of control significantly.<sup>19</sup> Finally, preventative measures like awareness campaigns might help to impede sexual slavery in the first place.

The analysis is clearly limited in a number of ways. In particular, commercial sexual services of voluntary and forced prostitutes are treated as substitutes. This assumption most likely applies to the low-price segment, but there are also conceivable settings in which the quality of the services differ or in which the client can recognize (at least with a certain probability) a victim of sexual slavery as such. More research is clearly warranted here.

---

<sup>19</sup>See also Rogowski (2013) and Akee, Bedi, Basu, and Chau (2014).

## References

- ACEMOGLU, D., AND A. WOLITZKY (2011): “The economics of labor coercion,” *Econometrica*, 79(2), 555–600.
- AKEE, R., A. BEDI, A. K. BASU, AND N. CHAU (2014): “Transnational Trafficking, Law Enforcement and Victim Protection: A Middleman’s Perspective,” *Journal of Law and Economics*, 57, 349–386.
- ARUNACHALAM, R., AND M. SHAH (2008): “Prostitutes and brides?,” *The American Economic Review*, pp. 516–522.
- BARZEL, Y. (1977): “An economic analysis of slavery,” *Journal of Law and Economics*, pp. 87–110.
- BERGSTROM, T. (1971): “On the existence and optimality of competitive equilibrium for a slave economy,” *The Review of Economic Studies*, pp. 23–36.
- CAMERON, S. (2002): *The economics of sin: rational choice or no choice at all?* Edward Elgar Publishing.
- CAMERON, S., AND A. COLLINS (2003): “Estimates of a model of male participation in the market for female heterosexual prostitution services,” *European Journal of Law and Economics*, 16(3), 271–288.
- CHO, S.-Y., A. DREHER, AND E. NEUMAYER (2013): “Does legalized prostitution increase human trafficking?,” *World Development*, 41, 67–82.
- COLLINS, A., AND G. JUDGE (2008): “Client participation in paid sex markets under alternative regulatory regimes,” *International Review of Law and Economics*, 28(4), 294–301.
- (2010): “Differential enforcement across police jurisdictions and client demand in paid sex markets,” *European Journal of Law and Economics*, 29(1), 43–55.
- DARI-MATTIACCI, G. (2013): “Slavery and information,” *The Journal of Economic History*, 73(01), 79–116.
- DAVIDSON, J. O. (2006): “Will the real sex slave please stand up?,” *Feminist review*, pp. 4–22.
- DELLA GIUSTA, M. (2010): “Simulating the impact of regulation changes on the market for prostitution services,” *European journal of law and economics*, 29(1), 1–14.

- DELLA GIUSTA, M., M. L. DI TOMMASO, AND S. STRØM (2009): “Who is watching? The market for prostitution services,” *Journal of Population Economics*, 22(2), 501–516.
- DERIVIERE, L. (2006): “A human capital methodology for estimating the lifelong personal costs of young women leaving the sex trade,” *Feminist Economics*, 12(3), 367–402.
- EDIN, K., AND L. LEIN (1997): *Making ends meet: How single mothers survive welfare and low-wage work*. Russell Sage Foundation.
- EDLUND, L., AND E. KORN (2002): “A theory of prostitution,” *Journal of Political Economy*, 110(1), 181–214.
- FARMER, A., AND A. W. HOROWITZ (2013): “Prostitutes, Pimps, and Brothels: Intermediaries, Information, and Market Structure in Prostitution Markets,” *Southern Economic Journal*, 79(3), 513–528.
- HAM, J. (2011): “Moving beyond "supply and demand" catchphrases: Assessing the uses and limitations of demand-based approaches in anti-trafficking,” GAATW. [http://www.gaatw.org/publications/MovingBeyond\\_SupplyandDemand\\_GAATW2011.pdf](http://www.gaatw.org/publications/MovingBeyond_SupplyandDemand_GAATW2011.pdf). Accessed 13 Mai 2015.
- HERNANDEZ, D., AND A. RUDOLPH (2015): “Modern day slavery: What drives human trafficking in Europe?,” *European Journal of Political Economy*, 38, 118–139.
- JAKOBSSON, N., AND A. KOTSADAM (2013): “The law and economics of international sex slavery: prostitution laws and trafficking for sexual exploitation,” *European Journal of Law and Economics*, 35(1), 87–107.
- KOTSADAM, A., AND N. JAKOBSSON (2014): “Shame on you, John! Laws, stigmatization, and the demand for sex,” *European Journal of Law and Economics*, 37(3), 393–404.
- KULICK, D. (2003): “Sex in the New Europe the criminalization of clients and Swedish fear of penetration,” *Anthropological theory*, 3(2), 199–218.
- LAGERLÖF, N.-P. (2009): “Slavery and other property rights,” *The Review of Economic Studies*, 76(1), 319–342.
- LIN, C.-C., AND C. YANG (2006): “Fine enough or don’t fine at all,” *Journal of Economic Behavior & Organization*, 59(2), 195–213.

- LIPCZYNSKI, J., J. WILSON, AND J. GODDARD (2005): *Industrial organization: competition, strategy, policy*. Financial Times, Prentice Hall.
- MATTHEWS, R. (2014): “Female prostitution and victimization A realist analysis,” *International Review of Victimology*, pp. 1–16.
- MCCARTHY, B., C. BENOIT, M. JANSSON, AND K. KOLAR (2012): “Regulating sex work: heterogeneity in legal strategies,” *Annual Review of Law and Social Science*, 8, 255–271.
- OUTSHOORN, J. (2004): *The politics of prostitution: women’s movements, democratic states and the globalisation of sex commerce*. Cambridge University Press.
- (2005): “The Political Debates on Prostitution and Trafficking of Women,” *Social Politics: International Studies in Gender, State & Society*, 12(1), 141–155.
- PLRC (2008): “Report of the prostitution law review committee on the operation of the prostitution reform act 2003,” Prostitution Law Review Committee, New Zealand Government. [http://www.gaatw.org/publications/MovingBeyond\\_SupplyandDemand\\_GAATW2011.pdf](http://www.gaatw.org/publications/MovingBeyond_SupplyandDemand_GAATW2011.pdf). Accessed 13 Mai 2015.
- ROGERS, C. A., AND K. A. SWINNERTON (2008): “A theory of exploitative child labor,” *Oxford Economic Papers*, 60(1), 20–41.
- ROGOWSKI, R. (2013): “Slavery: a dual-equilibrium model with some historical examples,” *Public Choice*, 155(3-4), 189–209.
- SCOULAR, J. (2010): “What’s law got to do with it? How and why law matters in the regulation of sex work,” *Journal of Law and Society*, 37(1), 12–39.
- SKAPERDAS, S. (2001): “The political economy of organized crime: providing protection when the state does not,” *Economics of Governance*, 2(3), 173–202.
- SKILBREI, M.-L., AND C. HOLMSTRÖM (2011): “Is there a nordic prostitution regime?,” *Crime and Justice*, 40(1), 479–517.
- STARK, O., AND C. FAN (2011): “Migration for degrading work as an escape from humiliation,” *Journal of Economic Behavior & Organization*, 77(3), 241–247.
- UN (2004): “United Nations Convention Against Transnational Organized Crime and the Protocols Thereto,” .

——— (2009): “Global Report on Trafficking in Persons,” *United Nations Office on Drugs and Crime*.

——— (2013): “Written statement submitted by the Global Alliance Against Traffic in Women, a non-governmental organization in special consultative status,” *Human Rights Council, Twenty-third session*.

WHEATON, E. M., E. J. SCHAUER, AND T. V. GALLI (2010): “Economics of human trafficking,” *International Migration*, 48(4), 114–141.

# Figures

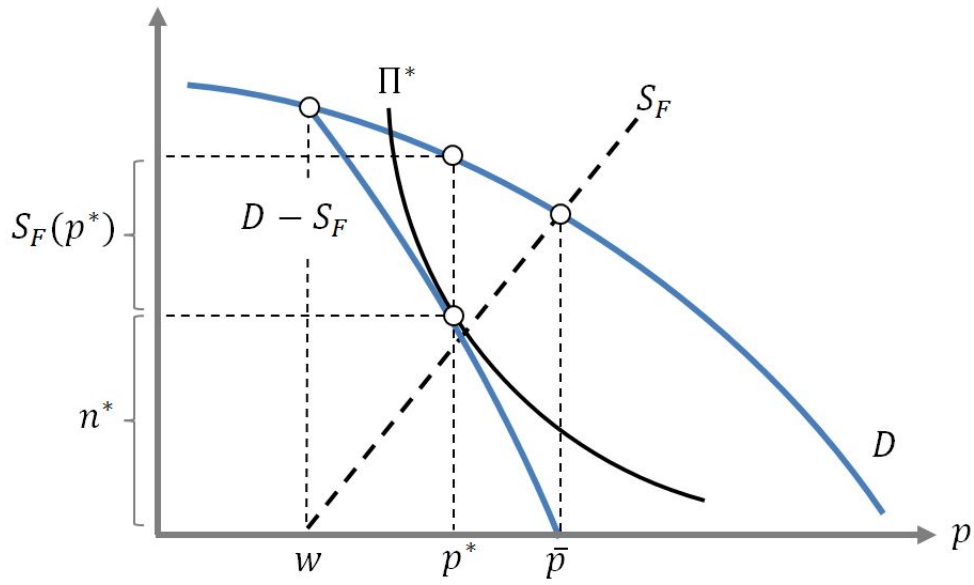


Figure 1: The market for sexual services.

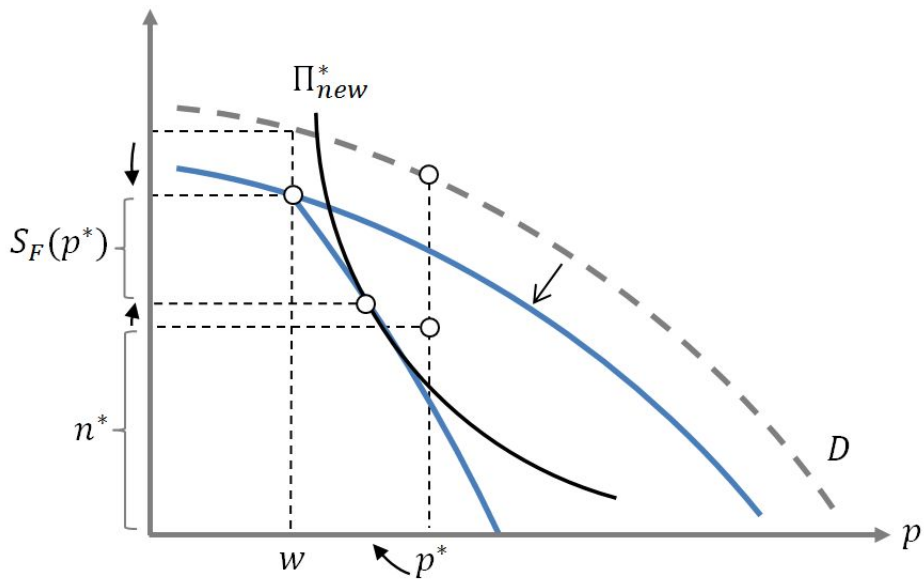


Figure 2: Clients' punishment leads to more sexual slavery.

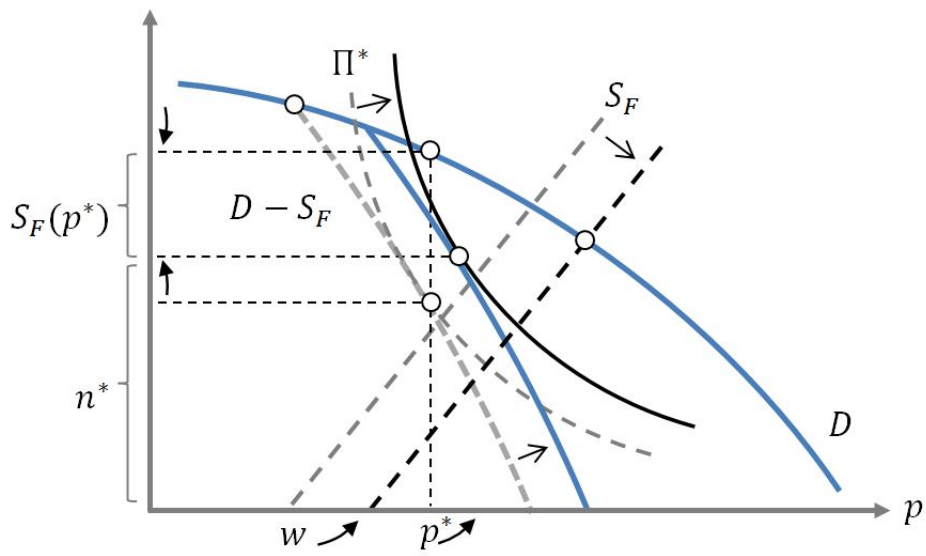


Figure 3: New market equilibrium caused by an increase in the free prostitutes' reservation wage  $w$ .