

Risk Behaviors of the MSM in Thai Commercial Sex Market: Using insights from Behavioral Economics

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ABSTRACT

This paper looks at the behaviors of female sex workers (FSW), male sex workers (MSW), clients seeking female sex workers (CFSW) and clients seeking male sex workers (CMSW) in the Thai commercial sex market under the conditions of imperfect information. We designed an experimental game model in which both the sex worker and their client do not know the health status of potential partners. The objectives of our model are to find the probabilities of all possible outcomes and to examine behavioral bias. The Nash equilibrium solution informs us that safe sex or sex with condoms is the rational strategy for those who are free from sexually transmitted diseases (STD) and for those who are risk averse, while sex without a condom is still possible for those who are infected and/or are risk lovers. In particular, we look at the possibility of behavioral bias when a client may offer significantly higher incentives for unprotected sex or sex without a condom usually in the form of a monetary offer or tip. The paper finds that the group of males who have sex with males (MSM), both clients and sex workers, are most likely to take risks. More specifically, in our experiment involving 200 sex workers and 67 clients, none of the CFSW show any willingness to negotiate for sex without condom, while 13.88% of the CMSW are still willing to negotiate for sex without condoms. Regarding the sex workers, there is a small probability that FSW may accept unprotected sex when offered a tip of Baht 5,000 or above, while more than 30% of the MSW report that they would accept unprotected sex when offered Baht 5,000 or more. Overall, this paper suggests that MSM, both clients (CMSW) and sex workers (MSW), may take greater risk by engaging in unprotected sex.

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INTRODUCTION

Information problems lead to inefficient outcomes. Such problems commonly appear in contractual or agency relationships when one party (i.e. the principal) establishes the conditions of a contract but has less than perfect and/or incomplete information vis-à-vis another party (i.e. the agent or agents). In the commercial sex market, there is huge potential for information problems as many people do not usually reveal, and some may not even know, their health status to potential sexual partners and as such, people face the risk of infection from sexually transmitted diseases (STDs) including HIV. In this paper, we deal specifically with the cases in which the client (C) and the sex worker (SW) may or may not know his or her health status (i.e. STD-free or STD positive), and does not know the health status of his or her partner. Focusing on the decisions of both the clients' (C) and sex workers' (SW) as to whether to engage in safe or protected sex (use a condom, CD) or unprotected sex (sex without a condom, NCD) and under the conditions of imperfect or incomplete information, both the sex worker and his or her client become vulnerable to STD transmission depending on their decisions and behavior. Also of interest to us in this paper is the influence of present bias. Under imperfect information and when signaling is weak or unreliable, the rational decision for both clients (C) and sex workers (SW) should be safe or protected sex (sex using a condom, CD). In contrast, engaging in unprotected or risky sex (sex without a condom, NCD) may be considered as a behavioral bias, an irrational decision.

In Thailand, the Thai Bureau of Epidemiology (2014) reported that between 1984 and 2014, 83.75% of the patients had become infected with HIV through sexual intercourse. Despite this alarming rates, people still choose to engage in unprotected sex in the commercial sex market. For example, Raymond, Hughes, and Gomez (2001) found that 47% of both female U.S. and international sex workers reported that men frequently expected sex without condoms. Moreover, 50% of U.S. female sex workers and 73% of international female sex workers reported that male clients would pay more for sex without a condom, despite some establishments having rules regarding condom use. In Thailand, the higher-end female commercial sex market, so called venue-based establishments, such as massage parlors and A Go-Go bars require FSW to test for STDs including HIV every three months. FSWs are to provide test results in exchange for their salaries. Arguably, the chances therefore of venue-based SWs to be STD-free would be relatively higher compared to SWs that are not obliged to undergo regular testing, e.g. as in non-venue-based commercial sex establishments where some FSW and especially male sex workers (MSW) work. Hence, such testing policies at venue-based commercial establishments may be considered as a kind of "signaling" in the Thai commercial sex market representing safe or STD-free SWs.

In this paper, we further hypothesize that the risk-taking behavior under imperfect information between FSWs and MSWs are different. To verify behavioral biases and to

calculate probabilities of outcomes for the theoretical model, we look at the behavior of SWs and their clients using a game-theoretical sequential model and employ data collected from an experimental game from a field survey conducted in Thailand in late-2015. We categorize the commercial sex market into two types: (1) “Traditional” commercial sex market, i.e. FSW and clients seeking female sex workers (CFSW), and (2) commercial sex market involving males who have sex with male, (MSM) market, i.e. MSW and clients seeking male sex workers (CMSW). This enables us to compare the behavioral biases between the two different markets and also to answer the question, “Are there any differences in sexual risk-taking by different SWs and their clients?”

REVIEW OF LITERATURE

Our main assumption is that under imperfect or incomplete information and where signaling are weak or unreliable, the rational decision for both clients and SWs should be sex using a condom (CD). However, since irrational decisions regarding sex without condoms (NCD) is still possible, we investigate the differences in sexual risk-taking by different types of SWs and their clients. And to do this, as is explained later, we use insights about behavioral bias from behavioral economics.

Clients’ behaviors are assessed in the situations when they enters a sex work establishment especially the higher-end female commercial sex market where FSW are required to test for STDs/HIV every three months. In this case, the client may suppose that all FSWs are safe because they will have passed the mandatory STD-testing at some point in the previous three months. On the other hand, if a client chooses a non-venue-based commercial sex establishments or the MSM commercial sex market where SWs are not obliged to undergo regular testing, they have no reason to suspect that “sex workers are safe” (i.e. signaling is absent). As such, the client is faced with two different situations in which SWs are regularly tested on the one hand, and on the other hand, when SWs may not be tested.

We also consider the SWs’ behavior when faced with the situation in which a client wishes not to use a condom (NCD). Given that the client would also offer significantly higher incentives usually in the form of a monetary tip, the SW has to decide whether to accept the tip and engage in sex without a condom or to reject the tip and persuade the client to use a condom. Since the SW does not know the client’s health status (i.e. there is no regulation that client’s test for STD/HIV), the rational risk-averse SW should not accept the tip and choose CD. However, if the tip is “high” enough to compensate for the SW’s disutility of infection, then he or she could choose unprotected sex: this can be related to the idea of “present bias”. Present bias also referred to in the literature as “time inconsistency in intertemporal choice”, involves the effect of one’s own time discounting and its effect on intertemporal choices. It focuses on how an individual trades off costs and benefits that occur between the present (immediate) and the future (delayed consequence). Basically the argument is that an individual’s decision will be influenced by his/her time preference. An individual who has present bias tends to weigh present utilities higher than future utilities (Colin & George, 2004; Giné, Karlan, & Zinman, 2010; Prelec & Loewenstein, 1991). Therefore, in the context of this paper, if a SW accepts

a tip for sex without condom, then we may say that he or she attaches a higher discount rate on the consequences of infection on her future and therefore making the immediate monetary gain more valuable. Thereby the SW exhibits present bias behavior.

As with regards to empirical studies, only Yoon and Tangtamaruk (2016) compare behavioral differences between SWs and their clients in the Thai commercial sex market under the condition of imperfect information. However, a number of authors have studied premiums for unprotected sex with SWs. Gertler, Shah, and Bertozzi (2003) finds that in Mexico SWs could receive anything between 24% to as high as 47% premium for unprotected sex from clients who requested not to use a condom. Rao, Gupta, Lokshin, and Jana (2003), De la Torre, Havenner, Adams, and Ng (2010), Arunachalam and Shah (2013), and others, have done extensive work on compensating differentials to explain why SWs would accept unprotected sex for a premium. There are also a number of studies worth mentioning here that focus on HIV awareness and behavioral changes in general. For example, using a survey to study the behavior of people after knowing their HIV status in San Francisco, Boozer and Philipson (2000) find that for those who unexpectedly tested HIV-free tended to increase their risky behavior, while those who unexpectedly tested HIV-positive reduced their risky behavior. On the other hand, a majority of those who had tested HIV-positive and believed that they had been infected for a considerable time before actual testing, did not change their behavior after learning of the test results. Thornton (2008) found that in Malawi those who were tested HIV-positive did not significantly increase their purchase of condoms and only used them with their regular sexual partner (husband or wife). Interestingly, contrary to common belief, knowledge of one's HIV status may not help prevent the spread of STDs/HIV. Morris, Pramualratana, Podhisita, and Wawer (1995), for example observed that condom use in Thailand not only can be interpreted by a client as a signal of STD and mistrust, but can also reduce a sex worker's reputation and income. As such, SWs may choose not to offer a condom. Muñoz, Adedimeji, and Alawode (2010) deduced that poorly educated sex workers in Nigeria, who lacked knowledge about HIV status, believed that they could "handle" the spread of the virus on their own as well as with medication. Moreover, FSWs who tested HIV-positive tended to engaged in risky sex so as to earn as much money for her family as they could before becoming too sick for work. In this sense, imperfect information in the market helped the SW hide her health information from clients. Besides, offering condoms may be considered as a signal of infection especially in an already highly infected sex market.

RESEARCH METHODOLOGY

We now represent the structure of the model used in this paper in a sequential game. Fig. 1 shows how both the client and sex worker make their decision regarding condom use under conditions of imperfect information. Before going through with the equilibrium analysis, we need to make additional assumptions. Firstly, it is assumed that both client and SW may or may not know their own health status but do not know the health status of their partner. Secondly, we rule out any ethical considerations in our analysis, and assume that individuals focus mainly on maximizing his or her own utility without concern for the other's wellbeing. Thirdly, to

keep the model simple, we further assume there is no threat or use of physical violence. If the client prefers unprotected sex, he has only the option of offering higher incentive or tip. Lastly, we assume that the client and SW meet for the first and only time (i.e. one-time, non-repeated game). This rules out the possibility of establishing a close relationship in which trust could affect decisions about condom use, and which may cloud our first assumption.

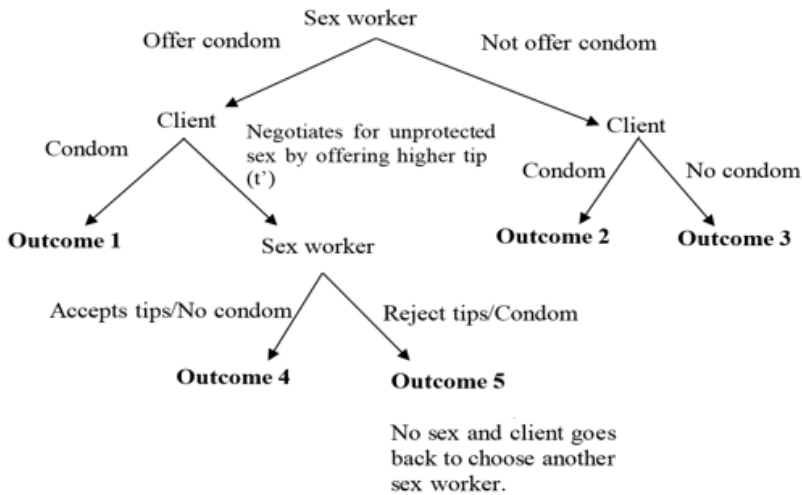


Figure 1. Sequential game in commercial sex market

Referring to Fig. 1, after the client chooses a SW, the SW will offer condom use (CD). In Thailand, thanks to the “100% condom” policy, in especially venue-based commercial sex establishments, SWs will offer the use of condom, hence, the probability that SW will not offer a condom is nearly zero (UNAIDS & Health, 2000). This eliminates Outcome 2 and Outcome 3. The client can agree then with CD thereby establishing Outcome 1 or may try to negotiate for unprotected sex (NCD) by offering a higher tip. Hence Outcome 4 is possible if the payoffs of the SW are higher when accepting the higher tip with NCD compared to the risk she faces. More specifically, when the tip offered to the SW is high enough (increases considerably the discount rate) to compensate for future disutility of becoming infected. Of course, if the SW does not accept the client’s offer for NCD, they end up at Outcome 5, where the higher tip is rejected and we gave CD without “additional” tip. Alternatively, if the client insists on NCD, he may try another SW and the sequential game is repeated.

Regarding Table 1, Outcomes 1, 2 and 5 are safe sex with condom (CD), while Outcomes 3 and 4 are risky sex without condom (NCD). Despite imperfect information about individual health status, each outcome can help us to identify possible behavior of both clients and SWs as relates to the possibility of STD-free or STD infected (STD+).

Table 1. All possible outcomes in Fig.1. Sequential game

	Type of sex	Sex worker (SW)	Client
Outcome 1	Safe sex with condom (CD)	Risk averse	Risk averse
Outcome 2	Safe sex with condom (CD)	Risk lover or STD+	Risk averse
Outcome 3	Risky sex without condom (NCD)	Risk lover or STD+	Risk lover or STD+
Outcome 4	Risky sex without condom (NCD)	Risk lover or STD+	Risk lover or STD+
Outcome 5	Safe sex with condom (CD) or No sex	Risk averse	Risk lover or STD+

Experimental Design

In this part, we explain the experimental questionnaire matching the sequential game in part 3. The clients and SWs were asked to make a decision in our sequential game separately. As a last step, we then combine their decisions to calculate the conditional probabilities for each outcome.

Table 2. Experimental Design

Behavioral Bias	Application (“Signaling”)
Client’s behavioral bias	<p>In Thailand the higher-end commercial sex market or venue-based establishments such as massage parlors and A Go-Go bars usually require SWs to test for STDs/HIV every three months. This may act as a “signal” for clients regarding safety of SWs. To see whether this may influence a client to make a risky decision, we divide the questionnaire for client into two sets—with and without signaling. Each client is randomized to make decisions about condom use in a situation either with signaling (i.e. SW has mandatory STD testing) or without signaling (SW does not have mandatory STD testing).</p> <p>For the former, we ask CFSW and CMSW to make a decision given that SW works in a venue-based establishment. That is, we state, “Given that your service provider is healthy and highly likely to be safe from STD/HIV because your service provider regularly passes a STD/HIV test every 3 months, and you are offered to use a condom. How will you respond?” The possible answers are:</p> <ol style="list-style-type: none"> I will accept the condom/sex protection. I will ask for unprotected sex by offering a higher tip (between 100-500 Baht). I will ask for unprotected sex by offering a higher tip (between 501-2000 Baht). I will ask for unprotected sex by offering a higher tip (between 2001-5000 Baht). I will ask for unprotected sex by offering a higher tip (between 5001-10000 Baht). I will ask for unprotected sex by offering a higher tip (more than 10000 Baht)

Table 2 : (Cont.)

Client's behavioral bias	<p>For the latter, both CFSW and CMSW were asked to make a decision without providing any reference to any kind of mandatory health testing, that is, "You are to receive service from the person you have selected, and are offered to use a condom. How will you respond?" The possible answers are:</p> <ol style="list-style-type: none"> I will accept the condom/sex protection. I will ask for unprotected sex by offering a higher tip (between 100-500 Baht). I will ask for unprotected sex by offering a higher tip (between 501-2000 Baht). I will ask for unprotected sex by offering a higher tip (between 2001-5000 Baht). I will ask for unprotected sex by offering a higher tip (between 5001-10000 Baht). I will ask for unprotected sex by offering a higher tip (more than 10000 Baht)
Sex worker's behavioral bias	<p>Sex workers were asked to make a decision if a client offers a tip for unprotected sex or sex without a condom. In addition, four different tips are randomly offered once to each SW. The question is, for example, "If a client asks for unprotected sex (i.e. sex without condom) by offering you 500 Baht, will you accept?"</p> <ol style="list-style-type: none"> No, I will not accept. Yes, I will. Yes, I will but I want more... (Please put the number in Baht that you want) Baht <p>Different SWs receive randomly different offers of 500, 2000, 5000 and 10000 Baht.</p> <p>Since SWs do not know the client's health information, rejecting any offer of unprotected sex should be the rational choice. However, those who accept the offer/tip and engage in unprotected sex may be said to exhibit present bias because they weigh the utility received from the monetary tip higher than the risk of STD/HIV infection in the future. (Note: 1 USD = 34 Baht as of July 2016).</p>

RESULTS AND DISCUSSION

This section presents the results from the experimental field survey conducted in Bangkok in late-2015 from a non-random convenience sample to test for behavioral biases and to explicitly calculate probabilities of interest suggested by the game-theoretical model depicted in Fig. 1. 200 SWs were surveyed with the help of two established NGOs of which 100 were FSWs and another 100 were MSWs. Regarding the 100 FSWs, 80 were FSWs working in venue-based commercial sex establishments that required regular STD/HIV testing. Also surveyed were 67 clients of which 36 were MSM.

Table 3 shows the probabilities calculated for each possible outcome from the experimental survey. We find that when a client understands that the SW may be STD-free (SW works in

venue-based establishment with mandatory STD/HIV test every 3 months), condom usage for both the “traditional” and MSM commercial sex markets are not much different showing 90.48% and 91.19% probabilities, respectively. Interestingly, when information of STD/HIV testing is not provided, or in the situation that a client is unsure whether the SW is safe or not (imperfect or incomplete information without signaling), we find 100% condom usage in the “traditional” market which is the rational strategy for risk averse people. However, 5.59% of MSM report that they may engage in sex without condom.

Table 3. Probabilities of all outcome in the Thai commercial sex market sequential game

Sequential game	“Traditional” commercial sex market		MSM commercial sex market	
	Prob FSW & CFSW (without signal)	Prob FSW & CFSW (with signal)	Prob MSW & CMSW (without signal)	Prob MSW & CMSW (with signal)
Outcome 1	0.8500	0.6531	0.7320	0.6139
Outcome 2	0.1500	0.0344	0.1292	0.1083
Outcome 3	0.0000	0.0156	0.0208	0.0417
Outcome 4	0.0000	0.0796	0.0351	0.0465
Outcome 5	0.0000	0.2173	0.0829	0.1897
Using condom CD (Outcome1+2+5)	1.0000 (100%)	0.9048 (90.48%)	0.9441 (94.41%)	0.9119 (91.19%)
Not using condom NCD (Outcome3+4)	0.0000 (0%)	0.0952 (9.52%)	0.0559 (5.59%)	0.0881 (8.81%)

Regarding behavioral bias, we find that MSM are most likely to take risk and engage in sex without condom, both with respect to SWs and their clients. This is illustrated in Table 4 in which CMSW and MSW exhibit more risk behavior. In the presence of signaling, i.e. the SW may have passed the STD/HIV-test in the past three months, the probability that CFSW and CMSW will use a condom is not much different (0.6875 and 0.7222, respectively). Interestingly, when health status of SW by signaling is absent, all CFSW will use a condom, while some CMSWs may offer tips for sex without a condom to the SW (i.e. probability to use condom is 0.8816).

Table 4. Client’s behavioral bias

Signaling	“Traditional” commercial sex market		MSM commercial sex market	
	CFSW (without signal)	CFSW (with signal)	CMSW (without signal)	CMSW (with signal)
Prob (Use condom)	1.000	0.6875	0.8612	0.7222
Prob (Offer Baht 100-500 for sex without condom)	0	0.03125	0.0278	0.0833
Prob (Offer Baht 501-2000 for sex without condom)	0	0.03125	0.0278	0.1111

Table 4 : (Cont.)

Prob (Offer Baht 2001-5000 for sex without condom)	0	0.125	0.0554	0.0556
Prob (Offer Baht 5001-10000 for sex without condom)	0	0.125	0.0278	0.0278
Total	1.000	1.000	1.000	1.000

Secondly, SWs' behavioral bias as shown in Table 5 is again confirmed and the risk behavior of MSM is relatively higher. In particular, SWs depending on randomly assigned questionnaires were offered a tip once of different amounts (Baht 500, 2000, 5000, or 10000) for sex without condom (NCD). Based on their responses, Table 5 shows the probabilities of FSW and MSW accepting money for NCD. We found that none of FSW provided NCD when money offered was less than Baht 5000, while some MSW said that they would provide NCD even when the money offered was below Baht 2000 but higher than Baht 500, with some negotiating for more money if the offer was Baht 500.

Table 5. Sex worker's behavioral bias

	Present Bias	FSW	MSW
Prob (Accept Baht 100-500 for sex without condom)		0	0
Prob (Accept Baht 501-2000 for sex without condom)		0	0.16
Prob (Accept Baht 2001-5000 for sex without condom)		0.12	0.16
Prob (Accept Baht 5001-10000 for sex without condom)		0.48	0.48

In addition, we also found that the STD/HIV testing policy adopted by many high-end venue-based commercial sex establishments was only a weak signal as there is no guarantee that all FSW were in fact tested consistently. When asked about the last time of STD/HIV testing, only 37.5% of 80 FSWs in venue-based commercial sex establishments reported that they tested in the past 3 months.

CONCLUSIONS

MSM exhibit relatively higher risk taking behavior with respect to both clients and SWs. From the clients' perspective, under conditions of asymmetric information without any signaling regarding sex workers' health status, none of the CFSW were willing to negotiate for unprotected sex (NCD). However, a small percentage of the CMSW report that they would negotiate for unprotected sex even without the health information of the SW. Clearly CMSW and/or MSW may not choose safe sex even with the lack of information about each other's health status. MSWs relative to FSWs exhibit higher risk taking and is more prone to present bias behavior: that is, some MSW in our survey tend to weigh the present value of money earned higher than the negative consequences of health-related issues from STD/HIV in their future, and accepted unprotected sex for a tip as low as Baht 2,000. Additionally, HIV testing policy

in venue-based commercial sex establishments is the only “signal” in the Thai commercial sex market that clients may use to determine whether or not safe sex may take place. However, lacking strong implementation of the policy this is not a guarantee that all SWs are tested frequently and are therefore aware of their STD/HIV status. Finally, this paper emphatically shows that the MSM populations, both the clients and SWs, are at greater sexual health risk both from the point of not using condoms consistently and/or not undertaking STD/HIV testing.

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