Research Proposal: Exploiting Inequalities: The Gender Pay Gap's Role in the Prostitution Market

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1 Motivation

Legislation surrounding prostitution has been a subject of intense debate, particularly following Amnesty International's call for decriminalization. Despite this, no global consensus has emerged on which legal framework yields the most favorable societal outcomes. The debate is polarized: one side advocates for prohibition, arguing that prostitution brings numerous social ills and poses moral objections for some individuals. Conversely, the other side supports decriminalization, positing that this approach could foster a healthier, safer environment, reducing social exclusion and stigma faced by sex workers (Cunningham and Shah, 2018; Cameron et al., 2021). Research on legalized or decriminalized systems in Western countries, such as that by Weitzer (2011), suggests that legalization significantly impacts the dynamics of prostitution and its associated side effects. Comparisons among Belgium, the Netherlands, and Germany reveal that legal prostitution systems tend to provide better outcomes in terms of security, safety, autonomy, hygiene, and personal agency, compared to criminalized frameworks. However, a primary area of concern remains the complex relationship between prostitution legislation and human trafficking. While there is consensus across policy debates in condemning human traffickers, the persistent evasion of prosecution by traffickers has prompted renewed discussion on whether the entire sex market should be prohibited and which legal framework most effectively reduces coerced participation in the market.

Two primary perspectives attempt to explain why individuals may choose to enter the prostitution market. One view highlights an overrepresentation of sex workers from the poorest segments of the population, with limited employment opportunities (Cameron, 2002). This suggests that prostitution may serve as a job alternative for individuals with limited social capital who face low-paying job options. More radically, this perspective argues that all forms of prostitution are products of coercion, maintaining that participation in the sex trade inevitably involves power imbalances and vulnerability, often based on race, gender, poverty, and ethnicity (Waltman, 2011). Although this market is relatively obscure regarding its size and revenue, studies confirm that demand is primarily male while supply is predominantly female (Roe-Sepowitz et al., 2019; Surveys, 1992–2010; Langer G, 2004). On the other

hand, prostitution is highly lucrative, and individuals seeking profitable ventures may enter the market. Thus, the decision to participate in this industry from an economic perspective can be understood as a personal cost-benefit calculation within a lifetime utility-maximization framework, as suggested by Becker (1976), which considers variables such as reservation wage, policy environment, location, criminalization, and regulation (Reynolds, 1986). Even in frameworks viewing prostitution as a voluntary decision, a woman's choice to enter the trade largely depends on the quality of alternative employment options, which are, in turn, shaped by societal gender relations (Lee and Persson, 2016).

Two primary economic models have been proposed to understand supply and demand dynamics in the prostitution market. The first, proposed by Edlund and Korn (2002), suggests that women forfeit their opportunities in the marriage market by entering the sex trade, earning a premium to offset this opportunity cost. While evidence has shown that sex workers do earn a premium, the model has been criticized for relying heavily on biological determinism and failing to demonstrate that this premium is a direct result of lost marriage prospects. In fact, Arunachalam and Shah (2008) argue that the premium may instead represent a risk premium, as marriage rates among sex workers do not significantly differ from those of individuals with similar characteristics in other professions. Furthermore, the BIDS survey (2005) revealed that 45% of sex workers were married, 34% were divorced and only 21% had never been married, challenging Edlund and Korn's (2002) thesis (Ebenstein and Sharygin, 2016).

The second model, developed by Giusta et al. (2009), incorporates stigma by considering the reputational effects associated with participating in the sex market, both for suppliers and demanders. This model posits that the quantity of sex bought declines as price and stigma rise and increases with income. On the supply side, stigma is lower for sex workers with little to lose in terms of reputation by engaging in commercial sex. Moreover, the model suggests that improving alternative earning opportunities for sex workers would decrease the number of commercial encounters and drive up prices. It explains why, given the generally lower earning opportunities for women, the

majority of sex workers are female, while most clients are male.

These models share a common focus on voluntary entry into the prostitution market and in predicting a decline in prostitution as female income rises. Edlund and Korn (2002) concludes that an increase in female wages would reduce female prostitution levels while increased male income would elevate the equilibrium level of commercial sex. Similarly, Giusta et al. (2009) suggests that policies improving female outside earnings would promote gender diversity among sex workers. Empirical evidence supporting these predictions has been presented by LoPiccalo et al. (2016), who found that negative income shocks significantly influence individuals' decisions to engage in transactional sex. However, this paper investigate economic shocks to the entire population, and not those that may relates only to women income or change in the dynamic of the gender pay gap. Further, the paper investigate transactional sex in Western Kenya, where transactional sex is present in many of relationships, including marriage, and thus differ from the perception of sex work in high-income countries. Also, and Peng (2016) found that prostitution declines as female wages increase. However, the analysis was conducted from 2000 to 2008 for 17 states, and does not look at the dynamic relation of gender pay gap. Indeed, while women income may rise, this does not imply that the gender income gap reduce, as the wage of men might increase more rapidly than those of women. Also, the author was enable to prove a causal relationship between income and supply of sex worker. Besides, the author conclude by stating that the found correlations could be an artifact of the imperfect data employed in the analysis.

While these models provide insights into the relationship between income and market entry decisions, they overlook the potential for coercion. Following Acemoglu and Wolitzky (2011), a coercive labor relationship is characterized by the employer's capacity to violate the worker's participation constraints. In the case of prostitution, this coercive segment relates to human trafficking. Lee and Persson (2022) addresses this aspect in their theoretical work, which divides the supply into voluntary and coerced participants, examining the effects of different legal systems on each group. Their framework suggests that criminalizing the sale of sex disproportionately harms volun-

tary sex workers, as traffickers do not internalize the criminal penalties faced by their victims. A notable finding from their model is that legislation's impact varies by country, as decriminalization may either reduce or exacerbate human trafficking. The authors highlight a crucial factor in these divergent outcomes: the gender income gap. Their model predicts that voluntary prostitution decreases as the gender wage gap narrows and that whether the market supply is predominantly voluntary or coerced depends on income equality between genders.

Existing economic studies on human trafficking have examined the role of gender pay gaps in origin countries. For instance, Rao and Presenti (2012) analyzed UNODC data to explore the relationship between gender inequality and trafficking outflows, finding a positive, statistically significant relationship between the female-to-male income ratio and trafficking incidence. They also observed that while the female-to-male life expectancy ratio was positively related to trafficking origin in some specifications, it was not universally significant, indicating that trafficking is not necessarily more prevalent in countries with greater gender inequality. However, no similar studies have been conducted regarding the destination country.

2 Research Questions and Method

This paper first aims to examine the relationship between the gender pay gap and entry decisions in the prostitution market. Consistent with assumptions made in Edlund and Korn (2002); Giusta et al. (2009); Lee and Persson (2022), I hypothesize that an increase in the gender pay gap will expand the supply of sex workers, as a wider pay gap reduces women's income (the supply side) relative to men's income (the demand side). I hypothesize that an increase in the gender pay gap will correlate with an increased supply of female sex workers. This correlation stems from the notion that as the income gap widens, women's earning opportunities in traditional labor markets diminish, while the prostitution market, known to offer a substantial wage premium, becomes comparatively more attractive. Consequently, women are more likely to enter the prostitution market under these conditions. To analyze this, I require a large geographical area that allows for regional and

temporal variation in the gender pay gap and maintains a consistent legislative stance on prostitution, as varying laws could independently influence market dynamics. Therefore, I will focus on the U.S. market, where prostitution is generally prohibited except in Nevada (where brothels are permitted) and, for a limited period, in Rhode Island.

Secondly, I intend to differentiate the effects of shifts in the gender pay gap on voluntary versus coerced participation within the prostitution market. This approach will allow me to test Lee and Persson (2022)'s hypothesis that the share of voluntary prostitution decreases as the gender pay gap widens relative to the coerced share. For this purpose, I assume the feasibility of segmenting the supply into coerced and voluntary participants.

Thirdly, Lee and Persson (2022) suggests that legal frameworks may impact the balance between voluntary and coerced participation in the sex market, contingent on a country's gender pay gap. Expanding on this notion, I will broaden the analysis to include countries with differing prostitution legislation. I will create a variable representing legislation types, capturing distinctions in legal frameworks. The focus will primarily be on high-income countries, particularly in North America and Europe, where comparable data are available.

In conclusion, this paper seeks to address the question: How does the gender pay gap influence the prostitution market? To answer this, I will initially treat prostitution as entirely voluntary and examine a single country to control for legislative consistency across observations. In the second phase, I will consider a semi-coerced market structure, where part of the supply is involuntary. Finally, I will include multiple countries with various legislative frameworks to enrich the analysis.

This paper will aim to contribute to the literature on the economics of prostitution. First, the paper will used a novel method for a more in dept picture of the market by using several data sources. Second, the paper will test empirical results to test the model developed by (Lee and Persson, 2022). Further the paper will contribute to the literature on human trafficking by

analyzing the impact of the gender pay gap in the destination country. Further I believed that the results will be transferable to the functioning of semi-coerced markets, as well as illegal markets in general.

3 Data

To compute the gender pay gap, I will utilize the female literacy rate and the female-to-male income ratio, as employed by Rao and Presenti (2012) in determining the role of the gender pay gap in the origin country of human trafficking. Additionally, I will construct a measure using a standard regression approach for the gender pay gap and perform an Oaxaca-Blinder decomposition, utilizing data from the U.S. Bureau of Labor Statistics.

To estimate the size of the prostitution market, I will draw on multiple data sources to obtain a comprehensive picture. First, I will examine arrest data from the Uniform Crime Report (UCR), which primarily captures street-based prostitution. As arrest locations are recorded, this will enable me to verify geographical patterns. Second, I plan to web scrape platforms such as The Erotic Review, which currently contains nearly 2,000,000 reviews, filterable by location. Moreover, the website contains data from the early 2000s. This website has been adopted in Cunningham and Kendall (2011) and Cunningham and Shah (2018). In the latter case, the authors uses this data to determine the effect of decriminalization of indoor sex-work in Rhode Island on the size of sex workers supply. This dataset will likely capture off-street prostitution and high-end services, such as escorting. Third, I intend to gather data on certain business types, including strip clubs, massage parlors, bars, and clubs, as these venues are often known to serve as legal fronts for illicit activities, including prostitution. For this data, I will use Business Formation Statistic data from the US Census Bureau, as new businesses in the US must register to receive a tax number. Finally, I aim to contact organizations that provide assistance to sex workers, as they may have records on the number of individuals they have supported over the years.

To distinguish between voluntary participants and coerced one, I will em-

ployed different methods based on the datasets. For arrest data, the UCR distinguishes between charges for prostitution and human trafficking for commercial sex acts. In the case of online data, I plan to implement a method similar to those used by anti-human trafficking task forces, employing algorithms that review online posts to flag potential human trafficking cases, as is done in the Netherlands. For data on legal businesses, I believe there may be identifiable geographical patterns that could highlight likely areas of trafficking, though I am still in the preliminary stages of developing a clear method for this. Lastly, for data gathered from help centers, I expect these organizations may be able to identify cases of human trafficking among the individuals they have assisted.

4 Model

The first model, will aim to investigate the relationship between gender income gap and the supply size in prostitution market. Baseline Model:

$$y_{s,t} = \beta_1 X_{s,t} + \gamma_s + \gamma_t + \psi + \mu \tag{1}$$

Where y represent the number of female sex workers per 100,000 residents in state s for year t. I include both state and year fixed effects, denoted by γ_s and γ_t respectively. Additionally, I incorporate control variables ψ similar to those used by Cunningham and Shah (2018), adding the share of the population with internet access, in the case of online data, and the number of male sex workers per 100,000 residents as an indicator of market growth. Although male sex workers predominantly have male clients, evidence suggests that their geographical distribution is correlated with larger population centers and cities with substantial homosexual populations (Logan, 2017). I assume that controlling for stigma is unnecessary, as this factor should be captured by the state fixed effects. I am also considering whether to measure $y_{s,t}$ and the gender pay gap as proportions or to analyze the year-over-year change for each variable.

For the second part of the analysis, I will decompose $y_{s,t}$into the share

of coerced versus voluntary female sex workers. The other specifications will remain consistent. In the third phase, I will introduce a variable that captures the degree of prostitution legalization, aiming to account for nuanced differences in legislation rather than treating it as a binary variable.

Finally, as establishing causality is a central aim, I will identify an instrumental variable (IV) as I might faced endogeneity. Indeed, I could face omitted variables bias if there exist a variable that would affect both the gender pay gap and the decision to enter the prostitution market.I also might faced simultaneity (reverse causality) if change in prostitution market, for instance very large premium, attract specific worker, thus decreasing the participation of women in the labor market, which then can decrease the incentive to decrease the gender pay gap. This poses challenges, as policies that improve the family environment or support women's employment opportunities are likely to correlate with the decision to enter the prostitution market. Thus, the ideal IV should correlate with the gender pay gap without influencing the likelihood of individuals entering the prostitution market. Potential IV candidates include changes in wage legislation (both minimum wage and equality law considering positive and negative shocks, as state-level wage policies have varied over time), unionization rates (stronger unions typically reduce gender pay disparities by employing standardized pay scales), and access to higher-rank promotions or political position (this would affect women already employed within companies but is less likely to influence new entrants). Further, I could investigate the presence of strong feminist movement, using media coverage, or association presence as a variable that reduce the gender pay gap, and can be used as a positive shock.Besides, alternatives includes changes of policies in unrelated area that can affect fields dominated by women such as reform in licensing, or education opportunities. At this stage, I am still exploring suitable options.

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