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Good Intentions and Unintended Evil? Adverse Effects of Criminalizing Clients in Paid Sex Markets

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ABSTRACT

Internationally, there is no consensus concerning the legal and moral judgment of sex work. Nevertheless, there is an overwhelming agreement on the need to fight against forced sex work. This paper uses a formal economic model in order to analyze how a law – introduced to punish clients of commercial sex services – affects market outcomes. More specifically, it examines how the so-called "neo-abolitionism" or "Nordic" prostitution regime impacts forced sex work. 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. In addition, it highlights the conditions under which the composition of clients changes toward more risk-seeking individuals. Policy implications that arise are identified and discussed.

KEYWORDS

Sex work, regulation, forced labor, sexual slavery

JEL Codes: K42, L51, D42

INTRODUCTION

Sex work is an important sector of the global economy and also 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.[1]

However, the way policy regimes are classified is intensely discussed in the literature.[2] One aspect deals with the range of regulatory regimes, which spans the spectrum from a two-fold scale (abolitionism versus prohibitionism) up to a six-fold scale.[3] In a recent contribution, Petra Östergren (2017) proposes a three-fold classification scheme and introduces the following typology: Repressive, restrictive, and integrative regimes.[4] Another aspect is whether the classification should occur on the national or a more regional level. This is because different policy regimes can prevail within countries such as the United States, or even within federal states.[5] Consequently, since one country might operate with two or three policy regimes at the same time, it might be necessary to shift the analytical unit from the national to the federal (state) or local level (Östergren 2017: 25).

Despite this obvious heterogeneity with respect to the regulatory regimes, there is a global consensus concerning the proscription and prohibition of forced prostitution for the purpose of exploitation.[6] Forced prostitution is closely linked to trafficking, which is defined by the UN in the *Protocol to Prevent, Suppress and Punish Trafficking in Persons Especially Women and Children (Article 3a)* as:

> 'Trafficking in persons' shall mean 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 2000)[7]

Yet, while we can find an international stance against forced prostitution and sexual exploitation, the proper means of achieving this goal are not that 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 it exists, 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 (Cho, Dreher, and Neumayer 2013; Jakobsson and Kotsadam 2013). On the other hand, the incentive for victims and clients to cooperate with the police is much lower under prohibitionism (Bisschop, Kastoryano, and van der Klaauw 2017; Cunningham and Shah 2017). When prostitution becomes an illicit act and thus less visible, the possibilities of control diminish (Scoular 2010). Moreover, Seo-Young Cho, Axel Dreher, and Eric Neumayer (2013) emphasize that if consensual commercial sex is decriminalized, there might be a substitution effect, that is, a shift from forced to legal prostitution.

The empirical research on this issue is ambiguous as well. For instance, while Niklas Jakobsson and Andreas Kotsadam (2013), as well as Cho, Dreher, and Neumayer (2013), find that harsher prostitution laws reduce trafficking, the New Zealand government's report of the *Prostitution Reform*

Act 2003 (Fitzharris et al. 2008) contradicts this finding. Diego Hernandez and Alexandra Rudolph (2015) find no significant relationship at all.

In this paper we shed light on the question of how the legal situation of sex work 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).[8] In this regulatory regime, it is illegal to purchase sexual services. In other words, it is the client who commits a crime, not the sex worker. Hence, the focus is clearly on the demand side of the market. The first country which adapted this new legislation was Sweden in 1999, followed by Norway and Iceland in 2009.[9] Northern Ireland and France joined the group in 2015 and 2016, respectively (Bettio, Della Giusta, and Di Tommaso 2017). The last country so far that has made it illegal to pay for sex is the Republic of Ireland in 2017.

This development 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 sex workers?

To answer this question, this paper introduces a formal economic model where the paid sex market consists of two different types of suppliers providing substitutable sex services:

- First, there are individuals who choose to offer consensual sex for money. We refer to the exchange of voluntary sex services for payment as "voluntary sex work" or "free sex work," being aware that this is a controversial term when used in a normative sense.
- Second, there are victims who are forced into sex work. In this paper, we use the terms "forced sex work," "involuntary sex work," and "sexual slavery" synonymously.[10] While a clear definition of slavery is not easy to find (see for example, Julia O'Connell Davidson [2006]), we follow Ron Rogowski (2013) and refer to "the ownership of another human being and of all of his or her labor" (194). Note that we use the expressions "slaveholder" and "slave owner" to refer to the person (or organization) who has control over the individual being forced into sex work.

Our main finding is that a ban on the purchase of sexual services can have an adverse effect on the extent of involuntary sex work: A drop in demand, all else being equal, causes prices to decrease, which in turn provokes voluntary sex workers to exit the market. On the contrary, as a price-setter, the slaveholder's optimal response may be to lower his price in order to "recover" demand, at least to some extent. This is the case if the deterrence effect is sufficiently small and leads to more sexual slavery even when the overall demand decreases. In an extension, we also highlight the conditions under which the composition of clients changes toward more risk-seeking individuals.

RELATED LITERATURE

Although empirical investigations are growing, theoretical economic literature on prostitution is, to our best knowledge, rather scarce. In a seminal contribution, Lena Edlund and Evelyn 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 cost. The paper was subject to intense discussion and has been empirically refuted, see for example Samuel Cameron (2002) or Raj Arunachalam and Manisha Shah (2008).

Other contributions focus on the role of stigma and reputation (Della Giusta et al. 2009; Della Giusta, Di Tommaso, and Strøm 2009; Della Giusta 2010; Della Giusta, Di Tommaso, and Jewell 2017), health risks (Immordino and Russo 2015), intermediaries like procurers or brothel owners (Farmer and Horowitz 2013), bargaining power and the well-being of sex workers (Hui 2017), or migrants' decisions 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 papers most closely related are Alan Collins and Guy Judge (2008) and Samuel Lee and Petra Persson (2015). Collins and Judge (2008) restrict their analysis to the client's demand for sex services and found that the client will substitute licensed for unlicensed (which means riskier and socially less desired) sex services if the relative price, the 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 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.

Lee and Persson (2015) use a modified Edlund/Korn model including trafficking to analyze different regulatory regimes. Their results strongly depend on paradoxical price reactions due to the interaction between the marriage market and the market for commercial sex.

The present paper adds to the existing literature by paying special attention to the supply of forced labor. More precisely, the model proposed in the next section is based on the idea that the slave owner holds significant market power and 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: 194). There are some seminal contributions on slavery and forced labor (Bergstrom 1971; Barzel 1977; Lagerlöf 2009; Acemoglu and Wolitzky 2011; Dari-Mattiacci 2013). Other papers that deal with slavery or forced labor are Carol Ann Rogers and Kenneth A. Swinnerton (2008), who set up a model including exploitative child labor, and Elizabeth M. Wheaton, Edward J. Schauer, and Thomas V. Galli (2010) and Randall Akee et al. (2014), who analyze certain features of the human trafficking business.

A FORMAL MODEL

In this section, we 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, such as 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 $E = 0$.[11] The individual will demand sex work 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 another way, that the expected net utility is nonnegative.

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

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

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

Next, we turn to the supply side of the market. An important feature of the model is that the supply is dualistic, that is, voluntary and involuntary sex services are treated as complete substitutes. To begin with, the net utility of a free sex worker is given by

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

where θ_i, the disutility of sex work, 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.[12] Note that the index F is an abbreviation for "free" sex worker.

Hence, the participation condition of an individual to offer sex for money of his or her own free will is given by[13]

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

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 consensual sex work, namely, individuals forced into sex work (sexual slavery). In line with Rogowski (2013), we assume fixed costs C for the slaveholder, such as the costs of trafficking and the formation of a control system, but no variable costs: Supervising one slave is extremely costly, but supervising the next ten does not cause notable additional costs when the appropriate structure has been installed already.

Moreover, since organized illegal activities generally require some kind of "enforcers," it is plausible to assume that the principal has the resources to repel potential rivals.[14] Thus, with enormous 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.[15] We 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 sex workers).[16]

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

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

where n denotes the number of involuntary sex workers. Since the slaveholder clearly has an incentive to choose n as large 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 sex worker (with $\theta_i = 0$) enters the market at $p = w$, this is where the spread between the total and residual demand originates. Furthermore, without sexual slavery, the total demand is completely served by the fringe at price p defined by $D(\bar{p}) = S_F(\bar{p})$.

In addition, Figure 1 illustrates the slave owner's maximization problem, which is to set the price that guarantees the highest possible profit. Hence, noting that (7) implies hyperbolic isoprofit curves for different levels of

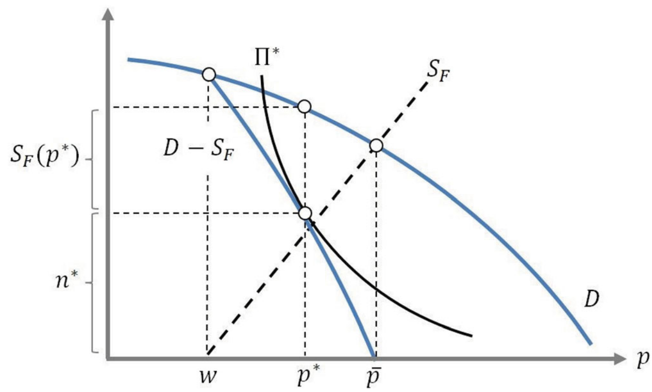

Figure 1 The market for sexual services

Π, the slaveholder's optimal price p^* is found where the highest attainable isoprofit curve Π^* is tangent to the residual demand.

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

(1) 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 p;
(2) For $p^* n \geq C$ and $p^* < w$, no one is willing to offer sexual services voluntarily and the demand is completely served by sexual slavery;
(3) For $p^* n \geq C$ and $p^* \geq w$, the supply side consists of both free and
(4) forced sex workers;
(5) For $p^* n < C$ and $1 - F(w + E) = 0$, there is no sex work at all.

Since the problem at hand is to determine the effect of punishing clients on a market for paid sex that has both voluntary and involuntary providers, we assume condition (iii) to hold in the initial equilibrium and next turn to the formal analysis.

Using (7) and (8), the first-order condition of (7) with respect to p is[17]

$$\Omega := p\,(-F'(p + E) - G'(p - w)) + n = 0. \tag{9}$$

This condition reflects the following trade-off:

- A marginal increase of the price level (p) raises the revenue per forced sex worker (n).

- Yet, an increase of the price level would also increase the number of free sex workers, since $\partial G/\partial p > 0$. Hence, the residual demand and the slaveholder's profits decrease.
- As a second dampening effect on demand, a marginal increase of p lowers the overall demand $(-\partial F/\partial p < 0)$. This effect also influences profits negatively.

Given that the second-order condition is satisfied, the optimal price $p^*(E,w)$ is found where this trade-off is balanced. Based on this optimal price $p^*(E,w)$, the optimal quantity of sex slaves (n^*) is determined by

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

Then, for p^* and n^* as defined above, the total number of sex workers in 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, that is, $E > 0$? Does the desired decline in the amount of forced sex work, given by (10), take place?

Proposition 1 *The deterrence effect, all else being equal, decreases total demand and therefore causes a reduction of free and forced sex work 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 producing an unintended increase in sexual slavery.*

Proof From (10) it follows that

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

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

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

provided the second-order condition is satisfied.[18] ■

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 regulation 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

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

Provided (13) is fulfilled, it follows from (11) that the new law leads to an extension of slavery if, and only if,

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

which is a sufficient condition for $\frac{dn^*}{dE} > 0$. Consequently, for $F'' < 0$, forced sex work increases in E if $\underline{\phi} < F' < \bar{\phi}$.

Moreover, (6) gives the fringe's reaction to the new law:

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

Hence, if we assume that (13) and (14) hold, the extent of voluntary sex work clearly diminishes.[19]

This 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 sufficiently 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.[20] As a consequence, free sex workers 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 new law reduces the total quantity of sex work. Figure 2 illustrates the case where the prosecution of clients leads to more sexual slavery.[21]

Some more observations on the voluntary supply of sexual services

While Proposition 1 already established the ambiguity of a ban on the purchase of sexual services, some more conclusions can be drawn from the present market structure.

For instance, consider the voluntary sex workers' *reservation wage* w. As (6) directly shows, free individuals will leave the market if w increases. In addition, given (10), the marginal effect of an increase in w on the optimal

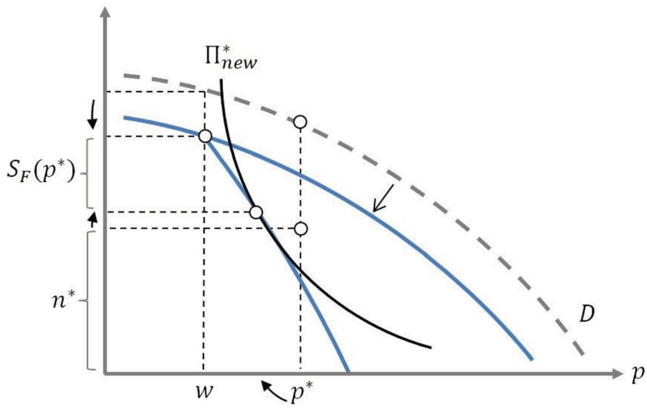

Figure 2 Punishing the clients increases forced sex work

number of forced sex workers is determined by

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

where

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

which is ambiguous as well. First, some free sex workers 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 Π. This is why the second term of (17) is positive. Second, raising the market price clearly counteracts the exit of competitors (free sex workers). More precisely, if G is concave, the supply of sex workers reacts more sensitively to changes in p than before the increase of the reservation wage, which is an incentive for the slaveholder to lower p. This result is summarized in Proposition 2.

Proposition 2 *If* $\frac{\partial p^*}{\partial w} \leq 0$, *the amount of sexual slavery is increasing in* w. *Otherwise, the overall effect is not clear, but it might be more profitable for the slaveholder to hold fewer slaves, that is,* n^* *decreases.*

Note that (6) indicates that the supply of free sex workers consists of individuals with low values of θ_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.[22] Figure 3 illustrates the right-shift of S_F caused by the reservation wage growth. Accordingly, the new residual

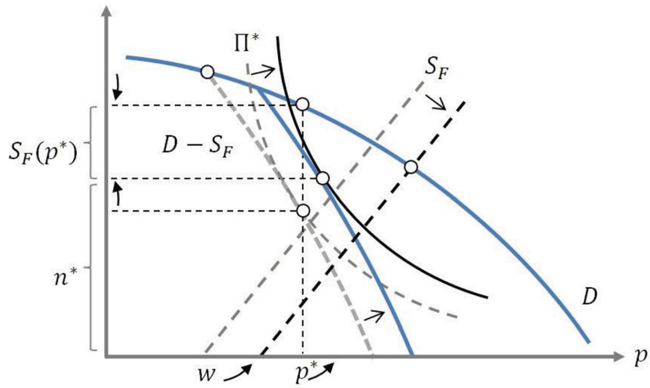

Figure 3 New market equilibrium caused by an increase in the voluntary sex workers' reservation wage w

demand curve $D - S_F$ exhibits a kink more to the right. The isoprofit curve in Figure 3 is such that the new equilibrium is characterized by 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. For instance, any additional costs that affect only free sex workers will influence their participation constraint (5) and hence can be analyzed in the same way as an increase in the reservation wage (w). As a consequence, it becomes clear that any additional regulation that only affects the free sex worker involves the very same effects as an increase in their reservation wage.[23]

If, for example, soliciting is criminalized as well, we could add a cost term to the right side of (4). This would have the same effect as increasing w: For a given price p, a certain amount of free sex work to whom (5) no longer applies would leave the market. Other examples are regulatory obligations or forms of stigmatization: While regulatory obligations such as licensing procedures or regular health control screenings would involve direct costs, discrimination or stigmatization, associated with the criminalization of sex work, would change the distribution of θ.

Clients with heterogeneous risk attitudes

In the foregoing sections, the clients were heterogeneous with respect to their direct utility derived from the sexual service they purchase. In this extension, we allow clients to also differ in their attitude toward risk. More precisely, we introduce a new parameter α which captures the costs of risk when buying sex is being prosecuted. The idea is that some individuals are less prone to take risks, which is equivalent to a higher level of α. On

Table 1 Types of clients with respect to utility and risk cost

	Utility	
	u_l	u_h
Risk costs		
α_l	A	C
α_h	B	D

contrary, we assume an individual with a low level of α to be a "risk taker." Consequently, the net utility defined in (1) changes to

$$U_c = u_i - p - \alpha_j E \tag{18}$$

Our aim is to examine how the composition of the clients changes as a response to prosecution. Note that the price is taken as given, that is, the analysis is restricted to the demand side. Furthermore, for reasons of simplicity, we use a discrete version of our model to make our point clear. Following Francesca Barigozzi and Gilberto Turati (2012), we consider four types of potential clients, who differ in the two dimensions $u_i \in \{u_l, u_h\}$ and $\alpha_j \in \{\alpha_l, \alpha_h\}$. Table 1 presents these four types: $A = (u_l, \alpha_l)$, $B = (u_l, \alpha_h)$, $C = (u_h, \alpha_l)$, and $D = (u_h, \alpha_h)$.

In the second step, we establish the critical values of E that make each type indifferent between buying and not buying. These are $\tilde{E}_{l,l} = \frac{u_l - p}{\alpha_l}$, $\tilde{E}_{l,h} = \frac{u_l - p}{\alpha_h}$, $\tilde{E}_{h,l} = \frac{u_h - p}{\alpha_l}$, and $\tilde{E}_{h,h} = \frac{u_h - p}{\alpha_h}$.

Now starting with a situation without prosecution ($E = 0$) and all potential clients being active in the market (which requires $u_l > p$), we can determine how an increase of E, all else being equal, affects the average risk tolerance and the average utility on the demand side. The results are summarized in Proposition 3.

Proposition 3 *If $\triangle u := u_h - u_l$ is sufficiently low and $\triangle \alpha := \alpha_h - \alpha_l$ is large enough so that $\Psi > 0$, the average risk costs of the clients is non-increasing in E, while the average utility follows no clear trend.*

Proof In case the level of E increases, it is straightforward to see that type B is the first to leave the market, while type C is the last. Then, to ensure that type D follows B and A follows D, $\Psi := (u_l - p)\alpha_h - (u_h - p)\alpha_l > 0$ must hold. ■

Figure 4 shows the average utility and the average risk costs depending on E, for $\Psi > 0$. When the intensity of prosecution reaches the critical values, the composition of the clients changes. The less risk tolerant types are the

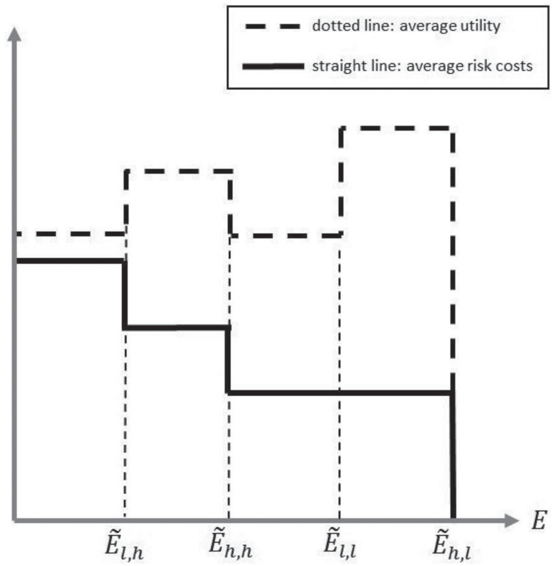

Figure 4 Demand side: Average utility and average risk costs

first to leave the market, while the "risk takers" remain, which manifests in a drop of the average risk costs from $\frac{1}{2}\,(\alpha_h + \alpha_l)$ to $\frac{1}{3}\,\alpha_h + \frac{2}{3}\alpha_l$ *to* α_l. For $\Psi < 0$, the average risk costs follow no clear trend when E increases.

DISCUSSION AND POLICY IMPLICATIONS

The formal analysis has revealed that the answer to the question whether the regulation causes more or less forced sex work is ambiguous. The regulation would work in the right direction if only the direct effect, the deterrence of clients, is being considered. However, if the slaveholder's strategic behavior is also taken into account, the overall result is less clear. In case there are incentives to lower the price in order to recover clients and to repel the competitive fringe of free sex workers, it takes a strict enforcement when implementing the new law to guarantee a reduction in sexual enslavement.[24]

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

First, it is unlikely to expect rising prices after its implementation. For example, Jane Scoular (2010: 20) reports a drop in prices caused by the decline in demand in Sweden, which gives reason to anticipate the effects described in Proposition 1: Voluntary sex work diminishes and might be replaced by forced sex workers. Moreover, it is to be feared that the remaining sex workers might have to take more risks and suffer from worse working conditions (Di Tommaso et al. 2009; Scoular 2010). Hence, we cannot rule out that the good intentions with respect to the introduction of the regulation produce an unintended evil. In this respect, we support the importance of Östergren's 4i's assessment protocol, which highlights the necessity to study the intentions, instruments, implementation, and the impact simultaneously (Östergren 2017).

Second, it seems unlikely that the government will commit the resources needed to provoke this collapse of the demand for commercial sex. Instead, "gesture politics," such as shifting sex work from more to less visible locations (Scoular 2010: 13) might occur, which may increase sexual slavery, as the formal analysis shows. Besides, an environment in which the demand for sexual services is criminalized narrows a sex worker's ability to screen clients and to negotiate the terms of the sex work transactions, a point made in contributions such as A. Krüsi et al. (2014) and Teela Sanders (2004). In a more general sense, the field studies by Scott Cunningham and Manisha Shah (2017) as well as Paul Bisschop, Stephen Kastoryano, and Bas van der Klaauw (2017) document that the (local) decriminalization of prostitution reduces the level of sexual violence and mitigates the spread of sexually transmitted diseases.

Third, our model indicates that the composition of clients might change toward more risk-seeking individuals. What consequences can be expected from this shift? In general, risk seeking is identified by Michael R. Gottfredson and Travis Hirschi (1990) as one of the key elements of self control, which in turn serves as an important predictor for antisocial or criminal behavior. In addition, there is reason to expect the deterrence effect of probabilistic sanctions to be rather small for the risk-taking type (Friehe and Schildberg-Hörisch 2017). In reference to markets for sexual services, a higher proportion of risk-seeking clients should affect the extent of violence against sex workers and health risks caused by unsafe practices. Hence, this effect on the composition of the clients should be seriously taken into account by lawmakers.

As a policy implication, we therefore recommend avoiding regulatory measures that trigger a fall in prices or lead to a deterioration in the working conditions of sex workers. Instead, the analysis indicates that it is more promising to focus on the slaveholder's fixed costs C: As the profit function (7) shows, sexual slavery is profitable only if C does not exceed 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 the free providers of sexual services.

There are several ways to increase the costs of sexual slavery. First, stricter law enforcement toward traffickers 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 significantly increase the costs of control.[25] Finally, preventative measures, such as awareness campaigns, might help to impede sexual slavery in the first place.

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NOTES

1 Bill McCarthy et al. (2012), Östergren (2017), as well as Synnøve Økland Jahnsen and Hendrik Wagenaar (2018) offer surveys of the legal situation across different countries.

2 Even the term “policy regime” is under discussion (Östergren 2017: 7). Alternatively, the terms “policy models,” “policy approaches,” or “legal regulatory framework” are used. Jahnsen and Wagenaar (2018), on the contrary, collect twenty-two case studies of European countries without even using the framework of a system of policy

regimes. The authors rather employ a specific format – a general analytical scheme – for the description, characterization, and comparison of prostitution policies.

3 According to Daniela Danna (2014: 17), the scale includes: Prohibitionism, regulationism with health checks and licenses, abolitionism, abolitionism with legal indoor prostitution, neoprohibitionism (the purchase of sexual services is a crime), and neoregulationism.

4 In order to classify a country into one of the three regimes, she proposes to use an assessment protocol based on the *4 i's*: Stated intentions, policy instruments, implementation of instruments, and impact on sector and participants.

5 For instance, within the State of Nevada, sex work is illegal within the county of Clark (which contains Las Vegas), but legal brothels operate in seven out of sixteen counties.

6 O'Connell Davidson (2006) points out that there are definitional problems regarding slavery. We address this issue later in this paper.

7 Janice G. Raymond (2002: 497) analyses and comments the UN trafficking protocol. She stresses that the definition not only includes the terms "force" or "coercion," but also the term "abuse of victim's vulnerability." Furthermore, she emphasizes that the consent of a victim is irrelevant (498).

8 The term "Nordic" prostitution regime is frequently used in the literature to refer to the regime currently prevailing in Sweden. Östergren (2017: 3) criticizes this terminology, because it reduces all the laws that govern prostitution in Sweden to one single law. According to the author, the regime in Denmark is entirely different from the regime in Sweden, which is why the term "Nordic" is misleading.

9 See Don Kulick (2003), Max Waltman (2011), as well as Charlotta Holmström and May-Len Skilbrei (2017) for a detailed discussion of the Swedish case.

10 We are aware of the fact that there is an intense discussion of whether "modern slavery" exists or not. Slavery is explicitly mentioned in the UN (2000) protocol. However, O'Connell Davidson (2015) is very critical in this respect and severely criticizes the line of argumentation of the abolitionists: "Similarly [as in fairy tales], the figures in new abolitionist stories of 'modern slavery' and 'trafficking' are stripped of ambivalence." (O'Connell Davidson 2015: 206). She argues, new abolitionism "selectively names certain forms of suffering as 'modern slavery', then constructs simple narratives about the roots of these problems in criminality or evil." (O'Connell Davidson 2015: 208). She concludes with respect to slavery: "'Modern slavery' no longer exists, and none of the phenomena today described as such are the equivalent of transatlantic slavery." (O'Connell Davidson 2015: 207).

11 See Cameron (2002: Ch. 10) for a more detailed form of the utility function.

12 A uniform wage is assumed for simplicity. 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: 188]). Carlo D'Ippoliti and Fabrizio Botti (2017) analyze the pull and push factors that influence transsexual and transgendered people to supply sex services. The prospective income was identified as an important pull factor.

13 There is no need to be specific here. However, it should be noted that the vast majority of human beings involved in prostitution (Cameron and Collins 2003; UN 2013) and sexual slavery (UN 2009) are female. See Jeffery P. Dennis (2008) for a reflection on male prostitution.

14 Indeed, there is a strong link between sex slavery/trafficking and organized crime, see for example, Jakobsson and Kotsadam (2013) or Sarah Shannon (2012).

15 Note that Stergios Skaperdas (2001: 186) argues in the same manner regarding the provision of "protection" by organized crime groups. In a more general sense, Abadinsky (2012: 4) lists the striving for hegemony or monopoly as one of four basic

characteristics of organized crime groups, “maintained by violence, by the threat of violence, or by corrupt relationships with law enforcement officials.” This assumption differs significantly from Lee and Persson (2015), who presume the traffickers to act as price takers under perfect competition with constant marginal costs only.

16 See, for instance, John Lipczynski, John O. S. Wilson, and John A. Goddard (2005: 142f).

17 Note that in the event of zero marginal costs, the profit maximization problem is the same as a revenue maximization problem.

18 Note that the second-order condition $\frac{\partial^2 \Omega}{\partial p^2}$ includes the first and second derivatives of $G(p - w)$, which means that the magnitude of $\frac{dn^*}{dE}$ also hinges on the supply of free sex workers.

19 This result may be associated with the substitution effect mentioned in Cho, Dreher, and Neumayer (2013).

20 For instance, if $u_i \sim N(\mu, \sigma^2)$, 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.

21 Lee and Persson (2015) derive a similar, although simpler, result: the criminalization of buying commercial sex decreases the total amount of prostitution but increases trafficking. As the law provokes men’s relative valuation of “reproductive sex” to rise, the “price of marriage” increases. Therefore, in equilibrium, this goes along with a higher price for commercial sex, which in turn gives rise to an expansion in the trafficked supply. Without the link to the marriage market, this paradoxical price reaction in the market for commercial sex obviously would not occur.

22 This applies, for example, to $\theta_i \sim N(\mu, \sigma^2)$.

23 This statement holds for regulations that are either addressed to free sex workers only or regulations addressed to the whole supply side but only obeyed by the free sex worker. In case forced sex workers and/or the slaveholders do not stick to the rules, these rules do not affect their cost function. Therefore, this kind of regulation would only influence the decision-making process of free sex workers.

24 Of course, if E is sufficiently high to induce $p^* n < C$, sexual slavery is wiped out. 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 of Chung-Cheng Lin and C. C. Yang (2006).

25 See also Rogowski (2013) and Akee et al. (2014).

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