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The Economic Returns to Good Looks and Risky Sex in the Bangladesh Commercial Sex Market*

Asadul Islam and Russell Smyth

Abstract

This study examines the economic returns to beauty and unprotected sex in the commercial sex market in Bangladesh. The results show that there is a beauty premium for commercial sex work, but it is within the bounds of the economic returns to beauty for women in occupations that do not involve sex work. We find that there is an earnings premium for sex workers who sell unprotected sex and that more attractive sex workers charge a higher premium for unprotected sex. This result is consistent with more attractive people being better placed to bargain with others and with male clients being more likely to overvalue the returns to immediate sexual gratification and to engage in risk taking activities in the presence of attractive sex workers. The results are robust to alternative empirical specifications.

KEYWORDS: sex workers, unprotected sex, beauty premium, Bangladesh

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Introduction

Beginning with Hamermesh and Biddle (1994), a growing body of literature estimates economic returns to beauty in different contexts (see e.g., Biddle and Hamermesh, 1998). Also a growing number of studies estimate economic returns to commercial sex work (see Cameron et al., 1999; Rao et al., 2003; Gertler et al., 2005; Robinson and Yeh, 2011; Levitt and Venkatesh, 2007; Arunachalam and Shah, 2008, 2010; Edlund et al., 2009; Della Giusta et al., 2009; Logan and Shah, 2009). One study has married these literatures and has explicitly estimated the earnings premium for beauty in commercial sex work (Arunachalam and Shah, 2010). Alongside this literature is a series of studies reporting the results of lab experiments that examine how attractive people behave, how people behave toward attractive people and how the risk-taking behavior of individuals is altered in the presence of attractive people (see e.g., Eckel and Wilson, 2005).

In this article we estimate the returns to physical attractiveness and risky sex for a sample of sex workers in Bangladesh. We differ from the existing literature on economic returns in the commercial sex market in that we focus on how attractiveness, cooperativeness and risk interrelate to affect economic returns. In this respect we use interaction between client and sex worker in the commercial sex market as a natural experiment to test two competing hypotheses from the literature on lab experiments. The first hypothesis is that more attractive commercial sex workers will charge less for unprotected sex because attractive people are expected to be more cooperative and accommodating. The alternative hypothesis is that more attractive sex workers will be able to charge more for unprotected sex. This hypothesis is premised on the more attractive people being better placed to bargain with others and on male clients being more likely to overvalue the returns to immediate sexual gratification and to engage in risk taking activities in the presence of attractive sex workers.

The main problem with estimating wage differentials associated with safe sex practice is that sex workers who practice safe sex are likely have different observed and unobserved characteristics than do those who do not use condoms. In order to tackle the endogeneity problem associated with condom use, we use participation in a safe-sex training program as an instrument for condom use. We exploit the random nature of how the sex workers are shown flip charts, similar to the approach in Rao et al. (2003). We also use a series of instruments by interacting sex worker characteristics with the flip chart variable. The latter allows differences in sex worker characteristics to affect condom use through the flip chart variable. To test whether returns to beauty simply result from more attractive sex workers selling a better product or whether more attractive sex workers are better negotiators, we correlate a variable denoting whether the sex worker belongs to a brothel with our beauty variable. This empirical strategy

takes advantage of the fact that, in Bangladesh, negotiation by the sex worker is less important to price agreement in the brothels than it is on the street.

Background

The Market for Commercial Sex in Bangladesh

Bangladesh is an interesting country in which to study the commercial sex market because HIV remains at relatively low levels for most-at-risk population groups. UNAIDS estimates that about 12,000 Bangladeshis were living with HIV at the end of 2007. This figure represents less than 0.1 percent of the general population (World Bank, 2009). However, while the general prevalence of HIV is low, there are risk factors that could fuel the spread of HIV among high-risk groups. Among the chief risk factors is Bangladesh's large commercial sex market. In 2000, the Bangladeshi High Court ruled that brothel-based female sex work is legal if the brothel is properly licensed, making Bangladesh one of the few Islamic countries that permit prostitution (BBC, 2000). There are 105,000 sex workers in Bangladesh, of whom about 100,000 are female sex workers. Most female sex workers are adolescents or young women, with the majority aged 15 to 18. In most cases, female sex workers will have retired by age 30 (Alam, 2010). More than 20,000 children live in brothels and red light districts in Bangladesh, and many of the girls are expected to follow their mothers into prostitution. Younger children living in brothels help their mothers with household chores and serve refreshments to their mother's clients. Many girls enter prostitution in Bangladesh before the age of 12, and there are successive generations of sex workers within families where mothers provide networks for their daughters, introducing them to rich clients.

The two major categories of female sex workers in Bangladesh are those who work in brothels, and floating sex workers. Floating sex workers are either hotel based or street based. There are 14 official brothels in Bangladesh and 18 official red light districts, which are mostly located either in cities' commercial centers or at river junctions and seaports where there is a lot of through traffic and transient clients. Clusters of small rented rooms usually constitute a brothel, which is regulated by the local authority. Typically, numerous alleys have cubicles on either side of them.

There is a clear hierarchy within the brothel (see Kotiswaran, 2008). At the top of the hierarchy are the local land owners (*jamidars*) who lease land to the homeowners (*bariwali*). The *bariwali* build housing that is rented to the brothel managers (*sardarnis*). The *sardarnis* employ *adhiya* sex workers who, in exchange for a place to stay, give half their earnings to the *sardarnis*. The *sardarnis* will typically charge the *adhiya* sex worker extra for clothing, food and medical care; and the *adhiya* bears the burden of illness. At the bottom of the hierarchy are bonded sex workers (*chukris*), who are bonded to the *sardarnis*. The *sardarnis*

usually make a down payment either to agents who sell sex workers or to the sex worker's relatives or associates for contracting the sex worker's services. The chukris is required to work for the sardarnis until she earns enough to pay off the sardarnis's down payment. Work conditions for the chukris are harsh as the sardarnis attempts to extract as much income as possible. The chukris has no leisure time, often has no choice over clients or sexual practices and has no control over whether the client uses a condom. When chukris sex workers have paid off their debts, they will often work for a sardarnis on an adhiya basis.

Condom use among clients of female sex workers in Bangladesh is variable. According to the sixth round Behavioral Surveillance Survey (BSS, 2006–2007) data from Bangladesh, condom use was 70 percent for brothel's clients and ranged between 51 percent and 81 percent for street workers' clients. Condom use was lowest among hotel-based sex workers in Dhaka and Chittagong at 40 percent and 36 percent respectively. Hotel-based sex workers are particularly vulnerable to HIV as they have the largest number of clients. The higher rate of condom use in brothels reflects the fact that licensed brothels are legal, making it easier for health officials to distribute condoms (BBC, 2000). Consistent condom use with regular clients is lower for sex workers in brothels, hotels and on the street. Syphilis rates are relatively high among sex workers in all categories, but particularly among hotel and street-based workers, indicating the presence of risky sexual practices (World Bank, 2009).

Attractiveness, Cooperation, Risk and Economic Returns

We test competing hypotheses concerning how attractiveness, cooperativeness and risk interrelate to affect the economic returns of sex workers. On the one hand, evidence from lab experiments suggests that attractive people are expected to be more cooperative, because more attractive people are considered to be more helpful. The lab evidence suggests, on the other hand, that relative to these expectations, attractive people appear more selfish, which in turn results in less cooperation by others (Andreoni and Petrie, 2008). If this is true, it would suggest that clients would expect attractive sex workers to agree to unprotected sex more than will unattractive sex workers— making it less likely, all things being equal, that an attractive sex worker could charge a premium for engaging in risky sex.

The competing hypothesis is that attractive sex workers are not, in fact, cooperative at all. Van Kleef et al. (2007) found that people with a peripheral group status within an attractive group send less cooperative messages to opponents than do prototypical group members. If one considers that the very attractive are the peripheral of the sex worker group, then it follows that beautiful sex workers are more likely to demand “uncooperative” higher premiums. In this respect there is considerable evidence from lab experiments for two propositions. First, attractive people are in a superior position when bargaining with others and

are treated better because of their looks (see Mulford et al., 1998; Eckel and Wilson, 2005; Solnick and Schweitzer, 1999). Second, risk taking behavior among males increases in the presence of attractive females. Van den Bergh and Dewitte (2006) demonstrate that males exposed to arousing stimuli, such as viewing pictures of attractive women or handling lingerie, yielded lower minimum acceptance rates in subsequent ultimatum bargaining games. The authors argued that the presence of sex cues cause men to overvalue immediate rewards, and thus become more willing to accept any offer, at the expense of fairness norms.

Both Bertrand et al. (2009) and Wilson and Daly (2004) found that males discount future monetary outcomes more steeply in the presence of attractive females. Wilson and Daly (2004) argued that attractive females activate a mating mindset in males causing them to overvalue immediate rewards. Specifically, if risk-taking behavior is a desirable characteristic in a mate, then males in the presence of attractive females may become more risk tolerant as a signal to potential mates (McAlvanah, 2009).

Moreover, one would expect the bargaining power of the attractive sex worker might be enhanced because of the setting in which the transaction takes place. Ditto et al. (2006) found that visceral cues indicating proximity to objects of desire can lead people to be disproportionately influenced by the anticipated rewards of immediate gratification, rather than by the risks of consummatory behavior. Males that are exposed to arousing sexual stimuli, such as the prospect of having sex with an attractive woman, having made the decision to engage a sex worker, are likely to overvalue the immediate returns of sexual gratification in order to gain what Buss and Schmitt (1993) call “short-term opportunistic copulation.” If attractive people have more bargaining power, and males are more risk tolerant in the presence of attractive females, one would expect that more attractive sex workers would be able to charge a higher premium for supplying unprotected sex to their clients.

Data and Survey Design

The survey employed in this study was administered in 2005 by the Bangladesh Institute for Development Studies (BIDS), with financial assistance from UNDP, as a project under the auspices of the Ministry of Social Welfare in Bangladesh. The survey was administered with the assistance of NGOs working with the sex workers in the relevant geographic area. The survey enumerators consisted of both males and females, each of whom was experienced in survey techniques. In order to minimize the bias associated with ranking participants according to beauty, enumerators were given a number of recent photos and were given instructions of what to look for in ascertaining beauty. There were consistent rankings across different enumerators. Separate sets of enumerators were used in each of the brothels and red light districts. Prior to conducting the interviews a training session

was organized for the enumerators, focusing specifically on appropriate methods for interviewing sex workers. In addition to collecting information on a range of demographic and personal characteristics of the sex worker as well as detailed earnings and labor supply data, each enumerator was asked to assess, on a scale of one to four, the attractiveness of the sex worker from the perspective of a potential client. The measure used here is similar to that used in previous studies.

The sample was drawn randomly from a complete (census) list of sex workers available with NGOs. The survey was administered in three official brothels and four official red light districts. The three brothels located in Daulatdia, Jessore and Mymensingh are among the largest brothels in Bangladesh. Daulatdia is the largest brothel in Bangladesh and one of the largest in the world. It is situated on the meeting point of two rivers, the Jamuna and the Ganges, about 100 kilometers from Dhaka. Jessore is located in Southwest Bangladesh and encompasses three small brothels adjacent to each other; namely, Jhalai Patti, Marwari Mondir and Babu Bazar. The survey was administered in each of these small brothels in Jessore. Mymensingh is located in the north of Bangladesh. The brothel at Mymensingh consists of 11 three-storied buildings and almost 100 tinshed houses.

The floating sex workers were located in red light districts in Dhaka. Most had previously worked in brothels in Dhaka or in neighboring Narayangang Tanbazar and had become floating sex workers after the brothels in which they had worked were dismantled by local authorities. There are several NGOs working with sex workers in these red light districts, and the NGOs were crucial in securing the cooperation of the participating sex workers. The floating sex workers that participated in the study congregated in the red light districts in locations such as bus stops, parks, railway stations, and shrines and outside cinemas and markets. Most of these sex workers negotiated with their clients without the services of a pimp.

A total of 283 sex workers were interviewed, with about 40 sex workers from each brothel and red light district. Hence, of the 283 sex workers surveyed, 123 were from the three brothels and the remainder were floating sex workers from the red light districts in Dhaka. Once we allowed for missing data across all variables employed, we had data on 240 sex workers. Based on independent surveys of sex workers in Bangladesh (see e.g., Akm, 2005), we are confident that this sample is representative of sex workers in Bangladesh.

Table 1 presents descriptive statistics for the sample, broken down according to whether the participants worked in a brothel or were floating. The mean age of sex workers in the brothels was 27.8, while the mean age of floating sex workers was 26.0. The average time in the profession was 7.7 years for sex workers in the brothels and 12.3 years for floating sex workers. Hence, approximately 90 percent of the workers in the sample commenced sex work

between the ages of 10 and 25, with about three-quarters of the sex workers in the brothels commencing sex work below the age of 18. The highest education level attained by the sex workers was generally low: 58.5 percent had not completed primary school, 31.7 percent had completed primary school, 7.5 percent had completed secondary school and just 0.3 percent had a postsecondary qualification. About one quarter (26 percent) of floating sex workers were married or had been married in the past, while the corresponding figure for sex workers in brothels was much higher (67 percent). Two-thirds of participants had children. Most of the sex workers in the sample were Muslim (96.1 percent), with others being Hindu (2.1 percent), Christian (0.7 percent) and Buddhist (0.7 percent). Overall, 6.4 percent of participants reported that their mother had also been a sex worker, although for sex workers in brothels this number was 14 percent, while for floating sex workers it was just 1 percent.

Table 1: Descriptive Statistics

Variables		Floating		Brothel	
		Mean	S.D.	Mean	S.D.
Sex income	Monthly income from sex work (in taka)	7355.2	6383.6	8776.8	5956.7
Other income	Income from other sources (in taka)	376.3	684.8	1108.5	4389.7
Client numbers	Number of clients per day	4.42	2.54	4.05	1.64
Days worked	Number of days worked in a month	20.38	6.61	25.62	5.11
Flipchart	Have you seen the flipchart? (yes=1)	0.91	0.28	0.93	0.25
Age	Age (years)	25.95	7.26	27.8	7.83
Experience	Years in profession	7.72	5.79	12.31	8.14
Married	Have you ever been married? (yes =1)	0.26	0.73	0.67	0.47
Education	Years of education	2.27	3.18	1.81	2.49
Child	Do you have children? (yes=1)	0.67	0.47	0.65	0.48
Muslim	Are you Muslim? (yes=1)	0.98	0.14	0.93	0.25
Mother sex worker	Was your mother a sex worker? (yes=1)	0.01	0.08	0.14	0.35
Parental attitudes	Do your parents approve of your profession? (yes=1)	0.73	0.94	0.59	0.86
Permanent client	Do you have permanent clients? (yes=1)	0.69	0.46	0.78	0.42
Rich client	Do you have rich clients? (yes=1)	0.3	0.46	0.48	0.5
Private partners	Number of partners in private life	2.08	2.68	0.98	0.83
Client attractive	Have you found a client attractive? (yes=1)	0.64	0.48	0.33	0.47
Client age	Average age of clients (years)	29.58	4.87	29.92	5.05
Number of obs.		160		123	

Notes: ¹In 2005, US\$1 was 65 taka (approx.)

Table 2 shows information on beauty and condom use among respondents. In terms of beauty, on a scale of one to four where one is least attractive and four is most attractive, 19 percent of sex workers were rated one, 43 percent were rated two, 28 percent were rated three and 10 percent of sex workers were rated four. Sex workers in brothels were consistently rated more attractive than floating sex workers. Overall 69 percent of sex workers reported that their clients used a condom. Condom use in brothels (76 percent) was higher than among floating sex workers (64 percent). On the surface, this might reflect different client characteristics, but it cannot be explained on the basis of the extent to which sex workers in brothels and floating sex workers see permanent clients. Sex workers in brothels have more permanent clients than do floating sex workers. Floating sex workers see on average 4.4 clients per day, while sex workers in brothels see 4.05 clients per day. Floating sex workers work on average 20.4 days per month, while sex workers in brothels work 25.6 days per month. Sex workers in brothels earned 7355 taka (US\$113.30) per month, while floating sex workers earned 8776 takas (US\$134.90) per month from sex work. Sex workers earn much more than do females in the rest of the labor market. The median average monthly income for females in Bangladesh was less than 750 takas (or US\$11.50) per month and just 1.5 percent of females earned in excess of 7500 takas (or US\$115.30) per month in 2005 (ADB, 2005).

Table 2: Beauty and Condom Use by Sector

	(1)	(2)	(3)	(4= 2-3)
	Overall	Floating	Brothel	Difference
Condom use (=1)	0.69	0.64	0.76	0.12**
Beauty (on a scale 1-4)	2.28	2.13	2.49	0.36***
not beautiful (=1)	19.08	23.13	13.82	9.31***
overall okay (=2)	43.46	48.13	37.4	10.73***
beautiful (=3)	27.56	21.88	34.96	13.08***
very beautiful (=4)	9.89	6.88	13.82	6.94***
Number of Obs.	283	160	123	

Notes: *** indicates difference is statistically significant at the 1% level, ** at the 5% level

Empirical Specification and Econometric Methodology

We regress the log of monthly earnings from sex work on a variable depicting whether the sex worker is attractive (on a scale of one to four where 1= “not attractive” and 4= “most attractive”) as assessed by the enumerator from the perspective of a potential client, a dummy variable equal to one if the sex worker practices safe sex and a series of control variables:

$$\ln W_i = \beta_1 X_i + \beta_2 \times Beauty_i + \beta_3 \times Condom_i + \varepsilon_{1i} \quad (1)$$

Here W_i is the average monthly earnings from sex work of sex worker i , $Condom_i$ is a dummy variable denoting if a particular sex worker practices safe sex, proxied by whether clients “use condoms,” X_i is a vector of characteristics of the sex worker, and ε_{1i} is an error term. The variable “beauty” helps control for an important source of unobserved heterogeneity. Alternatively, it can be regarded as a measure of unobserved productivity, in our context. We use average monthly earnings. However, in estimating equation (1) we control for the average number of clients per day and number of days worked per month. In robust analysis, reported below, we also estimate Equation (1) with the price per act as the dependent variable. The main conclusions with respect to the earnings premium for attractiveness and unprotected sex remain the same when we use price per act.

In Equation (1) the vector of characteristics of the sex worker are human capital characteristics (age, education, experience); labor supply and personal characteristics (marital status, children, religion, income from other sources, clients per day, days worked, and whether the sex worker works in a brothel or works as floating); sex worker’s familial situation (mother was a sex worker, parents approve of their daughter being a sex worker) and client characteristics (rich, attractive clients, clients’ age). The regressions also control for the sex worker’s place of birth, her clients’ occupation and type of sex act (anal, hand simulation, oral, vaginal or hugging and kissing). The regression results reported below also use enumerator-specific fixed effects to control for enumerators’ unobserved characteristics. This is important since enumerators may assess beauty in different ways, and not controlling for enumerator fixed effects in this manner could potentially bias the attractiveness variable. We expect the coefficient on beauty to be positive, consistent with the existence of an earnings premium for beauty. We expect the coefficient on condom use to be negative. Unprotected sex is a compensating wage differential for riskier work activities. Risks associated with the client not using a condom include STDs and HIV infection.

The problem with estimating Equation (1) using ordinary least squares is the possible endogeneity of condom use, i.e., $Condom_i$ may be correlated with the error term, ε_{1i} (see Rao et al., 2003; Gertler et al., 2005). The correlation between

unobservables and the error term could arise for a number of reasons. Controlling for physical attractiveness using the beauty variable partly addresses the most important source of bias, as in most studies this is regarded as an unobservable attribute. However, it remains that beauty is a complex phenomenon and we only have a fairly crude measure. Hence, our beauty variable might not be capturing entirely the unobserved productivity that is due to beauty. Nonetheless, this additional control addresses, at least partly, the endogeneity that arises due to positive correlation between attractiveness, condom use and potential earnings. There can be additional sources of unobserved heterogeneity other than the attractiveness of the sex workers that may bias the estimates of condom use. Conditioning on X and physical attractiveness, unobservables that are correlated with condom use could also be correlated with the potential earnings of sex workers. Therefore we use the instrumental variable (IV) method to deal with potential endogeneity of condom use. In order for variable IV to be valid, it must be correlated with condom use, but it should not affect sex workers' wages or price per act, conditional on X and beauty, other than through its influence on condom use. It must also be uncorrelated with the error term in Equation (1).

We use participation in a safe sex training program as an instrument for condom use. Our approach is the same as that employed by Rao et al. (2003) in their study of the compensating differential for condom use among Calcutta sex workers, where a similar safe sex training program is in operation. There are 30 national NGOs and *samites* cooperatives) working with sex workers in the brothels and red light districts from which participants in the current study are drawn. The major tool that NGOs and samites employ to promote safe sex practices is a flip chart that uses a series of pictures to explain the nature and progression of the HIV virus and how condoms can be used to prevent the spread of HIV. We exploit the manner in which NGOs contact sex workers and show them flip charts, in order to identify the effect of condom use. Specifically, in order to correct for endogeneity of condom use we apply a two-stage procedure of IV regression where in the first stage we estimate the probability of condom use with the flip chart variable as the excluded instrument.

$$Condom_i = \delta_1 X_i + \delta_2 \times Beauty + \delta_3 S_i + \varepsilon_{2i} \quad (2)$$

Here S_i is a binary variable indicating if the sex worker i has seen the flip chart, and ε_{2i} is an extreme value error term. One potential concern with our IV strategy is that it can be biased in small samples. While the IV literature typically focuses on the weak instrument problem, the small sample bias problem has received little attention. We address the concern of small sample bias using limited information maximum likelihood estimation (LIML) and exploit its properties of being approximately unbiased (or less biased than IV) in finite

samples. The approximate median-unbiasedness of LIML has been noted by many authors. Anderson et al. (1982) noted this feature of LIML in the Gaussian and fixed-instruments case through a numerical evaluation of its finite sample distribution. In a more general asymptotic framework, Staiger and Stock (1997) showed that LIML is approximately median unbiased. We report all IV results using LIML, referred to as IV-LIML estimates.

In order to show that viewing the flip chart is orthogonal to the unobserved attributes of sex workers, the NGOs must not have adopted a systematic strategy to contact sex workers to show them the flip charts. The procedure in the Bangladesh safe-sex training program that the NGO workers used to show the flip charts to the sex workers and the geographical layout of the brothels were identical to those of the Calcutta safe-sex training program. Hence, the rationale for treating the flip chart procedure as random is substantially the same as that given by Rao et al. (2003). First, each brothel is a large town in its own right, located within a network of dense, crooked and small lanes. Second, the NGOs in each case started targeting rooms with their flip charts in alleys in the northeast of each brothel town and slowly moved southwest. Each brothel town's layout is ad hoc with rooms containing high-end and low-end sex workers operating side by side, within a maze of dense alleyways. Hence, the NGO workers did not contact sex workers on the basis of their age, income or any other productive characteristic. As in the case of the Calcutta safe-sex training program discussed in Rao et al. (2003), the NGO workers in the Bangladesh brothels would target one set of rooms one day and another set of rooms further up the lane or in the next lane the following day, marking off the rooms in a grid.

The same is true for the floating sex workers in the red light districts of Dhaka where sex workers with different productive characteristics, and charging different prices, stand on the same street corner or in the same park, with a view to soliciting clients. The red light districts of Dhaka are geographically concentrated within a narrowly defined area. The NGO information gatherers started at the northeast corner of each red light district and spread out southeast, moving from one location to the next. One might think that because NGOs have only limited resources they would target the sex workers at most risk of HIV first, but this was not the case. NGOs in Bangladesh, as in Calcutta, are interested in rights advocacy and in increasing HIV awareness among sex workers as a population; and the NGOs do not discriminate on the basis of income, age or other productive characteristics. The nondiscriminatory approach to improving HIV awareness and rights advocacy is specifically entrenched in the charter of many Bangladesh NGOs. Finally, prior to the safe-sex training program, most of the sex workers did not have any information about how to prevent the spread of STDs. Thus, the first time most sex workers learned about the dangers of unsafe sex was when they saw the flip charts.

A potential problem with using the flip chart is that even if sex workers were not contacted in a manner correlated with earning potential, it might be argued that women who are working at the time the NGOs visit are more likely to see the flip charts. If this is the case, when earnings is used as the dependent variable seeing the flip charts may be correlated with unobserved characteristics that drive the labor supply. This is not an issue with the brothels because the women live in the brothels and participated in the safe-sex sessions irrespective of whether they were working or not. It might be problematic in the case of the floating workers in the sense that women who were not working at the time the NGO visited would not see the flip chart. However, ameliorating this concern is that workers from the NGO would return multiple times, at different times of the day, before moving on to the next locale.

In each table below in which we present IV estimates, we also report weak instrument tests. Specifically, we report the first stage F-statistic, testing the excludability of the instruments from the first stage, and the Anderson-Rubin test. In each case the F-statistics are higher than 10, which is the rule of thumb suggested by Stock and Yogo (2005) for avoiding weak instrument bias, and the Anderson-Rubin Wald test is significant.

Results

Table 3 presents the first-stage results for the determinants of condom use using Equation (2). The coefficient on the flip chart variable is positive and significant, and this result is robust for various specifications including various combinations of control variables and fixed effects. Table 3 presents the results from the IV-LIML estimates (Panel B) for Equation (1), including a range of control variables and fixed effects. The full set of results is presented in the Appendix's Table A1. For the purposes of comparison, we also report OLS results in Panel A of Table 4.

Table 3: First-Stage Results (Dependent Variable: Condom Use)

Variables	(1)	(2)	(3)	(4)
Flipchart (=1)	0.412*** (0.0563)	0.358*** (0.0726)	0.344*** (0.0730)	0.240** (0.0666)
Beauty (1-4)	0.0476* (0.0224)	0.0314 (0.0234)	0.0373 (0.0364)	0.0223 (0.0302)
Age in years	0.00245 (0.0100)	0.00126 (0.00909)	0.00333 (0.00971)	0.00799 (0.00651)
Years in profession	-0.00436 (0.0107)	-0.00104 (0.00876)	-0.00360 (0.00855)	-0.00969 (0.00682)
Married (=1)	0.00544 (0.0705)	0.0288 (0.0604)	0.00858 (0.0666)	-0.00515 (0.0570)
Years of education	0.00294 (0.0153)	0.00303 (0.0121)	0.000451 (0.0127)	-0.00850 (0.0109)
Child (=1)	0.0903 (0.0776)	0.0700 (0.0624)	0.0995 (0.0552)	0.0541 (0.0494)
Muslim (=1)	-0.210 (0.228)	-0.227 (0.167)	-0.261 (0.179)	-0.139 (0.159)
Mother sex worker (=1)	0.0829 (0.191)	0.0259 (0.169)	-0.0241 (0.189)	-0.0366 (0.181)
Parent like the work (=1)	0.0342 (0.0327)	0.0370 (0.0354)	0.0161 (0.0340)	0.0303 (0.0343)
Other income (in Tk)	-1.33e-05 (9.89e-06)	-1.05e-05 (7.54e-06)	-9.01e-06 (9.57e-06)	1.40e-06 (1.04e-05)
Average number of clients	-0.0348 (0.0248)	-0.0277 (0.0223)	-0.0359 (0.0246)	-0.0423 (0.0224)
Days worked in a month	0.0197 (0.0142)	0.0200 (0.0127)	0.0207 (0.0147)	0.0166 (0.0143)
Client is rich (=1)			-0.0217 (0.0751)	0.0290 (0.0662)
Client abuse (=1)			0.0103 (0.106)	0.0895 (0.0793)
Client attractive (=1)			0.123* (0.0602)	0.0501 (0.0531)
Clients' average age			0.00140 (0.00928)	9.95e-05 (0.00900)
Private partners (=1)			0.0101 (0.0156)	-0.00496 (0.0141)
Brothel (=1)	-0.0389 (0.250)	0.0590 (0.207)	0.0879 (0.196)	-0.375* (0.168)
Control for place of birth	Yes	Yes	Yes	Yes
Control for type of sex	No	Yes	Yes	Yes
Enumerator fixed effects?	No	No	No	Yes
Observations	240	240	240	240
R-squared	0.531	0.618	0.632	0.650

Notes: Standard errors (in parentheses) are clustered at the sex worker's area of residence level. ***, **, * indicate significance at the 1, 5 and 10%-level, respectively.

The OLS results show that treating condom use as exogenous could be seriously misleading – the OLS estimates of condom use have a positive sign. The IV-LIML results reported in Table 4 show that condom use has a strong negative relationship with average monthly earnings. The coefficient on beauty is positive and significant in each specification. Our results do not change much including fixed effects. The adjusted-R² does not change significantly when we add the enumerator fixed effects – suggesting that beauty is not entirely in the eye of enumerators. The earnings premium for beauty is in the range 15 percent to 22 percent. This result is similar to previous findings for female sex workers and is in the same range as the earnings premium for beauty for females in non-sex work.

Table 4: OLS and IV-LIML Estimates of Unprotected Sex and Beauty

	(1)	(2)	(3)	(4)
Panel A: OLS Results				
Condom	0.190*	0.201*	0.164	0.0664
	(0.0811)	(0.0858)	(0.110)	(0.130)
Beauty	0.179**	0.178**	0.158**	0.123*
	(0.0565)	(0.0533)	(0.0575)	(0.0557)
R-squared	0.616	0.628	0.664	0.694
Panel B: IV-LIML Estimates:				
Condom1	-0.579*	-0.600*	-0.576**	-1.183***
	(0.310)	(0.348)	(0.281)	(0.292)
Beauty	0.217***	0.204***	0.190***	0.154**
	(0.0666)	(0.0613)	(0.0719)	(0.0712)
Individual characteristics	Yes	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes	Yes
Control for place of birth	Yes	Yes	Yes	Yes
Control for type of sex	No	Yes	Yes	Yes
Client characteristics	No	No	Yes	Yes
Enumerator fixed effects	No	No	No	Yes
Number of observations	240	240	240	240
F-test of excluded instruments	53.54	24.37	22.26	13.01
Anderson-Rubin Wald test ¹	0.0371	0.0406	0.0166	0.0000

Notes: Condom use is instrumented by flipchart. Beauty is a categorical variable and is defined on a scale of 1–4, where a higher number denotes more beautiful. Standard errors (in parentheses) are clustered at the sex worker's area of residence level. ***, **, * denote significance level at the 1, 5, and 10 percent level, respectively. ¹ p-values.

Table 5: IV-LIML Estimates When Each Category of Beauty Is Treated Separately

	(1)	(2)	(3)	(4)
Condom	-0.624* (0.326)	-0.647* (0.378)	-0.656** (0.317)	-1.255*** (0.371)
Looks OK	0.244** (0.0966)	0.214*** (0.0779)	0.207*** (0.0802)	0.121*** (0.0387)
Beautiful	0.518*** (0.184)	0.472*** (0.164)	0.476** (0.193)	0.359** (0.167)
Very beautiful	0.485*** (0.174)	0.481*** (0.144)	0.387** (0.151)	0.317** (0.160)
Individual characteristics	Yes	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes	Yes
Control for place of birth	Yes	Yes	Yes	Yes
Control for type of sex	No	Yes	Yes	Yes
Client characteristics	No	No	Yes	Yes
Enumerator fixed effects	No	No	No	Yes
Number of observations	240	240	240	240
R-squared	0.428	0.444	0.504	0.337
F-test of excluded instruments	39.94	21.73	18.92	10.75
Anderson-Rubin Wald test ¹	0.0234	0.0338	0.0101	0.0000

Notes: Standard errors (in parentheses) are clustered at the sex worker's area of residence level. Each column corresponds to the specification in Table 4 (see also Appendix Table A1). ***, **, * denote significance level at the 1, 5, and 10 percent level, respectively. Not beautiful is the base category. Beauty is defined on a scale of 1-4. ¹ p-values.

In Table 5, we report results in which the categorical variable beauty is treated nonlinearly. The base category is “not beautiful at all.” The results confirm the existence of the beauty premium reported in Table 4 where beauty is coded linearly. Column (4) of Table 5 indicates that a sex worker who “looks OK” earns 12 percent more than those who are not beautiful, while those in the more beautiful categories earn about 32–36 percent more than the not beautiful sex workers, the base category. The results show that returns to beauty for the “very beautiful” and “beautiful” sex workers are almost the same, though the former earn marginally lower than the latter. However, the differences between the returns to beauty among these two groups are not significant statistically in three out of four specifications of Table 5. Moreover, only 28 sex workers in the sample were categorized as “very beautiful.” As a consequence the results should be interpreted with caution. In Table 6 we present LIML estimates for Equation (1)

in which we consider characteristics of the sex worker correlated with the flip chart variable as instruments for condom use rather than using the binary flipchart variable as an instrument. The first-stage regression follows:

$$Condom_i = \pi_1 X_i + \pi_2 \times Beauty_i + \pi_3 S_i + \pi_4 S_i X_i + \pi_5 S_i \times Beauty_i + \varepsilon_{3i} \quad (3)$$

In the second stage we run the following regression:

$$\ln W_i = \gamma_1 X_i + \gamma_2 Beauty_i + \gamma_3 Condom_i + \gamma_4 Brothel \times Beauty_i + \gamma_5 Brothel \times Condom_i + \varepsilon_{4i} \quad (4)$$

Here Brothel is an indicator variable denoting if a sex worker belongs to a brothel, otherwise she is classified as a floating sex worker. All other variables are as defined above. In addition to the control variables in Table 5, in Equation (4) we correlate the dummy variable for brothel with both the beauty and condom variables to allow for differences between brothel-based and floating sex workers. While we treat condom as a choice variable, we think that this is not true of its interaction with the variable denoting whether the sex worker is brothel based. That is, while the condom variable is endogenous, the interaction between condom and brothel is not. The interaction variable, *Brothel* × *Condom*, equals one if a brothel-based sex worker practices safe sex and zero otherwise. It is not obvious that, conditioning on *X*, unobservables would affect brothel-based and floating sex workers differently in terms of their condom use. Thus, we run a first-stage regression using equation (3), treating condom as the single endogenous variable. Note, though, that our conclusion is unchanged if we run separate first-stage regressions for condom and its interaction with brothel.

Correlating sex worker characteristics with the flip chart variable allows us to examine how differences in sex worker characteristics affect condom use via the flip chart variable. The average monthly income of sex workers who have clients who use condoms was between 20 percent and 30 percent less. The interaction term “brothel × beauty” is statistically insignificant, indicating that beauty has no differential effect based on whether one works in a brothel or as a floating sex worker. The results imply that the earnings premium for beauty is in the range 19 percent to 26 percent, which is similar to the results in Table 5.

In the results it is difficult to isolate 1. the returns to beauty because more-attractive sex workers are selling a better product from 2. the returns to beauty because more attractive sex workers are better negotiators. In brothels, both the adhiya and the chukris negotiate directly with the client. In a typical brothel, there are cubicles on either side of a throughway with sex workers in front of each cubicle. The sex workers will attempt to persuade the potential client to enter into a transaction. Some additional information will sometimes be provided by madams or pimps to attempt to persuade the client (such as “this girl is new to this brothel” or “this is a good price”), but normally the madam will not get involved until the price is agreed. In the case of the chukris, though, the madam may get

involved earlier and the ability of the chukris to negotiate is reduced because of the power relationship between the madam and sex worker. Floating sex workers in Bangladesh do not normally use pimps, so all negotiation with the client is done by the sex worker. Hence, it might be argued that negotiation by the sex worker is less important in agreeing on the price in brothels than on the street, particularly in brothels with a large number of chukris. On this basis, the results in Table 6 provide an indirect and inexact way to separate out the returns to productivity from the returns to superior negotiation. Consider two sex workers that are equally attractive, but one works in a brothel and the other on the street. One would expect returns to be greater on the street than in the brothel. On the street there is a given return to beauty from productivity plus a return to beauty from negotiation. In the brothel, there is a given return to beauty from productivity plus a lesser return to beauty from negotiation, assuming that direct negotiation between the sex worker and client is less important in the brothel. That the beauty premium is reduced when two parties share in the return from negotiation is a classic externality problem. In Table 6 the coefficient on brothel correlated with beauty is negative, consistent with this conjecture, but the sign is statistically insignificant. However, it is not clear whether the sign is insignificant because returns to beauty from negotiation are not important over and above beautiful sex workers selling a better product or because the brothel- versus floating sex-worker distinction does not adequately capture the difference in economic returns between the productivity and negotiation effects.

Table 6: IV-LIML Estimates Using Individual Characteristics Interacted with Flip Chart as Instruments

Variables	(1)	(2)	(3)	(4)
Condom	-0.455 (0.398)	-0.901 (0.578)	-0.709* (0.387)	-0.843** (0.375)
Beauty	0.259*** (0.0466)	0.247*** (0.0490)	0.207*** (0.0656)	0.191*** (0.0584)
Brothel	-0.302 (0.370)	-0.546 (0.544)	-0.485 (0.373)	-0.533 (0.434)
brothel × beauty	-0.115 (0.0773)	-0.0945 (0.0981)	-0.0744 (0.0873)	-0.131 (0.109)
brothel × condom	0.587 (0.428)	0.994 (0.610)	0.822* (0.427)	0.599* (0.352)
F-test of excluded instruments	86.06	20.49	181.42	161.09
Anderson-Rubin Wald test ¹	0.0003	0.0019	0.0000	0.0000
Observations	240	240	240	240
R-squared	0.533	0.396	0.527	0.542

Notes: ¹ p-values. Beauty is a categorical variable and is defined on a scale of 1–4. Each column corresponds to the specification in Table 4 (see also Appendix Table A1). Standard errors (in parentheses) are clustered at the sex worker's area of residence level. ***, **, * denote significance level at the 1, 5, and 10 percent level, respectively. Condom is a dummy variable equal to 1 if the sex worker practices safe sex, beauty is a categorical variable, measured on a scale of 1 to 4.

Table 7 reports the IV-LIML estimates for Equation (1) where the dependent variable is the price per act, rather than average monthly earnings. While we report the coefficients on beauty and condom use only, we include control variables corresponding to specifications (1) to (4) in Table A1. The coefficient on the earnings premium for beauty is positive and significant, indicating that this result is robust to the measure of economic return. The results suggest that the beauty premium per transaction is 12 percent to 18 percent. The coefficient on condom use is negative and significant in specifications (1) and (4). The coefficient on condom use in specification (1) suggests that sex workers whose clients use a condom earn 28 percent less per transaction, while the corresponding figure for specification (4) is 53 percent. These figures lie between the 24 percent penalty for condom use reported in Gertler et al. (2005) and the 79 percent penalty for condom use reported in Rao et al. (2003).

Table 7: IV-LIML Estimates when the Dependent Variable Is the (log of) Price per Act

Variables	(1)	(2)	(3)	(4)
Condom	-0.279* (0.166)	-0.236 (0.187)	-0.215 (0.171)	-0.526* (0.280)
Beauty	0.181*** (0.0470)	0.174*** (0.0416)	0.158*** (0.0415)	0.123*** (0.0435)
Observations	240	240	240	240
R-squared	0.397	0.442	0.509	0.478
F-test of excluded instruments	42.97	19.81	19.15	12.96
Anderson-Rubin Wald test ¹	0.0486	0.0141	0.0161	0.0163

Notes: Beauty is a categorical variable and is defined on a scale of 1–4. Each column corresponds to the specification in Table 3 (see also Appendix Table A1). Standard errors (in parentheses) are clustered at the sex worker's area of residence level. ***, **, * denote significance level at the 1, 5, and 10 percent level, respectively. ¹ p-values.

Table 8 reports results where, in addition to beauty, condom use and the usual controls, we include as an additional regressor an interaction term between beauty and unprotected sex. Note that beauty is correlated with the condom use, which is endogenous. We also use condom use as a separate variable. As we have a single instrument (i.e., flip chart), we use the same first-stage regression as in Table 4, but we use residuals from the first stage as an additional regressor to account for endogeneity following Rivers and Vuong (1988).

The results in Table 8 present a direct test of our competing hypotheses concerning whether more attractive sex workers are able to charge more for unprotected sex. The results for the interaction term between beauty and unprotected sex indicate that attractive sex workers receive an earnings premium

in the range 45 percent to 52 percent for having unprotected sex. The results are consistent with findings from lab experiments that attractive people are in a superior position when bargaining and negotiating with others and that risk-taking behavior among males increases in the presence of attractive females. The latter factor, combined with the setting in which the transaction takes place, increases the bargaining strength of attractive sex workers vis-à-vis their male clients when it comes to charging for risky sex.

Table 8: The Beauty Premium for Unprotected Sex

Variables	(1)	(2)	(3)	(4)
Condom	-0.295 (0.212)	-0.371 (0.279)	-0.345 (0.316)	-0.961** (0.219)
Beauty	0.202 (0.0976)	0.189 (0.0931)	0.171 (0.0891)	0.107 (0.0915)
beauty* non-condom use	0.456** (0.0857)	0.431** (0.101)	0.440** (0.0905)	0.527** (0.157)
Individual characteristics	Yes	Yes	Yes	Yes
Household characteristics	Yes	Yes	Yes	Yes
Control for place of birth	Yes	Yes	Yes	Yes
Control for type of sex	No	Yes	Yes	Yes
Client characteristics	No	No	Yes	Yes
Enumerator fixed effects	No	No	No	Yes
Number of observations	240	240	240	240
R-squared	0.640	0.645	0.683	0.721

Notes: Standard errors are clustered at the sex worker's place of residence level and reported in parentheses. ***, **, * denote significance level at the 1, 5, and 10 percent level, respectively. Non-condom use is a dummy variable set equal to 1 if the sex worker does not practice safe sex. Each column corresponds to the specification in Table 4 (see also Appendix Table A1). The first-stage specification is the same as in Table 4. Thus, the F-test for excluded instruments and Anderson-Rubin Wald test are the same as in Table 4.

Conclusion

In this study we have examined the economic returns to attractiveness and risky sex in the Bangladesh commercial-sex market. Given the intimate and personal nature of the service transacted, commercial sex work is a good labor market in which to test for a beauty premium. We test two competing hypotheses from the experimental literature. The first is that more attractive sex workers will charge less for unprotected sex on the basis that attractive people are perceived as more cooperative and accommodating. The alternative hypothesis is that more attractive sex workers will be able to charge more for unprotected sex because 1. they are better placed to bargain with others, and 2. male clients are more likely to

overvalue the returns to immediate sexual gratification and engage in risk-taking activities in the presence of attractive sex workers. We find support for the latter hypothesis.

A potential limitation of the results reported here is that while we assume that unprotected sex is perceived as a risky activity by sex workers, surveys of sex workers have found that they view health risks, such as the potential to contract HIV, as a low priority relative to other risks such as violence (Sanders, 2004; Busza, 2005). This issue would seem to be particularly relevant to Bangladesh, where Jenkins and Rahman (2002) note that the overall safety (in terms of violence) in Bangladeshi brothels is declining. This can be seen in terms of proximal versus distal perceptions of risk. From the sex worker's perspective, if she contracts HIV, the median survival time is approximately 10 years; however, in the worst cases of physical violence immediate death is a distinct possibility. Hence the propensity to engage in unprotected sex might not be interpreted with the same risk saliency by sex workers and non-sex workers, with the former viewing it as "not risky" because it is low on a continuum of risk.

Appendix

**Table A1: Full Set of IV-LIML Regression Results Including Controls
(re: Table 4)**

	(1)	(2)	(3)	(4)
Flip chart	0.412*** (0.0563)	0.358*** (0.0726)	0.344*** (0.0730)	0.240** (0.0666)
Beauty (1-4)	0.0476* (0.0224)	0.0314 (0.0234)	0.0373 (0.0364)	0.0223 (0.0302)
Brothel (=1)	-0.0389 (0.250)	0.0590 (0.207)	0.0879 (0.196)	-0.375* (0.168)
Age in years	0.00245 (0.0100)	0.00126 (0.00909)	0.00333 (0.00971)	0.00799 (0.00651)
Years in profession	-0.00436 (0.0107)	-0.00104 (0.00876)	-0.00360 (0.00855)	-0.00969 (0.00682)
Married (=1)	0.00544 (0.0705)	0.0288 (0.0604)	0.00858 (0.0666)	-0.00515 (0.0570)
Years in education	0.00294 (0.0153)	0.00303 (0.0121)	0.000451 (0.0127)	-0.00850 (0.0109)
If has any child (=1)	0.0903 (0.0776)	0.0700 (0.0624)	0.0995 (0.0552)	0.0541 (0.0494)
Muslim (=1)	-0.210 (0.228)	-0.227 (0.167)	-0.261 (0.179)	-0.139 (0.159)
Mother in sex work (=1)	0.0829 (0.191)	0.0259 (0.169)	-0.0241 (0.189)	-0.0366 (0.181)
Parents like (=1)	0.0342 (0.0327)	0.0370 (0.0354)	0.0161 (0.0340)	0.0303 (0.0343)
Other income (in Tk.)	-1.33e-05 (9.89e-06)	-1.05e-05 (7.54e-06)	-9.01e-06 (9.57e-06)	1.40e-06 (1.04e-05)
Average no. of clients	-0.0348 (0.0248)	-0.0277 (0.0223)	-0.0359 (0.0246)	-0.0423 (0.0224)
Days worked in a month	0.0197 (0.0142)	0.0200 (0.0127)	0.0207 (0.0147)	0.0166 (0.0143)
Rich client (=1)			(0.0686) -0.0217 (0.0751)	(0.0713) 0.0290 (0.0662)
Attracted to clients (=1)			0.123* (0.0602)	0.0501 (0.0531)
Clients average age			0.00140 (0.00928)	9.95e-05 (0.00900)
Control for place of birth	Yes	Yes	Yes	Yes
Control for type of sex	No	Yes	Yes	Yes
Client occupation	No	No	Yes	Yes
Enumerator fixed effects	No	No	No	Yes
Observations	240	240	240	240
R-squared	0.416	0.471	0.496	0.567

Note: ***, **, * denote significance level at the 1, 5, and 10 percent level, respectively.

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