



# Does criminalizing the purchase of sex reduce sex-buying? Evidence from a European survey on prostitution

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## Abstract

Whether to criminalize or legalize the purchase of sex has given rise to heated discussions and different policy initiatives. Opponents of the criminalization of sex-buying argue that prohibition pushes the sector underground, increasing the harm for women in prostitution. Proponents instead view prostitution as violence against women, calling for prohibition. Despite these debates, few studies examine the effect of prostitution laws on the quantity of sex bought. By employing unique data on attitudes to, and experiences of sex-buying behaviour in different prostitution regimes in eight European countries, the paper examines the relationship between prostitution law and sex-buying. The results are robust to the inclusion of a list experiment, and the findings suggest that people living in countries where purchasing sex is criminalized buy less sex than people living in countries where sex-buying is legal.

**Keywords** Commercial sex · Prostitution law · Gender · List experiment · Social desirability · Social norms

**JEL Classification** I28 · J88 · K14

## 1 Introduction

Does criminalizing sex-buying reduce the quantity of sex bought? The answer to this question is theoretically ambiguous and empirical tests are lacking due to the inherent problems of collecting data on sensitive and illegal issues. I try to answer the question by using a direct question on sex-buying as well as using a list experiment, a state-of-the-art development in survey research, to elicit truthful responses from individuals. To my knowledge, this is the first paper using a list experiment to remedy the challenge of social desirability bias from reporting sex-buying behaviour.

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I argue that it is plausible that the criminalization of a certain behaviour may stigmatize and decrease the criminalized behaviour (e.g. Della Giusta et al., 2009). The stigma comes from a moral judgment and, since individuals care about their social standing in society, they face potential reputation loss from buying or selling sex. States have long tried to reduce prostitution or the potential harm of prostitution with some type of policy. Policymakers might thus choose between various policies to address a range of potential issues related to prostitution such as violent crimes, sex trafficking, health risks, stigma, unsafe labor conditions for sex workers, and demand. This paper only concerns the last aspect. In 1999 Sweden criminalized the purchase of sex, with the aim of reducing sex-buying behaviour. The same year, the Netherlands took a different approach by decriminalizing all aspects of prostitution, legalizing both buying sex and running brothels. The aim of the Dutch prostitution act was to make prostitution less harmful to sex workers. These clearly opposite legal frameworks rest upon very different ideas about prostitution, as either violence against women (Ekberg, 2004) or labour. Several countries' prostitution policies are located between these discourses. Prostitution may hence be stigmatized to different degrees in different societies, leading to different market equilibria in different countries (Della Giusta et al., 2008, 2009). All else equal, reduced stigmatization increases the marginal net gain of supplying sex, as well as the marginal willingness to pay for it. Conversely, increased stigmatization reduces the marginal willingness to buy and sell, hence reducing the equilibrium quantity exchanged.

Several studies have investigated the relationship between the legality of prostitution and stigma (Chon, 2015; Immordino & Russo, 2015; Jakobsson & Kotsadam, 2011; Jonsson & Jakobsson, 2017; Kotsadam & Jakobsson, 2014; Kuosmanen, 2011). However, very few studies have examined whether such stigma affects the quantity of sex bought, or if the law has a direct effect on sex-buying.<sup>1</sup> The paper contributes to this literature by analysing survey responses from a data set on citizens' attitudes toward prostitution and sex-buying across eight Western European countries with different types of prostitution legislation. To my knowledge, this data set is the first to present reporting on the buying of sex across a wide span of different prostitution regimes. The data set enable examination of micro-level attitudes and behaviour in Spain, France, The Netherlands, Germany, the UK, Denmark, Sweden, and Norway.

The paper analyses the relationship between prostitution law, attitudes toward buying sex and quantity of sex bought. To isolate the effect of prostitution policy on sex-buying behaviour I additionally analyse the differences in sex-buying between Norway and Sweden by exploiting the Norwegian legal change in 2009 in a difference in differences framework. A potential problem in surveys is that participants do not reveal their true behaviour. That people tend to provide socially acceptable responses in interviews (Huddy et al., 1997; Reese et al., 1986) and in written surveys is well documented (Berinsky, 2002); and as anonymity increases answers change (Krysan, 1998). To remedy this challenge, I employ a list experiment. The

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<sup>1</sup> I do not examine how criminalization might affect stigma directed toward sex workers (for a thorough examination of this issue see Della Giusta et al., 2008; Jewkes et al., 2023).

list experiment is a well-documented technique for making people reveal their true attitudes or behaviour in surveys, also called the item count technique or the unmatched count technique (see Coffman et al., 2017; Holbrook & Krosnick, 2010; Lax et al., 2016; Streb et al., 2008; Tsai, 2019). By providing more anonymity than ordinary web surveys, respondents can give truthful answers to sensitive questions.

I find that there seems to be a relationship between the legality of buying sex and the quantity of sex bought. The results show that Swedes and Norwegians purchase less sex than people in the other countries surveyed. Sweden and Norway are also the countries in the sample where the purchase of sex is criminalized. I additionally find decreased sex-buying among Norwegian respondents after the purchase of sex was prohibited in Norway and rather stable development of the quantity of sex-buying in Sweden during the same time. The change in sex-buying in Norway and stability in Sweden, indicates that the law may have caused the decrease in sex-buying in Norway. Moreover, this result is consistent across models with data based on direct questions and list experiments.

## 2 Prostitution policy and sex-buying behaviour

The policy may impact sex-buying behaviour via at least two pathways. One is via the fear of punishment, and another is via the social stigmatization of buying sex. Perhaps most straightforward is the first pathway and idea that by criminalizing sex-buying, potential sex-buyers are thought to refrain from purchasing sex due to the fear of getting caught. The fiscal and physical punishments make these potential customers choose not to purchase sex.

To influence behaviour effectively, a policy needs to be implemented properly (e.g. Crowhurst et al., 2012; Skilbrei & Holmström, 2011). Factors that have been stressed to inhibit such implementation include corrupt law enforcement, insufficient resources for agents who monitor prostitution, and inaccurate and biased interpretations of prostitution policies among actors who monitor or enforce the laws (such as the police and social services) (Crowhurst et al., 2012: 190). Biased interpretations may occur when policies are highly norm driven and the enforcer does not share the norm of these policies, often referred to as the ‘stickiness of norms for enforcement’ (e.g. Kahan, 2000). However, several scholars stress that the norm-setting potential of laws is often equally or more important for individual behaviour than the legal implication of laws (McAdams, 2000; O’Donnell, 2007; Posner, 1998, 2000). This brings us to the second pathway—stigma. Social sanctions, such as shame or not being accepted in a group, can be just as much or even more critical reasons for obeying the law compared to fiscal or physical sanctions (O’Donnell, 2007; Sunstein, 1996). There are examples of how citizens refrain from breaking laws, even if violating such a law would result in minimal hard enforcement (Posner, 2000). The second pathway through which policy may affect behaviour is stigma. A full consideration of an individuals’ alternative courses of action therefore needs consider the approval and disapproval of others (McAdams, 2000; Posner, 2000). Approval depends on whether an individual manages to imitate norms of the other group members precisely. A complicating

feature of social norms is that they are rarely public and instead a set of private and often hidden information (Posner, 2000), especially when it comes to sensitive issues such as sex and purchases thereof. To successfully adhere to the ‘appropriate’ social norm, individuals use symbols, signaling and reading symbols to learn about other peoples’ norms. To cooperate successfully, one must therefore discover the norm of the chosen cooperative player and then imitate this norm (Posner, 1998, 2000). Following this reasoning, laws can function as norm carriers and a mechanism for displaying the prevailing social norm in a society where this norm would otherwise be hidden (McAdams, 2000: 372). The state may hence signal to citizens that buying sex is considered wrong by criminalizing the purchase of sex. Indeed, both the Swedish and the Norwegian ban on sex-buying aimed at changing societal norms about prostitution (e.g. Ekberg, 2004; Justis-og politidepartementet, 2008).

It is plausible that previous sex buyers will react to stigma when buying sex becomes illegal in a similar vein as people who do not buy sex. However, studies also show how some sex-buyers may deviate from the general pattern. Rather than being concerned about what most people think, sex-buyers may identify with other sex-buyers. Acceptance from this group may become more important than from other people. For example, interviews with Finish sex-buyers who purchased sex abroad illustrate how travelling made it possible for the buyers to “separate the different identities spatially as, for instance, husbands and fathers as well as sex buyers and the different moral norms embedded in them” (Marttila, 2017: 40). Sex-buying per se is not criminalized in Finland, but buying sex from a person involved in pimp-organized prostitution as well as victims of trafficking is (Skilbrei and Holmström 2011).

Indeed, Della Giusta et al. (2021) stress that sex markets include both non-risky and risky clients. When the purchase of sex is criminalized, the composition might change so that the non-risky clients leave while the risky clients might stay.

At the same time, the study based on interviews with Finish sex-buyers also shows that the men who purchase sex abroad care about the social norm among family and friends outside sex-buyer communities, and refrain from breaking the overarching social norm in their country. Even if a segment of sex-buyers will be less or differently affected by the stigma that comes from criminalizing the purchase of sex, I expect that most people who buy sex will change their attitudes and behaviour to adhere to the law. I hypothesize that when a state decides to criminalize the purchase of sex, increased stigma will follow, which will decrease the quantity of sex bought.

Besides policy, scholars emphasize that distributive patterns of gender power, attitudes towards sexuality and consumption, and diversity of commercial sex transactions may impact the outcome of specific prostitution policies (Munro & Della Giusta, 2016: 5). On an individual level, results vary in terms of what it is that characterizes the men who buy sex. For example, in an Australian study, the authors noted that there were few significant differences between men who did and men who did not buy sex (Pitts et al., 2004). Simultaneously, Della Giusta et al. (2021) find that “sociodemographic, degree of conservatism and risk attitudes all play an important role in identifying demand” (2021: 521).

**Table 1** Prostitution regimes in Europe 2014

Brothel owning is criminalized, purchase is criminalized	Brothel owning is criminalized, purchase is legal	Brothel owning is regulated, purchase is legal
		Germany & the Netherlands
	Denmark, the UK, France & Spain	
Sweden & Norway		

Source: Della Giusta et al. (2021), Dodillet (2005), Mathieu (2012), Outshoorn (2012), Schmitt et al. (2013), Sikkerhedsstyrelsen (1999), Skilbrei and Holmström (2011)

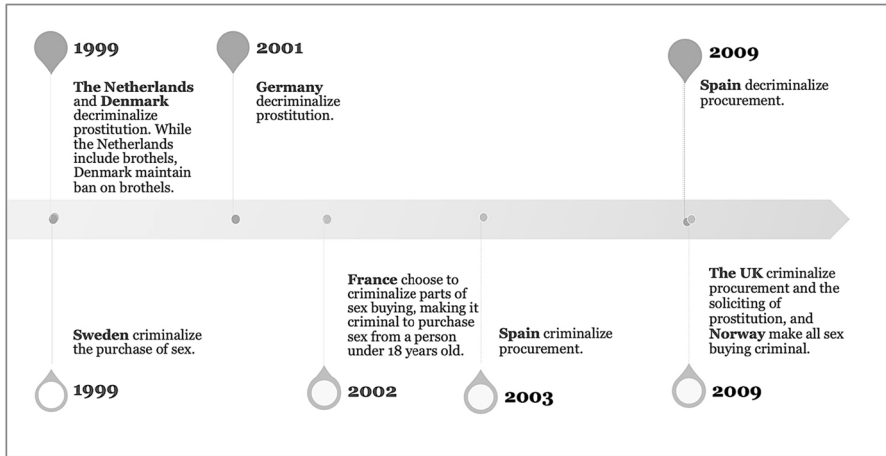
### 3 Legal context in the different countries

States have tried to control prostitution in various ways, and most have adopted some sort of policy to support these efforts (Outshoorn, 2004). In feminist scholarship, there is a division between those who see prostitution as harmful for women, since they contract away freedom and sexuality, and those who see it as harmful because society generates a stigma via a double standard of sexual morality. Outshoorn (2004) identifies the two major opposing positions within the feminist debate on prostitution as one that views prostitution as ‘‘sexual domination and the essence of women’s oppression’’ and one that views it as work (Outshoorn, 2004: 9). These two positions arguably generate opposing policy perspectives; the first position demands criminalization of the third parties that profit from prostitution and sometimes of the buyer (prostitutes are seen as victims and thereby not liable), the second calls for decriminalization or legalization of both parties. There are clear differences among countries in terms of the weights of these two positions in the prostitution discourse.

The analysis considers a selection of countries in Western Europe that are similar in terms of geographical location and economic standards, and different in terms of brothel and sex purchase policies (Crowhurst et al., 2012). The eight countries that I examine are Spain, France, the Netherlands, Germany, the UK, Denmark, Norway, and Sweden. Table 1 describes the differences in the legal status of prostitution between the countries in 2014 when the latest data were collected.

To provide a detailed account of the policy development in these countries is outside the scope of this paper (for thorough account see: Crowhurst & Skilbrei, 2018; Wagenaar & Jahnsen, 2018). Instead, I present only major changes in prostitution policy from 1990s and onward for these eight countries to test the hypothesis on prostitution law and sex-buying behaviour.

All eight countries had changed their prostitution policy at least once before the survey was fielded. Figure 1 below presents prostitution policy changes for the countries between 1999 and 2009. In Sweden, it has been illegal to buy, but not sell, sex since 1999 (Erikson, 2017). Norway followed the example of its Nordic neighbour in 2009 and went from a situation where it was legal to both buy and sell sex to criminalizing buying (Skilbrei & Holmström, 2011). Netherlands and Germany have on the other hand chosen to keep buying legal and to



**Fig. 1** Prostitution policy development in parts of Western Europe 1999 to 2009. Note: The figure is based on information from the sources (Della Giusta et al., 2021; Dodillet, 2005; Mathieu, 2012; Outshoorn, 2012; Schmitt et al., 2013; Sikkerhedsstyrelsen, 1999; Skilbrei & Holmström, 2011)

decriminalize the running of brothels. The Netherlands lifted the ban on brothels in 1999 (Outshoorn, 2012), and Germany in 2001 (Dodillet, 2005).

Denmark, the UK, France, and Spain are located between these two policy extremes. When the survey was fielded in 2014, buying and selling sex was legal in these countries whereas running a brothel was illegal. Both France and the UK have more recently moved in an abolitionist direction (e.g. Della Giusta et al., 2021; Mathieu, 2012). The UK criminalized soliciting and procurement in 2009 and there has been a debate on criminalizing the buyer of sex lately (Della Giusta et al., 2021). In France, brothels were banned already in 1946, and buying sex was partly criminalized in 2002 by making it criminal to purchase sex from a prostitute younger than 18 years old. In 2003, buying sex from a vulnerable person was also covered as an offense in French law. In 2011 the proposal to criminalize clients was submitted to the French National Assembly. An intense debate followed in France, which culminated in the criminalization of all clients in 2016 (Wagenaar & Jahnsen, 2018). In Spain, there have been several shifts in prostitution reforms since 1995, both toward criminalization as well as legalization. The decriminalization of prostitution (including procurement) from 1995 was replaced in 2003 by a law that criminalized “any activity related to the exploitation of third persons”. Then in 2009, a prostitution act “stopped the general criminalization of any type of procurement” (Schmitt et al., 2013). In Denmark, selling and buying sex was decriminalized in 1999, although the same law made purchasing sex from a person under 18 years old illegal, and brothels were still banned (Sikkerhedsstyrelsen, 1999).

With respect to the timeline, it is worth noting that Sweden and the Netherlands pioneered new types of legal frameworks to solve problems stemming from prostitution, whereas the development in other countries such as Norway and Germany can be viewed as cases of policy diffusion. Moreover, debates about whether to change

the legal framework concerning prostitution are still ongoing in many of the European states.

## 4 Materials and methods

### 4.1 Ethics statement

All participants provided written informed consent before the study.

### 4.2 Data and the list experiment

Despite the differences in prostitution regimes and discourses regarding criminalization, the literature on sex-buying behaviour has so far relied mostly on single country cases and few studies have presented results from comparable surveys across different prostitution regimes. Additionally, the norm-changing aspect of prostitution law has only briefly been examined (Della Giusta et al., 2009; Immordino & Russo, 2015; Jonsson & Jakobsson, 2017; Kotsadam, & Jakobsson, 2014), either by focusing on attitudes within narrow groups such as students (e.g. Basow & Campanile, 1990; Cotton et al., 2002), or by comparing attitudes between population samples from few countries (Kotsadam & Jakobsson, 2011, 2014), or comparing answers to a general question on the morality of prostitution (and thus not separating tolerance toward buying and selling respectively) across different types of prostitution regimes (Immordino & Russo, 2015). The lack of comparable data across regimes has also been addressed as one major gap in prostitution research (e.g. Weitzer, 2015). No study has to our knowledge compared the quantity of sex bought and attitudes toward sex-buying across several different prostitution regimes.

I analyse survey data from above eight European countries that include questions about sex-buying attitudes and behaviour. The respondents filled out an online questionnaire and never disclosed identifying information. The survey was fielded to a total of 45,478 individuals across all eight countries. The response period for the Scandinavian countries (Denmark, Norway, and Sweden) was from February 7 to March 25, 2014, and for the other countries (France, Germany, Netherlands, Spain, and the UK), from October 28 to November 4, 2014. The Swedish Institute for Opinion Surveys (Sifo) was hired to conduct the survey for the Scandinavian countries and Alstra AB for the other countries. By the end of the survey period, 16,948 (37%) had responded. By using a self-administrated survey, compared to an interview-administrated survey, I have tried to remedy the risk of a very low response rate, as using self-administrated surveys has been showed to increase the response rates of surveys with sensitive questions (Tourangeau & Smith, 1996). I additionally use survey data collected in Norway and Sweden between 2008 and 2010, which were collected over four waves in both countries: in August 2008, August 2009, August 2010, and February–March 2014. Between the first two surveys (January 2009), Norway banned buying sex, in Sweden buying sex has been banned since January 1999. In 2010, the same

questionnaire was also distributed to a sample of respondents in Denmark. For more information about this data collection, see Kotsadam & Jakobsson (2011).

The sample is representative with respect to gender and age, while in terms of education it is biased toward the highly educated segment of the population (for more details about the data, see Jonsson & Jakobsson, 2017). The regression analyses somewhat handle the problem by controlling for education and other socio-economic factors. As such, the results from the survey have an impact on how we can understand sex-buying for a large part of the population in these Western European countries, although not representative of the total populations. Tables 5, 6 and 7 in the “Appendix” describe the variables used in this paper.

In all four survey waves in Norway and Sweden, respondents were asked if they knew someone who had bought sex during the past 6 months. In the third survey wave, respondents were asked if they had bought sex during the past 6 months. That question was not given in the two earlier survey waves. A problem with surveys is that respondents may provide socially acceptable answers instead of their genuine opinions. The list experiment is a well-documented technique for making people reveal their true attitudes or behaviour in surveys (see Coffman et al., 2017; Holbrook & Krosnick, 2010; Lax et al., 2016; Streb et al., 2008; Tsai, 2019). Hence, a list experiment was implemented in the fourth survey wave. Such a technique provides more anonymity than ordinary web surveys, and thus may increase respondents’ truthful answers to sensitive questions. Therefore, I can test if social desirability bias is skewing answers to direct questions about buying sex.

In a list experiment, individuals are randomized into a control and a treatment group, where individuals in the control group are asked how many of  $N$  items they have done or support. Instead, individuals in the treatment group are assigned  $N + 1$  items, where the additional item is the sensitive item, and the  $N$  items are the same for both control and treatment. The mean number of responses for the  $N$  statements should be the same in both groups (due to randomization), thus taking the difference between the average response in the treatment group and the control group, gives an estimate about how large share of the individuals that have done or supports the sensitive item. It is impossible to find out which individuals who have done or supported the sensitive item, thus releasing the pressure of the social desirability bias. This method requires a reasonably large sample. It is also important that the different items are negatively correlated to minimize people choosing all or zero items, as the latter would allow us to identify individual attitudes (Glynn, 2013). Furthermore, the technique rests on the assumption that the design does not affect the responses, and that respondents do not lie when answering the question (Tsai, 2019).

To record the quantity of sex bought I use three different survey items. First, the response to the direct survey question: “Have you paid for sex over the last 6 months?”. Second, the response to “Do you know anyone that has paid for sex over the last 6 months?”. Finally, I also implement the list experiment: A randomly chosen control group of individuals was asked how many of four items they had done in the past 6 months, the treatment group was asked how many of five items they had done in the past 6 months, where the additional item was the item of interest. The



control group was asked how many of the following four things they had done during the past 6 months:

1. Smuggled alcohol
2. Had vacation
3. Ran a marathon
4. Had a cold

While the treatment group was given a fifth statement in addition to the four statements above:

5. Bought sex

Estimating the percentage of the population who buy sex by asking respondents whether they (or their acquaintances) have bought sex, or using a list experiment, compared to using figures on the number of women in prostitution, is advantageous since prostitution supply is difficult to quantify and not always visible in police reporting or other reports where its size is estimated. Police reporting may be biased since some studies present evidence of abusive behaviour among police officers in their interaction with women in prostitution (Dewey & St Germain, 2014; Williamson et al., 2007). Finally, examining demand rather than supply may give a more accurate estimate of the size of prostitution since clients may buy sex both on hidden and visible markets (Di Nicola et al., 2009).

### 4.3 Empirical approach

I start by running logistic regressions on the direct question of sex-buying, including indicator variables for the different countries (1). I proceed by restricting the sample to only men, including individual level controls (2), and then moral attitudes toward sex-buying (3). I continue by running OLS regressions on moral attitudes, including indicator variables for the different countries (4), restricting the sample to only men, and including individual level controls (5). The residuals are normally distributed for these regressions, and I choose OLS regression as analytical method over ordered logit. In addition, the OLS regression results are similar to those from ordered logit regressions. The regressions can be formulated as

$$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i \quad (1)$$

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i + \varepsilon_i \quad (2)$$

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i + \beta_3 Q_i + \varepsilon_i \quad (3)$$

$$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i \quad (4)$$

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 Z_i + \varepsilon_i \quad (5)$$

where  $Y_i$  in (1) to (3) is the direct question on sex-buying, and  $Y_i$  in (4) to (5) is moral attitudes toward sex-buying.  $X_i$  is a vector of country-level characteristics (country dummy and/or prostitution regime),  $z_i$  is a vector of individual-level factors for each individual  $i$ , and  $q_i$  is a vector of each individual  $i$ 's attitudes toward sex-buying behaviour.  $\varepsilon_i$  is the error term.

Second, I run regressions to test the relationship between law and behaviour within a difference in differences framework. I follow the same approach as in Kotsadam and Jakobsson (2014) with a few modifications. I first run a regression with the two country specific variables included (6), second, I include all relevant individual level variables (7). The regressions can be formulated as

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 z_i + \beta_3 q_i + \varepsilon_i \quad (6)$$

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 z_i + \beta_3 q_i + \beta_3 V_i + \varepsilon_i \quad (7)$$

where  $Y_i$  indicates whether the respondent knows someone who has bought sex the last 12 months,  $X_i$  is a country dummy for Norway,  $z_i$  measures whether the respondent is a Norwegian resident after the reform,  $V_i$  is a vector for the individual level variables of interest (sex, age, education, and marital status).  $\varepsilon_i$  is the error term.

Third, I attempt to remedy the challenge of social desirability bias by using the list experiment. The empirical approach follows Coffman et al. (2017) closely. For each respondent  $i$  in the treatment group including the sensitive item, the number of the five statements reported as true ( $y_i^V$ ) is observed. In the direct report group,  $d_i$  is equal to one if respondent  $i$  answered "yes" to the directly asked question and zero otherwise, and the number of the four statements reported as true  $c_i$ . For the direct report group, I construct the sum of these measures, which gives the number of five items reported as true for the respondents in the direct report group ( $yDi = di + ci$ ). Under truthful reporting, the expected number of true items will be the same in the two groups since respondents are randomly appointed. However, if the hidden report treatment lowers the cost of telling the truth the difference in means between the two groups is a better estimate of the true population mean.

I define the change in reporting as  $\mu \equiv E[y_i^V] - E[y_i^D]$ .  $\mu$  can be interpreted as a measure of how much the sensitive response suffers from social desirability bias; it suggests the existence of a social norm that makes truthful reporting of the sensitive answer in the direct report treatment more costly. I estimate regressions of the following form:

$$y_i = \beta X_i + \mu V_i + \varepsilon_i \quad (8)$$

where  $V_i$  is an indicator variable for the hidden report treatment for individual  $i$ ,  $y_i$  is the number of true statements for individual  $i$ ,  $X_i$  is a vector of control variables (country, age, age<sup>2</sup>, gender).

**Table 2** Demand for sex-buying across the eight countries

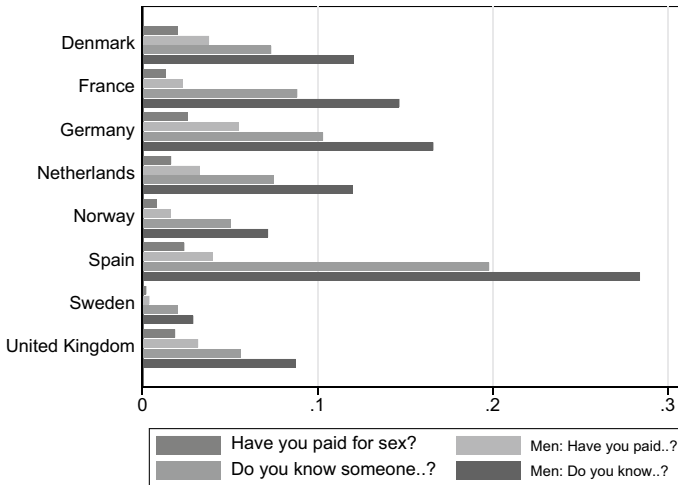
	Have you paid for sex?		Do you know anyone who has paid for sex?	
	All	Men	All	Men
Denmark				
Mean	<b>.02</b>	<b>.038</b>	<b>.074</b>	<b>.121</b>
<i>SD</i>	<i>.141</i>	<i>.192</i>	<i>.261</i>	<i>.326</i>
France				
Mean	<b>.013</b>	<b>.023</b>	<b>.088</b>	<b>.147</b>
<i>SD</i>	<i>.114</i>	<i>.15</i>	<i>.284</i>	<i>.354</i>
Germany				
Mean	<b>.026</b>	<b>.055</b>	<b>.103</b>	<b>.166</b>
<i>SD</i>	<i>.159</i>	<i>.228</i>	<i>.304</i>	<i>.372</i>
Netherlands				
Mean	<b>.016</b>	<b>.033</b>	<b>.075</b>	<b>.12</b>
<i>SD</i>	<i>.127</i>	<i>.178</i>	<i>.264</i>	<i>.325</i>
Norway				
Mean	<b>.008</b>	<b>.016</b>	<b>.05</b>	<b>.072</b>
<i>SD</i>	<i>.089</i>	<i>.126</i>	<i>.219</i>	<i>.258</i>
Spain				
Mean	<b>.024</b>	<b>.04</b>	<b>.198</b>	<b>.284</b>
<i>SD</i>	<i>.153</i>	<i>.197</i>	<i>.399</i>	<i>.451</i>
Sweden				
Mean	<b>.002</b>	<b>.004</b>	<b>.02</b>	<b>.029</b>
<i>SD</i>	<i>.047</i>	<i>.063</i>	<i>.14</i>	<i>.168</i>
United Kingdom				
Mean	<b>.019</b>	<b>.032</b>	<b>.056</b>	<b>.087</b>
<i>SD</i>	<i>.135</i>	<i>.176</i>	<i>.23</i>	<i>.283</i>
Total				
Mean	<b>.017</b>	<b>.031</b>	<b>.086</b>	<b>.132</b>
<i>SD</i>	<i>.129</i>	<i>.174</i>	<i>.28</i>	<i>.338</i>

Mean values (in bold) on questions about own and acquaintances' sex-buying behaviour. Total sample per country in columns 1 and 3, and men only columns 2 and 4. Standard deviations in italic

## 5 Results

### 5.1 Descriptive statistics and differences in direct reporting

Table 2 presents the mean values regarding sex-buying behaviour for the total sample, as well as divided by country. All descriptive statistics can be found in the “Appendix” (Tables 5, 6, 7). Mean values can be interpreted as the share of respondents in each country. Reported sex-buying is lowest in Sweden and Norway and highest in Germany and Spain. There are considerably higher numbers of

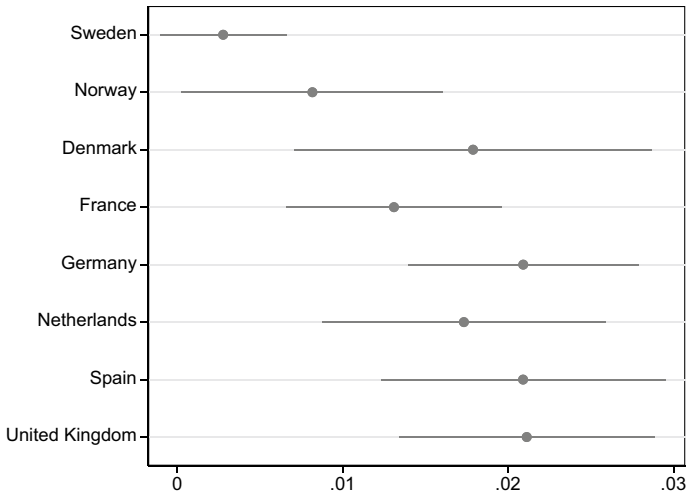


**Fig. 2** Variation of the demand for sex-buying across countries. Note: Mean values from questions regarding respondents', as well as acquaintances' sex-buying. Exact figures in Tables 6 and 7 in "Appendix"

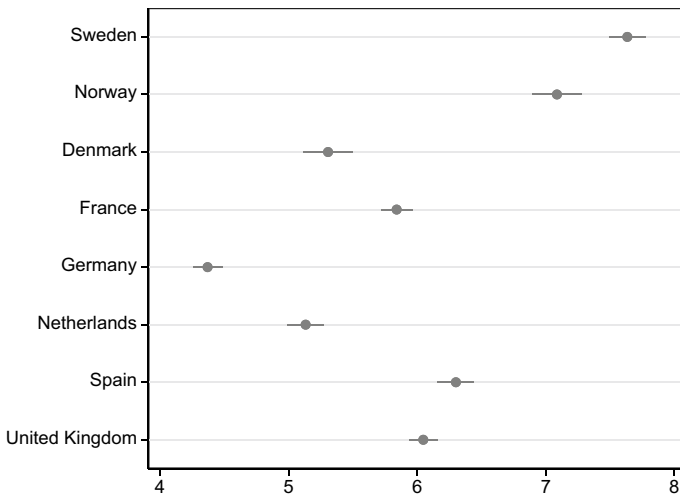
respondents who know someone who has bought sex than respondents who have bought sex. In the total sample 1.69% of the respondents have bought sex (the percentages range from 0.8% in Norway to 2.6% in Germany). A substantially higher 8.55% know someone who has bought sex (from 2% in Sweden to 19.79% in Spain). The share is also higher among men, ranging from 5.5% of male respondents reporting that they have bought sex in Germany to 0.4% in Sweden. 28.4% of the male respondents in Spain say they know someone who have bought sex, compared to 2.9% in Sweden. Figure 2 illustrates these results.

In Table 8 ("Appendix") I run logistic regressions on the direct question about sex-buying and include indicator variables for the different countries. Sweden is the left-out category, so the results are in comparison to Sweden. All countries except Norway have statistically significantly higher rates of sex-buying than Sweden. These results remain stable when the sample is restricted to only men and when including individual level controls. Interestingly, adding attitudes changes the relationship, so part of the difference seems to go via attitudes (see column 4). Figure 3 visualizes these results. The findings are in line with the expectation that respondents who reside in countries that criminalize sex-buying buy less sex than do respondents who live in countries where such purchase is legal. Moreover, attitudes about sex-buying affect the decision on whether to buy sex, so respondents who think that sex-buying is morally wrong are also less likely to buy sex.

The results from the analysis cannot confirm that potential customers in Norway and Sweden mainly refrain from buying sex due to fear of social, compared to fiscal punishment. However, until recently very few customers were sentenced to prison. At the time of fielding the survey, buying sex in Norway and Sweden was punished with fines and/or a maximum of 6 months in prison. Since then, the term in prison has been prolonged to 1 year (Justis-ogberedskapsdepartementet, 2020;



**Fig. 3** Sex-buying among respondents in the eight European countries. Note: Figure based on results after logit regression Table 8, model 4



**Fig. 4** Do you think that buying sex is morally wrong? Note: Figure based on results after OLS regression Table 9, model 4. The highest value 10, indicates complete moral wrongness, and the lowest value 0, indicates that sex-buying is morally justifiable

Justis-ogpolitidepartementet, 2008; JustitiedepartementetL5, 1998, 2022). Due to the moderate punishment, it is possible that many clients refrain from buying sex as a consequence of fearing social punishment.

In Table 9 (“Appendix”) moral attitudes are investigated directly. Figure 4 visualizes these results. We see that there is a difference whereby Swedes think that buying sex is the most morally wrong. Norway is the second country in this respect and

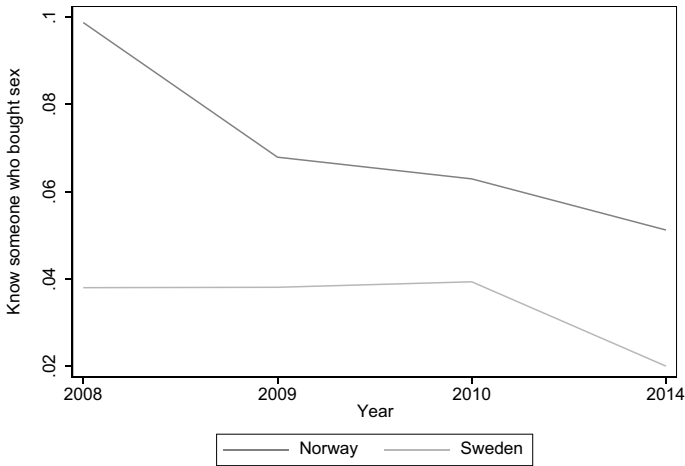
Germans are least inclined to believe it is morally wrong. This result is in line with the expectation that respondents living in countries where the purchase of sex is criminalized are also more likely to condemn such acts, compared to citizens residing in countries where sex-buying is legal.

## 5.2 A comparison between Sweden and Norway, a difference in differences framework

In the analyses presented so far, Sweden and Norway stand out as the two countries with the lowest quantity of sex-buying. Sweden and Norway are also the countries where most respondents perceive sex-buying as morally wrong. These Nordic neighbours have both chosen to implement a law that criminalizes the purchase of sex. Sweden introduced such a law already in 1999 and became one of few countries that criminalize the buyer but not the seller. Norway implemented a similar law in 2009. The analyses in the previous section do not consider whether the law affects sex-buying or if other aspects within these countries drive the quantities of sex bought. Hence, in line with Kotsadam and Jakobsson (2014), I examine sex-buying in Norway and Sweden within a difference in differences framework to attempt to isolate the effect of the law on behaviour.

For the difference in differences framework to suit the purpose, I need to know that only the change in the law in Norway is what distinguishes the two countries before 2009. Norway and Sweden are very similar in being Nordic welfare states, geographically close, and strongly emphasizing equality (Kautto & Kvist, 2002). Nordic countries have long been considered promoters of gender equality (Hernes & Hernes, 1987), with strong women's organizations and a high or very high percentage of female legislators (Bucken-Knapp et al., 2014). Indeed, Sweden and Norway are among the best-performing countries in terms of a wide range of gender equality measures, according to the World Economic Forum's (2020) index on gender gaps. More than being advanced social-democratic welfare states, Nordic countries also "share a consensus-oriented political culture" and "a historically dominant evangelical Lutheran state-church" (Bucken-Knapp et al., 2014). All in all, I argue that these two countries are similar in enough aspects for the difference in differences framework to work. However, I only have data for one time before the legal change in Norway, so I cannot establish whether attitudes in the two countries developed as parallel trends before the legal change.

In a previous article, Kotsadam and Jakobsson (2014) show that the share of people claiming to know someone who has bought sex during the past 6 months decreased in Norway (compared to in Sweden) after they criminalized sex-buying (while the legal framework was not changed in Sweden). In Fig. 5, these results are displayed adding the latest wave with responses from 2014. The direct question was only included in the survey after the legal change in Norway, and hence, I use the indirect question in the difference in differences framework. In Norway the share decreased from about 10% of the respondents before the legal change to about 7% 2 months after the legal change. Eight months after the legal change, the share decreased additional 0.5 percentage points. In 2014 about 5% of the Norwegian



**Fig. 5** Share of respondents that reported that they knew someone who bought sex the past 6 months. Norway and Sweden 2008 to 2014

respondents said they knew someone who had bought sex in the last 6 months. That is, decreasing approximately 5 percentage points in 5 years after the legal change. The number in Sweden was at a constant 4% from 2008 to 2010, decreasing to 2% in 2014. To sum up, the share of people who say they know someone who has bought sex in the last 6 months has remained stable in Sweden for several years, with a 2 percentage points decrease between 2010 and 2014. Contrary, in Norway, where sex-buying was criminalized in 2009, this share of people decreased extensively between 2008 and 2014. Between 2010 and 2014 we can see that sex-buying behaviour seems to follow a similar trend in Norway and Sweden.

In Table 3 presents the results from a logit regression on this indirect question. The coefficient for Norway\*After, captures the average effect of people who live in Norway after the criminalization of sex-buying (Wave 2, Wave 3, and Wave 4). The results indicate that the introduction of the Norwegian law affected whether people knew someone who had bought sex during the last 6 months, both when not controlling for other factors (column 1) as well as when including controls (column 2). Furthermore, more men than women have acquaintances who buy sex. This is also true for younger people and people with lower education degrees.

The results have so far indicated that people are more likely to report that they have bought sex as well as know someone who has bought sex in countries where purchasing sex is legal, compared to countries where such purchasing is criminalized. From the difference in differences analyses we see that introducing a law that criminalizes purchase results in fewer people who know someone who has bought sex. However, it is plausible that people refrain from reporting their or their acquaintances' behaviour when such behaviour is illegal—and that the legal change thus increases the social desirability of survey responses in addition to or instead of actual behaviour. To investigate whether the respondents answer truthfully, I conduct a list experiment that gives respondents anonymity.

**Table 3** Logit regression

	All (1)	Incl. controls (2)
Norway	1.020*** (0.178)	1.063*** (0.181)
Norway After	- 0.382* (0.207)	- 0.336 (0.211)
Wave 2	- 0.014 (0.183)	- 0.031 (0.185)
Wave 3	- 0.064 (0.177)	- 0.111 (0.181)
Wave 4	- 0.479** (0.188)	- 0.448** (0.201)
Male		1.324*** (0.101)
Age		- 0.013*** (0.003)
Married		- 0.138 (0.098)
High education		- 0.254*** (0.091)
Constant	- 3.232*** (0.144)	- 3.347*** (0.205)
Pseudo R-Square	0.0238	0.0724
Observations	11,559	11,535

Difference in differences estimates. “Do you know someone who bought sex the last 6 months?”

Exponentiated coefficients; t statistics in parentheses. Sweden is the excluded country, wave 1 omitted

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

### 5.3 Experiment results

Table 4 displays results from regression analyses (following Eq. 1) for Sweden and Norway. I include control variables age, age<sup>2</sup>, and gender. The Constant is the average number of items reported in the direct report group. At the same time, the Treatment indicates the increase in the average number of reported items for the hidden report treatment (V in Eq. 1). The list experiment results are not statistically significant. However, the share of respondents who report sex-buying in the list experiment is larger than we have seen when answering the direct question. The increase in reporting in Sweden is 4.2 percentage points ( $0.057/1.349 = 0.042$ ) and the increase in reporting in Norway is 1.4 percentage points ( $0.0284/2.029 = 0.014$ ). Most customers of sex-buying are men, and I run the analysis for men only. Using a list experiment increases the share of Swedish male sex-buyers by 6.3 percentage points,<sup>2</sup> and

<sup>2</sup>  $0.0704/1.123 = 0.063$ .



**Table 4** Results on social desirability bias

	Sweden		Norway	
	All	Men	All	Men
	(1)	(2)	(3)	(4)
Treatment	0.0567 (1.31)	0.0704 (1.15)	0.0284 (0.49)	0.0742 (0.86)
Controls	Yes	Yes	Yes	Yes
Constant	1.349*** (5.78)	1.123*** (3.31)	2.029*** (6.74)	1.269** (2.62)
<i>N</i>	1795	966	999	491
<i>R Square</i>	0.0510	0.0412	0.0388	0.0231

Control variables include age, age<sup>2</sup>, and gender. *t* statistics in parentheses

\* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

the share of Norwegian male sex-buyers by 5.9 percentage points.<sup>3</sup> Although not statistically significant, it is not possible to entirely rule out that some responses on the direct question suffer from social desirability bias. In other words, it is possible that some respondents in Norway and Sweden have avoided revealing their true sex-buying behaviour when asked directly. Furthermore, the share of male respondents in the list experiment is somewhat similar to that of male respondents who reported that they knew someone who bought sex (Table 2, 3 % in Sweden and 7.2% in Norway). Asking about acquaintances' sex-buying behavior may thus come closer to using a list experiment than asking directly. Again, Sweden and Norway are among the countries that score lowest on knowing someone who bought sex.

## 6 Discussion

The question on whether to criminalize the purchase of sex has led to heated debates and different initiatives in Europe and elsewhere. Opponents argue that by criminalizing sex-buying the prostitution market may move underground, creating a more hazardous environment for women in prostitution. Proponents instead often view prostitution as violence against women, calling for a prohibition of the purchase of sex. While discussions are intense and ongoing, few studies have investigated the effects of prostitution law on the quantity of sex bought. Does criminalizing the purchase of sex reduce sex-buying? This paper has sought to develop this field of research and has attempted to answer the question by employing unique data on attitudes to prostitution and sex-buying behaviour in eight European countries located within three different prostitution regimes. The overall finding is that criminalizing sex-buying may affect the quantity of sex bought. The finding is consistent across models with data based on direct and indirect questions about sex-buying behaviour as well as list experiments.

<sup>3</sup>  $0.0742/1.269 = 0.059$ .

However, more research is needed to determine how different prostitution laws affect prostitution markets. One way forward is to examine how the composition of such markets change after criminalizing versus legalizing the purchase of sex.

## Appendix

See Tables 5, 6, 7, 8 and 9.

**Table 5** Description of variables

Variable	Explanation	Pooled mean
Have you paid for sex?	“Have you paid for sex over the last 6 months?” 0 = No 1 = Yes	0.0169 (0.0015)
Do you know anyone	“Do you know anyone that has paid for sex over the last 6 months” 0 = No 1 = Yes	0.0855 (0.0022)
Morally wrong to pay for sex?	“Is it according to you morally wrong or morally justifiable to pay for sex?” ranging from 0 “entirely morally justifiable” to 10 “entirely morally wrong”	5.833 (0.025)
Male	1 = Male	0.488 (0.004)
Age	Age	47.945 (0.106)
Cohabit	1 = if respondent is married or cohabiting	0.619 (0.004)
High Education	1 = if respondent has at least some university	0.489 (0.004)
Norway	1 = If respondent lives in Norway	0.059 (0.002)
Denmark	1 = If respondent lives in Denmark	0.059 (0.002)
The UK	1 = If respondent lives in the UK	0.179 (0.003)
The Netherlands	1 = If respondent lives in the Netherlands	0.118 (0.002)
Germany	1 = If respondent lives in Germany	0.179 (0.003)
France	1 = If respondent lives in France	0.178 (0.003)
Spain	1 = If respondent lives in Spain	0.120 (0.003)

Standard deviations in parenthesis

**Table 6** Descriptive statistics. Pooled sample

Variable	N	Mean	SD	Min	Max
Have you paid for sex?	7782	.017	.129	0	1
Have you paid for sex? Men	3825	.031	.174	0	1
Do you know anyone	15,621	.086	.28	0	1
Do you know anyone Men	7605	.132	.338	0	1
Morally wrong to pay for sex?	15,592	5.84	3.269	0	10
Morally wrong to pay for sex? Men	7592	5.335	3.261	0	10
Age	15,643	47.929	13.756	16	84
Male	15,619	.488	.5	0	1

**Table 7** Descriptive statistics per country Country: Denmark

Variable	N	Mean	SD	Min	Max
Have you paid for sex?	496	.02	0.141	0	1
Have you paid for sex? Men	263	.038	0.192	0	1
Do you know anyone	993	.074	0.261	0	1
Do you know anyone Men	506	.121	0.326	0	1
Morally wrong to pay for sex?	992	5.266	3.054	0	10
Morally wrong to pay for sex? Men	504	4.397	2.994	0	10
Age	999	47.751	13.156	16	65
Male	999	.507	0.500	0	1
France					
Have you paid for sex?	1213	.013	0.114	0	1
Have you paid for sex? Men	569	.023	0.150	0	1
Do you know anyone	2466	.088	0.284	0	1
Do you know anyone Men	1145	.147	0.354	0	1
Morally wrong to pay for sex?	2458	5.838	3.033	0	10
Morally wrong to pay for sex? Men	1141	5.402	3.071	0	10
Age	2466	47.427	13.030	18	75
Male	2457	.466	0.499	0	1
Germany					
Have you paid for sex?	1387	.026	0.159	0	1
Have you paid for sex? Men	618	.055	0.228	0	1
Do you know anyone	2812	.103	0.304	0	1
Do you know anyone Men	1228	.166	0.372	0	1
Morally wrong to pay for sex?	2805	4.411	3.365	0	10
Morally wrong to pay for sex? Men	1224	4.092	3.353	0	10
Age	2813	47.808	13.127	17	75
Male	2809	.438	0.496	0	1
Netherlands					
Have you paid for sex?	916	.016	0.127	0	1
Have you paid for sex? Men	457	.033	0.178	0	1
Do you know anyone	1786	.075	0.264	0	1

**Table 7** (continued)

Variable	N	Mean	SD	Min	Max
Do you know anyone Men	892	.12	0.325	0	1
Morally wrong to pay for sex?	1782	5.143	3.098	0	10
Morally wrong to pay for sex? Men	892	4.8	3.069	0	10
Age	1787	50.959	13.885	20	77
Male	1781	.501	0.500	0	1
Norway					
Have you paid for sex?	499	.008	0.089	0	1
Have you paid for sex? Men	249	.016	0.126	0	1
Do you know anyone	994	.05	0.219	0	1
Do you know anyone Men	488	.072	0.258	0	1
Morally wrong to pay for sex?	997	7.073	3.107	0	10
Morally wrong to pay for sex? Men	489	6.11	3.209	0	10
Age	999	44.456	13.639	16	65
Male	999	.491	0.500	0	1
Spain					
Have you paid for sex?	920	.024	0.153	0	1
Have you paid for sex? Men	472	.04	0.197	0	1
Do you know anyone	1879	.198	0.399	0	1
Do you know anyone Men	975	.284	0.451	0	1
Morally wrong to pay for sex?	1876	6.233	3.144	0	10
Morally wrong to pay for sex? Men	974	5.855	3.190	0	10
Age	1883	41.201	11.904	18	75
Male	1879	.52	0.500	0	1
Sweden					
Have you paid for sex?	904	.002	0.047	0	1
Have you paid for sex? Men	505	.004	0.063	0	1
Do you know anyone	1793	.02	0.140	0	1
Do you know anyone Men	965	.029	0.168	0	1
Morally wrong to pay for sex?	1791	7.631	2.906	0	10
Morally wrong to pay for sex? Men	963	6.82	3.087	0	10
Age	1795	52.188	14.196	17	80
Male	1795	.538	0.499	0	1
United Kingdom					
Have you paid for sex?	1447	.019	0.135	0	1
Have you paid for sex? Men	692	.032	0.176	0	1
Do you know anyone	2898	.056	0.230	0	1
Do you know anyone Men	1406	.087	0.283	0	1
Morally wrong to pay for sex?	2891	6.067	3.112	0	10
Morally wrong to pay for sex? Men	1405	5.389	3.154	0	10
Age	2901	49.596	14.032	16	84
Male	2900	.486	0.500	0	1

**Table 8** Logit. Have you paid for sex?

	All (1)	Men (2)	Individual controls (3)	Attitudinal control (4)
Norway	1.293 (0.868)	1.412 (0.870)	1.215 (0.870)	1.099 (0.873)
Denmark	2.228*** (0.777)	2.297*** (0.778)	2.236*** (0.779)	1.912** (0.783)
France	1.796** (0.751)	1.772** (0.762)	1.774** (0.756)	1.586** (0.759)
Germany	2.486*** (0.728)	2.684*** (0.730)	2.558*** (0.730)	2.078*** (0.735)
Netherlands	2.016*** (0.754)	2.144*** (0.756)	2.146*** (0.756)	1.879** (0.759)
Spain	2.402*** (0.740)	2.356*** (0.746)	2.221*** (0.743)	2.077*** (0.745)
United Kingdom	2.149*** (0.734)	2.111*** (0.741)	2.266*** (0.736)	2.089*** (0.738)
Constant	- 6.111*** (0.708)	- 5.527*** (0.709)	- 6.982*** (1.177)	- 5.001*** (1.204)
Individual Controls	No	No	Yes	Yes
Attitudinal Controls	No	No	No	Yes
Pseudo R-squared	0.024	0.033	0.128	0.162
Observations	7782.000	3825.000	7767.000	7742.000

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Individual level controls are age, age-squared, and male. Attitudinal control is to what extent the respondent thinks it is morally wrong to buy sex

**Table 9** OLS. Do you think it is morally wrong to pay for sex?

	All (1)	Men (2)	Individual controls (3)
Norway	− 0.558*** (0.123)	− 0.710*** (0.175)	− 0.547*** (0.122)
Denmark	− 2.365*** (0.124)	− 2.424*** (0.173)	− 2.327*** (0.122)
France	− 1.793*** (0.097)	− 1.418*** (0.138)	− 1.794*** (0.096)
Germany	− 3.220*** (0.094)	− 2.729*** (0.136)	− 3.264*** (0.094)
Netherlands	− 2.488*** (0.104)	− 2.020*** (0.147)	− 2.501*** (0.103)
Spain	− 1.398*** (0.103)	− 0.965*** (0.143)	− 1.333*** (0.104)
United Kingdom	− 1.564*** (0.094)	− 1.432*** (0.132)	− 1.587*** (0.093)
Constant	7.631*** (0.074)	6.820*** (0.102)	10.061*** (0.273)
R-squared	0.088	0.065	0.119
Observations	15,592	7592	15,570

Standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ . Sweden is reference category. Individual level controls are age, age-squared, and male

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**Data availability** The data that support the findings of this study are openly available in Harvard Dataservice at <https://doi.org/10.7910/DVN/AVOQQR>.

## Declarations

**Conflict of interest** The author reports there are no competing interests to declare.

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