APPENDIX:

CRIMES AGAINST MORALITY:

UNINTENDED CONSEQUENCES OF

CRIMINALIZING SEX WORK

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I.A Data Collection and Samples

The data for this study were collected by the authors in partnership with an Indonesian survey firm and were initially collected in relation to a randomized controlled trial (RCT) designed to study the relationship between liquidity constraints (e.g., access to savings) and risky behaviors among female sex workers. The survey firm had previous experience interviewing sex workers across Indonesia for another large scale project and extensive experience interviewing respondents about a range of sensitive personal topics. The research team worked with a local community service organization (CSO) that had an ongoing relationship with sex workers in these districts to identify all (17) direct sex worksites in the greater Malang area, which included the district of Malang, Pasuruan (city and district) and Batu in East Java, Indonesia.[1]

At baseline, every sex worker found working at the sites was surveyed. We also surveyed a sample of clients at each worksite. In July 2014, after baseline data was collected, it was announced that the local government would close formal worksite locations in Malang on November 28, 2014. Due to the disruption of criminalizing the worksites, we were unable to continue with the original RCT. However, we developed a strategy to track as many sex workers at the worksites as possible to understand the effects of the worksite criminalization on sex worker risk behaviors and well-being, client risk behavior and demand for transactional sex, and the structure of the commercial sex market in Malang. Endline data collection took place during May–June 2015, and a second round of health exams to measure STI prevalence were conducted in September 2015.

[1]We will refer to these locations elsewhere just as Malang, Pasuruan, and Batu.

At endline, we re-contacted as many sex workers from our baseline survey as possible, as well as any additional women who were now working at the study locations. If a baseline respondent was unable to be reached in person at the site, we also conducted telephone surveys and "informant" surveys, in which we asked women who knew the original respondent about her current whereabouts and occupation.

Due to increased tensions from criminalization that were still affecting the worksites at the time of our endline fieldwork in May–June of 2015, it was difficult for the fieldwork team to get physical access to some of the worksites. We were able to survey sex workers at all 17 of the original worksites included in the study (conducting some interviews by phone). The sex worker surveys confirm that sex work activities continued at all of the worksites after the criminalization in Malang. We were able to survey clients at nine of the worksites, three of which were the largest criminalized worksites in Malang.[2]

This data collection process resulted in a dataset that comprises (1) baseline and endline survey data for sex workers in Malang, Pasuruan, and Batu, a subset of whom we were able to follow over time to construct a panel sample, (2) baseline and endline biological STI data for sex workers in Malang, Pasuruan, and Batu, a subset of whom we were able to follow over time to construct a panel sample, and (3) baseline and endline survey data for clients in Malang, Pasuruan, and Batu.

Table I.I provides a detailed breakdown of sample sizes. All panels in Table I.I report sample sizes separately for criminalized worksites, non-criminalized worksites (formal non-criminalized and total non-criminalized), all formal worksites and all worksites. Panel A reports

[2]We could not conduct phone interviews with clients as clients were not tracked over time and we needed to construct a new cross-section of clients, which necessitated face-to-face interviews.

the analysis sample sizes of sex workers in our baseline and endline surveys. The "Baseline Sample" represents the universe of sex workers at the study worksites at the time of the baseline survey. The *Malang Post* estimated that the localizations set for closure in Malang consisted of as many as 327 sex workers (Malang Post, 2014). We surveyed a greater number of women at each worksite for which the article provided estimates. In total we surveyed 505 sex workers at baseline across the 17 worksites, 373 of whom were at the formal worksites that were criminalized in Malang.

The "Endline Analysis Sample" is the number of sex workers we were able to conduct in-person surveys with at endline and who indicated that they were still participating in sex work through direct questioning and reporting of commercial sex activity in the week prior to the endline survey. As mentioned, at endline we conducted surveys with sex workers in-person, over-the-phone, or by informant. Through these three media, we collected survey data on 454 sex workers at endline. However, once this sample is restricted to sex workers who were still engaged in sex work and working at the study worksites, the endline sample across all worksite is 198 sex workers, (Table I.I, Panel A, Row D1, Column 5). Out of the 198 sex workers surveyed at endline, 144 are also in our baseline sample, and comprise the panel sample of sex workers used in our analysis.

Panel B reports the analysis sample sizes of sex workers in our health exam data. We were able to test a total of 333 sex workers at baseline and 126 at endline. Seventy-four sex workers were tested at both baseline and endline, and we use these sex workers in the panel analysis of the biological test results.

Finally, Panel C of Table I.I, presents the sample size of clients that we surveyed at either baseline and endline. The sample size of 300 clients at baseline was targeted, with the distribution of clients across the 17 worksites set to be proportional to the size of the worksites. We did not collect contact information from clients at baseline, and no attempt to follow clients over time was made. Again, at endline we targeted a sample size of 300 clients across the worksites and were able to survey 293 clients at nine of the 17 original worksites, for the reasons discussion earlier (police raids, etc.).

Panels D and E of Table I.I provide detailed information on the locations and occupations of sex workers from the baseline survey at the time of our endline survey.

I.B Biological tests

The biological tests were conducted in September 2014 (baseline) and September 2015 (endline) with assistance from the local health ministry in Malang and our partner CSO via mobile health clinics at the sites in Pasuruan and Batu. Although the health ministry was no longer coordinating with the criminalized worksites in Malang at endline, we were able to work with them to conduct health exams on a one-off basis. The tests included a standard diagnostic test using microscopy to analyze biological swabs for the presence of Gram-negative intracellular diplococci in polymorphonuclear leukocytes (PMNL) for the diagnosis of gonorrhea. This test detects 40-60 percent of culture-positive specimens in women. The specificity of the test (80-95 percent) depends upon the experience of the microscopist (Unemo et al., 2013). In addition, a Whiff Test was performed to identify the presence of bacterial vaginosis, which, while not a sexually transmitted infection, is an indicator of unsafe sexual practices and vulnerability to contracting STIs. These measures are standard in the public health literature (Unemo et al., 2013). The variable we construct from the biological data equals one if the woman received any positive test result. The biological tests generate a positive test result for 46 percent of women at the criminalized worksites, which is in the same range as estimates from the 2011 Integrated Biological and Behavioural Survey in Indonesia for Malang which finds that 36.4 percent of sex workers tested positive for gonorrhea and 34 percent of sex workers tested positive for chlamydia (*Integrated Biological and Behavioral Survey*, 2011).

I.C Supplementary Figures

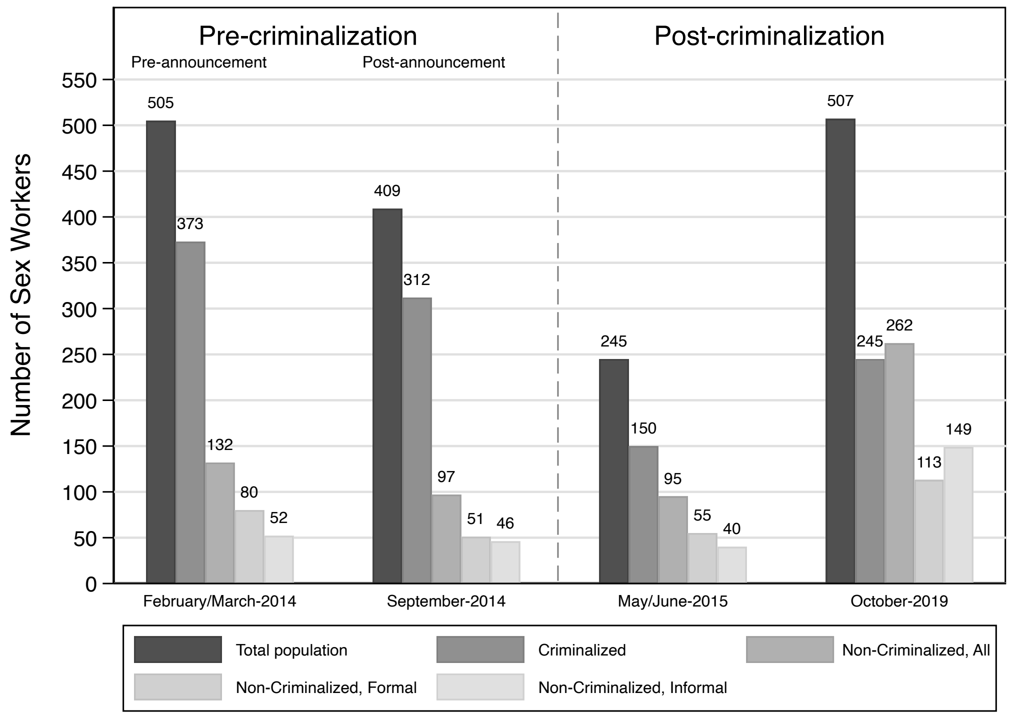

Figure I.I Sample Sizes

Notes. The figure is an alternate presentation of the information shown in Figure III in the main paper, summing sub-groups to show the total population of sex workers. The first bar at each point in time shows the total number of sex workers at worksites in Malang and Pasuruan/Batu. This is the sum of the subsequent two bars, which show the total number of sex workers at criminalized and non-criminalized worksites, respectively. The fourth and fifth bars further break down the population of sex workers at non-criminalized worksites between sex workers at formal and informal worksites, respectively. Therefore the fourth and fifth bars at each point in time sum to the third bar.

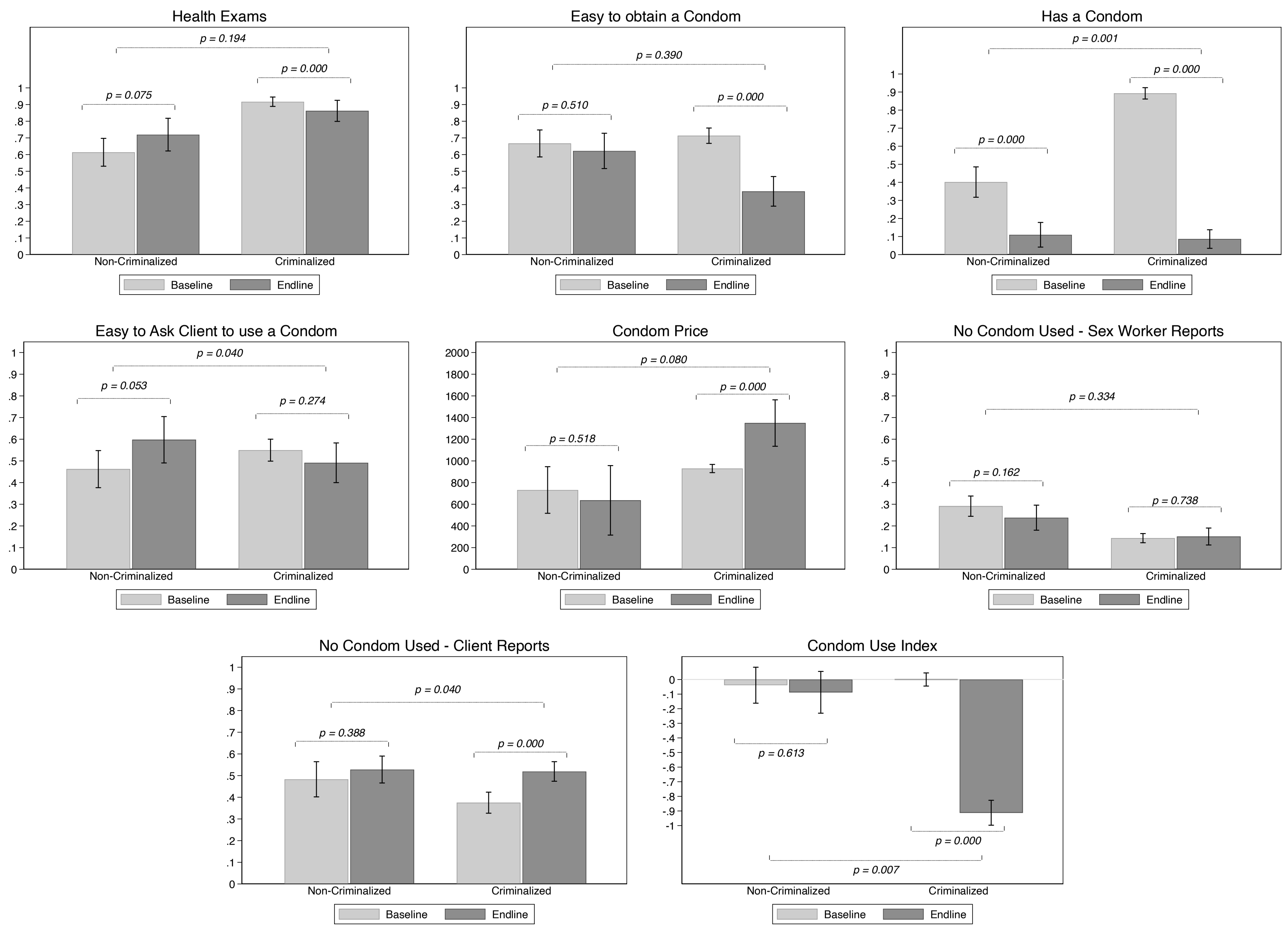

Figure I.II Means of Key Outcome Variables by Criminalization Status

Notes. This figure repeats the exercise show in Figure VII in the main paper for all of the outcomes shown in paper Table II. This figure presents the mean values of these outcomes at baseline according to attrition and criminalization status. The p-values spanning each set of two bars are the p-values for tests of differences of means across attritors and non-attritors, and the p-value spanning all four bars is the p-value for the test that sex workers attrited differentially from non-criminalized and criminalized worksites.

I.D Supplementary Tables

Table I.I Following-up with the Female Sex Workers from the Baseline Sample

	(1)	(2)	(3)	(4)	(5)
	Criminalized	**Non-Criminalized**		**TOTAL**	
	Formal	**Formal**	**Total**	**Formal**	**TOTAL**
A. Number of sex workers in Baseline and Endline Surveys					
(A) Baseline Sample	**373**	**80**	**132**	**453**	**505**
(B) Endline Sample	**334**	**72**	**120**	**406**	**454**
(1) In person	127	44	88	171	215
(2) By phone	70	4	5	74	75
(3) By informant	137	24	27	161	164
(C) Endline Panel Sample	**256**	**57**	**92**	**313**	**348**
(1) In person	92	34	66	126	158
(2) By phone	56	4	5	60	61
(3) By informant	108	19	21	127	129
(D) Endline Analysis Sample					
(1) In Sex Work, in person	116	42	82	158	198
(2) In Sex Work, in person panel	84	32	60	116	144
(3) Not in Sex Work, in person & by phone panel	55	4	8	59	63
B. Number of sex workers in Baseline and Endline Health Exam Data					
(1) Baseline Analysis Sample	269	62	64	331	333
(2) Endline Analysis Sample	76	39	50	115	126
(3) Panel Analysis Sample	53	21	21	74	74
C. Number of Clients in Baseline and Endline Analysis					
(1) Baseline Analysis Sample	220	44	80	264	300
(2) Endline Analysis Sample	193	35	100	228	293
D. Locations of sex workers if no longer in Sex Work at Endline††					
No longer in sex work	113 (%)	12 (%)	17 (%)	125 (%)	130 (%)
Did not move	7 (6.19)	2 (16.7)	6 (35.3)	9 (7.2)	13 (10.0)
Moved within same city (not home)	13 (11.5)	0 (0.00)	0 (0.00)	13 (10.4)	13 (10.0)
Returned home	69 (61.1)	9 (75.0)	9 (52.9)	78 (62.4)	78 (60.0)
Moved somewhere else	24 (21.2)	1 (8.33)	2 (11.8)	25 (20.0)	26 (20.0)
E. Occupations of sex workers at time of Endline††					
Endline Panel Sample	256 (%)	57 (%)	92 (%)	313 (%)	348 (%)
In sex work	143 (55.9)	45 (78.9)	75 (81.5)	188 (60.0)	218 (62.6)
Work in a small shop/stall (warung)	5 (1.95)	0 (0.00)	0 (0.00)	5 (2.65)	5 (1.44)
Own small business	16 (6.25)	1 (1.75)	2 (2.02)	17 (9.04)	18 (5.17)
Work as laborer	26 (10.2)	3 (5.26)	4 (4.34)	29 (15.4)	30 (8.62)
Other or unspecified	34 (13.2)	1 (1.75)	4 (4.34)	35 (18.6)	38 (10.9)
Not working	32 (12.5)	7 (12.3)	7 (7.61)	39 (20.7)	39 (11.2)

Notes. In Panel A, the (A) "Baseline Sample" is the total number of sex workers who were interviewed at baseline (the universe of sex workers at the study worksites at the time of the baseline survey). The (B)"Endline Sample" is the total number of sex workers who we were able to interview at endline either through (1) surveys directly with the respondent in-person or (2) over the phone, or (3) with an informant who was able to answer basic questions about where the original respondent is now and what she is doing. The (C) "Endline Panel Sample" is the total number of sex workers from the baseline sample that we were able to obtain information about at endline. The (D) "Endline Analysis Sample" consist of (1) the number of sex workers we were able to conduct surveys with at endline through in-person surveys who indicated current participation in sex work; (2) the number of these sex workers who appear in both the baseline and endline samples through in-person surveys; (3) the number of sex workers who report no longer being in sex work at endline who were surveyed either in person or by phone. Panel B reports the sample sizes for the biological tests at baseline, endline, and in the panel sample. Panel C reports the baseline and endline samples sizes in the client data. Panel D reports the current location of sex workers from baseline if they report that they are no longer in sex work. Panel E reports the current occupation of sex workers from baseline who we were able to reinterview at endline either in-person, by phone, or through an informant. †† The percentages in parentheses in Panels D and E are the percent of the full endline sample who are no longer in sex work by location at endline (Panel D) and who are working in each occupation (Panel E).

Table I.II Comparison of Sex Workers with General Population Women

	(1)	(2)
Variable	**Sex Workers**	**Gen. Pop.**
Married	0.184	0.590
	(0.010)	(0.015)
Divorced or Widowed	0.764	0.164
	(0.020)	(0.011)
Never Married	0.051	0.245
	(0.01)	(0.013)
Years of Education	5.80	7.53
	(0.137)	(0.132)
Age	34.9	37.3
	(0.335)	(0.547)
Children	0.895	0.934
	(0.014)	(0.009)

Notes. This table reports the means of female sex worker characteristics from the survey sample used in the paper and means of characteristics of similar aged women in the general population calculated from the 2013 SUSENAS data for women living in Malang, Pasuruan, and Batu, aged 28-42 (the age range in which the majority of the sex workers lie). SUSENAS only asks married women about children, so the sample is restricted to married women for the percent of women with children. SUSENAS sample weights are used in calculation of the means.

Table I.III Baseline Values of Characteristics and Key Outcome Measures, by formal and informal worksites

	(1)	(2)	(3)
	All Worksites		**Diff**
Variable	**Formal**	**Informal**	*(P-Value)*
A. Female Sex Workers			
Married	0.172	0.288	
	(0.026)	(0.102)	0.266
Divorced or Widowed	0.770	0.712	
	(0.027)	(0.102)	0.568
Never Married	0.057	0.000	
	(0.010)	(.)	0.000***
Years of Education	5.828	5.519	
	(0.160)	(0.787)	0.693
Age	34.358	39.327	
	(0.822)	(1.463)	0.007***
Children	0.896	0.885	
	(0.017)	(0.050)	0.820
Years at Location	2.150	4.385	
	(0.239)	(0.945)	0.029**
Discount Factor	0.385	0.378	
	(0.024)	(0.058)	0.905
Risk Tolerance	0.376	0.275	
	(0.028)	(0.050)	0.084*
Health Exam	0.863	0.615	
	(0.040)	(0.067)	0.004***
Easy to Obtain a Condom	0.733	0.423	
	(0.124)	(0.074)	0.042**
Has Condom	0.792	0.519	
	(0.074)	(0.115)	0.054*
Easy to Ask a Client to Use a Condom	0.536	0.442	
	(0.052)	(0.107)	0.423
Condom Price	882	852	
	(87)	(178)	0.875
No Condom Used	0.161	0.353	
	(0.032)	(0.101)	0.074*
Sample size	453	52	
B. Clients			
Married	0.621	0.528	
	(0.037)	(0.069)	0.235
Divorced or Widowed	0.148	0.250	
	(0.022)	(0.050)	0.068*
Never Married	0.231	0.222	
	(0.049)	(0.064)	0.911
Years of Education	8.720	7.250	
	(0.445)	(0.560)	0.049**
Age	38.231	40.694	
	(1.440)	(2.147)	0.337
Discount Factor	0.266	0.183	
	(0.035)	(0.064)	0.258
Risk Tolerance	0.504	0.611	
	(0.043)	(0.046)	0.097*
No Condom Used	0.373	0.468	
	(0.0046)	(0.097)	0.369
Sample size	264	36	

Notes. This table reports the means of female sex worker, client characteristics and key outcome variables from the baseline survey. The reported p-values (column 3) are from a t-test of the difference in means between the sex workers (clients) at the formal worksites and the sex workers (clients) at the informal worksites. Standard errors are clustered at the worksite level.

Table I.IV Impact of Criminalization on Sex Worker Health and Condom Use, Robustness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Female Sex Worker Data								**Client Data**
	Test Positive	**Health Exam**	**Condom Use Index**	**Easy to Obtain**	**Has Condom**	**Condom Price**	**Easy to Ask**	**No Condom**	**No Condom**
A. Sex Workers in Sex Work, In-person Sample, Formal Worksites									
Crim × Post	0.273**	-0.063	-1.01**	-0.449	-0.556**	1.82**	-0.202	0.128	0.436*
	(0.032)	(0.076)	(0.160)	(0.218)	(0.073)	(0.650)	(0.079)	(0.157)	(0.302)
	[0.024]	[0.378]	[0.053]	[0.166]	[0.018]	[0.012]	[0.108]	[0.584]	[0.097]
Observations	446	611	611	611	611	611	611	1721	1023
Baseline Mean	0.464	0.916	0.00	0.714	0.893	930 IDR	0.550	0.144	0.386
B. Sex Workers in Sex Work, In-person Panel Sample, Formal Worksites									
Crim × Post	0.208**	0.030	-0.880**	-0.406	-0.554***	1.29	-0.121	0.134	
	(0.053)	(0.087)	(0.231)	(0.213)	(0.041)	(1.13)	(0.088)	(0.140)	
	[0.015]	[0.720]	[0.051]	[0.186]	[0.008]	[0.412]	[0.510]	[0.576]	
Observations	148	232	232	232	232	232	232	648	
Baseline Means	0.340	0.935	0.00	0.774	0.881	885 IDR	0.548	0.168	
Worksite Fixed Effects	Y	Y	Y	Y	Y	Y	Y	N	N
Individual Fixed Effects	N	N	N	N	N	N	N	Y	Y
Unit of Observation	Individual	Individual	Individual	Individual	Individual	Individual	Transaction	Transaction	
C1. Sex Workers in Sex Work, In-person Panel Sample, Individual FE									
Crim × Post	0.208*	-0.100	-0.805**	-0.390	-0.498***	0.913	-0.160	0.124	
	(0.074)	(0.157)	(0.243)	(0.270)	(0.047)	(0.964)	(0.147)	(0.108)	
	[0.052]	[0.403]	[0.017]	[0.221]	[0.003]	[0.257]	[0.179]	[0.288]	
Observations	148	288	288	288	288	288	288	786	
Baseline Means	0.340	0.935	0.00	0.774	0.881	885 IDR	0.548	0.169	
C2. Sex Workers in Sex Work, In-person Panel Sample, Formal Worksites, Individual FE									
Crim × Post	0.208**	0.042	-0.872**	-0.409	-0.548***	1.24	-0.122	0.134	
	(0.074)	(0.113)	(0.286)	(0.278)	(0.047)	(1.43)	(0.122)	(0.140)	
	[0.052]	[0.622]	[0.054]	[0.174]	[0.004]	[0.368]	[0.208]	[0.576]	
Observations	148	232	232	232	232	232	232	648	
Baseline Means	0.340	0.935	0.00	0.774	0.893	885 IDR	0.548	0.168	
Worksite Fixed Effects	N	N	N	N	N	N		N	
Individual Fixed Effects	Y	Y	Y	Y	Y	Y		Y	
Unit of Observation	Individual	Individual	Individual	Individual	Individual	Individual	Individual	Transaction	

Notes. Panels A and B replicate Table II in the main paper, restricting the sample to sex workers who work at formal worksites. Panel C1 replicates Panel B from Table II and Panel C2 replicates Panel B in the current table with individual fixed effects and no other controls. Standard errors are clustered at the worksite level. We also present Wild cluster-bootstrap percentile-t p-values in brackets below the conventional standard error following Cameron, Gelbach, and Miller (2008). Stars correspond to the p-value. *p<0.10, ** p<0.05, *** p<0.01.

Table I.V Impact of Criminalization on Worksite Operations, Robustness

	(1)	(2)	(3)	(4)	(5)	(6)
	Worksite Index	**No. of Clients**	**No. of Trans.**	**No. of Hrs Worked**	**Price**	**Wkly Earnings**
A. Sex Workers in Sex Work, In-person Sample, Formal Worksites						
Crim×Post	0.280	3.95	3.82	-2.27	-0.080	0.691
	(0.184)	(2.76)	(2.67)	(9.10)	(0.121)	(0.950)
	[0.263]	[0.326]	[0.326]	[0.866]	[0.594]	[0.716]
Observations	611	611	611	611	1721	611
Baseline Mean	0.00	8.40	8.45	57.2	106,054 IDR	735,040 IDR
B. Sex Workers in Sex Work, In-person Panel Sample, Formal Worksites						
Crim×Post	-0.034	1.56	1.38	-8.00	-0.074	-1.17
	(0.173)	(1.54)	(1.54)	(11.5)	(0.115)	(1.09)
	[0.801]	[0.406]	[0.446]	[0.524]	[0.568]	[0.382]
Observations	232	232	232	232	648	232
Baseline Mean	0.00	9.96	9.97	61.7	107,881 IDR	940,783 IDR
	Worksite Index	**No. of sex workers**	**No. of Trans.**		**Price**	**Wkly sex worker Expenditures**
C. Client Sample, Formal Worksites						
Crim×Post	0.403	2.07*	-0.899		0.818	-0.593
	(0.692)	(0.934)	(1.34)		(0.614)	(2.10)
	[0.802]	[0.456]	[0.618]		[0.191]	[0.768]
Observations	492	492	492		1023	492
Baseline Mean	0.00	1.48	1.43		96,620 IDR	144,123 IDR
Worksite Fixed Effects	Y	Y	Y		N	Y
Individual Fixed Effects	N	N	N		Y	N
	Worksite Index	**No. of Clients**	**No. of Trans.**	**No. of Hrs Worked**	**Price**	**Wkly Earnings**
D1. Sex Workers in Sex Work, In-person Panel Sample, Individual FE						
Crim×Post	-0.021	1.15	0.864	-10.2	-0.051	-0.314
	(0.195)	(2.20)	(2.16)	(10.6)	(0.105)	(1.18)
	[0.875]	[0.601]	[0.661]	[0.165]	[0.]	[0.765]
Observations	288	288	288	288	786	288
Baseline Mean	0.00	9.96	9.97	61.7	107,881 IDR	940,783 IDR
D2. Sex Workers in Sex Work, Formal Worksites, In-person Panel Sample, Individual FE						
Crim×Post	-0.010	1.66	1.57	-6.73	-0.074	-1.06
	(0.206)	(2.62)	(2.50)	(13.2)	(0.115)	(1.32)
	[0.964]	[0.514]	[0.550]	[0.488]	[0.]	[0.342]
Observations	232	232	232	232	648	232
Baseline Mean	0.00	9.96	9.97	61.7	107,881 IDR	940,783 IDR
Worksite Fixed Effects	N	N	N	N	N	N
Individual Fixed Effects	Y	Y	Y	Y	Y	Y

Notes. Panels A and B replicate Table III in the main paper, restricting the sample to sex workers who work at formal worksites. Panel C replicates Panel C from Table III, restricting the sample to clients who are surveyed at formal worksites. Panel D1 replicates Panel B from Table III and Panel D2 replicates Panel B in this table with individual fixed effects and no other controls. Standard errors are clustered at the worksite level. We also present Wild cluster-bootstrap percentile-t p-values in brackets below the conventional standard error following Cameron, Gelbach, and Miller (2008). Stars correspond to the p-value. *$p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table I.VI Impact of Criminalization on Sex Worker Health, assuming STI rates among sex workers who leave sex work

	(1)	(2)	(3)	(4)	(5)	(6)
	Assuming STI rates among SWs who left sex work					
	0 %	20 %	30 %	36 %	40 %	50.5 %
Crim×Post	0.158	0.202*	0.224**	0.238**	0.246**	0.269***
	(0.133)	(0.107)	(0.094)	(0.086)	(0.082)	(0.069)
N	462	462	462	462	462	0.462
Baseline Mean at non-criminalized worksites	0.891	0.891	0.891	0.891	0.891	0.891

Notes. This table presents results from a bounding exercise, where we include sex workers who were tested at baseline but left sex work in the endline data. Each column presents the results from estimating the main specification making varying assumptions about the rate of STIs among sex workers who left sex work. In column (1), we assume that all women who left sex work are now STI free. In column (4), we set the STI rate of those no longer in sex work to the rate of syphilis and gonorrhea found among direct sex workers in Malang in *Integrated Biological and Behavioral Survey* (2011). In column (6), the rate of 50.5 percent is the STI rate at baseline among sex workers who left our sample. The 20, 30 and 40 percent are provided for reference. Standard errors are clustered at the worksite level. *p$<$0.10, ** p$<$0.05, *** p$<$0.01.

Table I.VII Impact of Criminalization on Sex Worker Health and Condom Use, no controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				Female Sex Worker Data					**Client Data**
	Test Positive	**Health Exam**	**Condom Use Index**	**Easy to Obtain**	**Has Condom**	**Condom Price**	**Easy to Ask**	**No Condom Use**	**No Condom Use**
Crim $\times$ Post	0.211**	-0.161**	-0.864***	-0.289	-0.515***	1.658***	-0.194**	0.123	0.589*
	(0.107)	(0.063)	(0.183)	(0.220)	(0.072)	(0.518)	(0.067)	(0.113)	(0.334)
Observations	459	703	703	703	703	703	703	1956	1253
Baseline Means:									
Non-criminalized	0.891	0.614	-0.0391	0.667	0.402	732 IDR	0.462	0.291	0.483
Criminalized	0.465	0.917	0.00	0.713	0.893	930 IDR	0.550	0.144	0.375
Endline Means:									
Non-criminalized	0.820	0.728	-0.088	0.602	0.102	612 IDR	0.595	0.231	0.528
Criminalized	0.605	0.658	-0.912	0.370	0.0787	1322 IDR	0.500	0.155	0.519
Worksite Fixed Effects	N	N	N	N	N	N	N	N	N
Individual Fixed Effects	N	N	N	N	N	N	N	Y	Y
Unit of Observation	Individual	Individual	Individual	Individual	Individual	Individual	Individual	Transaction	Transaction

Notes. This table reports estimates of β_1 from equation (1) without including any control variables. "Test Positive" is an indicator for presenting a positive result for the biological test. "Health Exam" is an indicator variable equal to 1 if the sex worker reported having a medical exam with a speculum in the past 3 months."Condom Use Index" is generated from standardizing each of the measures in columns 4–7 around the means and standard deviations of their values in criminalized worksites at baseline and taking the unweighted average across variables. "Condoms Access" is an indicator equal to 1 if the sex worker reports that it is easy to obtain a condom within the worksite. "Has Condom" is an indicator for the sex worker having a condom on her that she can produce at the time of the interview. "Condom Price" is the hyperbolic inverse sine transformation of the reported price of condoms. "No Condom Used" is an indicator variable equal to 1 if the sex worker (or client) reports that she(he) did not use a condom at all during a transaction. There are no controls included in columns 1–7, and columns 8–9 include individual fixed effects. Standard errors are presented in parentheses and are clustered at the worksite level. We also present Wild cluster-bootstrap percentile-t p-values in brackets below the conventional standard error following Cameron, Gelbach, and Miller (2008). Stars correspond to the p-value. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table I.VIII Impact of Characteristics on Condom Use

	(1)	(2)
	Sex Worker (SW) No condom	**Client (CL) No condom**
(SW/CL) Divorced/Widowed	-0.037	-0.139**
	(0.040)	(0.047)
(SW/CL) Unmarried	-0.037	0.011
	(0.068)	(0.070)
(SW/CL) Years of Education	0.005	-0.011
	(0.004)	(0.007)
(SW/CL) Age	-0.002	0.007***
	(0.001)	(0.001)
(SW) Children	-0.006	
	(0.028)	
(SW) Years at location	-0.001	
	(0.005)	
(SW/CL) Discount Factor	-0.029	-0.023
	(0.022)	(0.042)
(SW/CL) Risk Tolerance	-0.042*	0.037
	(0.022)	(0.043)
(CL/SW) Regular	0.045**	0.019
	(0.013)	(0.031)
(CL) Outsider	-0.010	
	(0.021)	
(CL/SW) Clean	-0.068***	-0.033
	(0.018)	(0.033)
(CL/SW) Attractive	0.033	0.021
	(0.016)	(0.028)
(CL) Old	0.102*	
	(0.046)	
(CL) Rich	0.033*	
	(0.019)	
Post	-0.009	0.052
	(0.023)	(0.055)
Observations	1956	1253

Notes. In column (1), the outcome "No Condom" is equal to one if the sex worker reports not using a condom during a transaction. In column (2), "No Condom" is an indicator equal to one if the client reports not using a condom during a transaction. The unit of observation in both columns is the transaction. Standard errors are clustered at the worksite level. * $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table I.IX Sample Selection and Attrition

(1)		(2)		(3)	
Leave "In Sex Work" Sample				**Leave Biological Test Sample**	
Crim×Married	-0.248	Crim×Health Exam	0.151	Crim×Positive	0.003
	(0.120)		(0.092)		(0.024)
	[0.104]		[0.118]		[0.960]
Crim×Education	-0.024	Crim×Condom Access	0.093		
	(0.015)		(0.095)		
	[0.222]		[0.480]		
Crim×Age	0.009*	Crim×Has Condom	0.118		
	(0.004)		(0.147)		
	[0.082]		[0.562]		
Crim×Children	0.089	Crim×Condom Price	0.005		
	(0.102)		(0.014)		
	[0.462]		[0.716]		
Crim×Years	-0.020	Crim×No. of Clients	-0.126		
	(0.014)		(0.091)		
	[0.124]		[0.362]		
Crim×Discount	0.041	Crim×No. of Trans.	0.118		
	(0.071)		(0.087)		
	[0.576]		[0.376]		
Crim×Risk	0.046	Crim×Hrs Worked	0.002		
	(0.101)		(0.002)		
	[0.674]		[0.590]		
		Crim×Wkly Earnings	-0.007		
			(0.012)		
			[0.598]		
Married	0.121	Health Exam	-0.148**	Positive	0.043***
	(0.071)		(0.062)		(0.006)
Education	0.023	Condom Access	-0.178*		
	(0.014)		(0.090)		
Age	-0.006**	Has Condom	-0.097		
	(0.003)		(0.137)		
Children	-0.166	Condom Price	0.009		
	(0.097)		(0.009)		
Years at Worksite	0.019*	No. of Clients	0.095**		
	(0.009)		(0.044)		
Discount Factor	0.003	No. of Transactions	-0.092**		
	(0.059)		(0.040)		
Risk Tolerance	-0.072	Hrs Worked	-0.001		
	(0.092)		(0.002)		
		Wkly Earnings	0.003		
			(0.011)		
Sample Size	505		505		333
Worksite Fixed Effects	Y		Y		Y

Notes. The sample of sex workers in columns 1 and 2 is all sex workers interviewed at baseline. The sample in column 3 is all sex workers for whom we obtained biological test results at baseline. Outcomes in each column are indicator variables for the individual leaving the specified sample. In columns 1 and 2, a sex worker leaves the in sex work sample if we were unable to interview her in person at endline or if she reported she had left sex-work at endline. Standard errors are presented in parentheses and are clustered at the worksite level, and wild cluster-bootstrap percentile-t p-values are presented in brackets below the conventional standard errors following Cameron, Gelbach, and Miller (2008). Stars correspond to the p-value. * p<0.10, ** p<0.05, *** p<0.01

Table I.X Key Outcome Variables by Criminalization and Attrition Status

	(1)	(2)	(3)	(4)	(5)	(6)
	Criminalized Sites			Non-Criminalized Sites		
	In EL Sample	Attritors	Difference	In EL Sample	Attritors	Difference
STI Prevalence	0.348	0.505	0.157**	0.900	0.905	0.005
	(0.065)	(0.103)	(0.078)	(0.053)	(0.024)	(0.030)
Observations	69	200	269	20	42	62
Health Exam	0.929	0.913	-0.015	0.656	0.583	-0.073
	(0.020)	(0.019)	(0.030)	(0.192)	(0.099)	(0.109)
Condom Index	0.049	-0.069	-0.118	0.239	-0.091	-0.330
	(0.094)	(0.097)	(0.068)	(0.206)	(0.143)	(0.185)
Observations	104	303	407	40	58	98

Notes. This table presents the means of STI prevalence, having had a health exam, and the condom index by attrition and criminalization status that underlie Figure VII. Stars correspond to the p-value. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

II Eliciting Time and Risk Preferences

II.A Time Preferences

To elicit time preferences a series of hypothetical questions were asked of each respondent. The respondent was presented with a series of questions asking her to choose between Rp 1 million today (equal to approximately USD75 at the time) and varying amounts of money in one year's time (Rp 1 million, Rp 2 million, Rp 3 million, Rp 6 million). More patient people will choose to defer payment even for a relatively small increase in the amount received, whereas less patient people will only choose to defer payment if the amount received increases by a substantial amount. Based on the choice made by the respondent, a minimum discount factor is calculated using the following equation:

$$DiscountFactor = log(X)/log(Y), \tag{1}$$

where Y is the amount that the respondent would prefer in the next period over receiving X today. Table II.I presents the minimum discount factor corresponding to each choice.

II.B Risk Preferences

The incentivized risk game that we conducted is commonly used in low-income settings as it is relatively easy to understand (Binswanger, 1980). Respondents were asked to select one gamble from a set of six possible gambles each with a 50 percent chance of "winning" and a 50 percent chance of "losing". The six 50-50 gamble options are summarized in Table II.II. Gamble A gives the participant a 50 percent chance of winning Rp10,000 and a 50 percent chance of winning Rp10,000, hence it involves no risk. The risk associated with each gamble increases as the player progresses down the table, with choice F being the riskiest. The expected values of the winnings in this game range from Rp10,000 to Rp20,000 where the expected value increases until choice E. Choices E and F have the same expected return, but F has a higher variance, so only a risk-neutral or risk-loving person would take the step from E to F. In terms of the magnitude of the stakes, the median hourly wage in the sex worker sample is approximately Rp12,500. Therefore, the potential winnings are substantial. Players could win as much as 3.2 hours of typical hourly earnings. Our measure of risk tolerance is an indicator variable that equals one if an individual chose either of the two riskiest options (E or F) and zero otherwise.

The game was implemented in the field as follows. After the respondent had selected a gamble, the experimenter showed the player she had two marbles, a blue and a yellow one. She would then put the marbles behind her back and shake them in her hands. Then she would take one marble in each hand and bring them forward telling the player she had one marble concealed in each hand. The player would pick a hand. If the player picked the hand containing the blue marble, she would receive the amount of money shown on the blue side of the table (the higher pay-off). If she picked the hand containing the yellow marble, the player would receive the amount of money shown on the yellow side of the table (the lower pay-off). Before playing the risk game, the experimenter went through a series of examples with each player. When it was clear that the player understood the game, money was put on the table to indicate the game for real stakes would begin.

Table II.I Lottery Choices and Levels of Patience

(1)	(2)	(3)
Amount Today	Preferred Amount in 1 year	Discount Factor
1,000,000	1,000,000	1
1,000,000	2,000,000	0.952
1,000,000	3,000,000	0.926
1,000,000	6,000,000	0.885
1,000,000	–	0

Table II.II Risk Game Choices

(1)	(2)	(3)	(4)	(5)
Gamble Choice	Low Payoff	High Payoff	Expected Value	Difference in Payoffs
A	10000	10000	10000	0
B	9000	19000	14000	5000
C	8000	24000	16000	8000
D	6000	30000	18000	12000
E	2000	38000	20000	18000
F	0	40000	20000	20000

III Impacts on General Population STI rates

In this section, we develop a framework for evaluating the impact of the worksite closures on the probability of STI transmission to the general population. In doing so, we consider three transmission probabilities that are affected by the increase in sex worker STI rates: the probability that a sex worker transmits an STI to a client, the probability that a client transmits an STI to a partner, and the probability that a sex worker transmits an STI to a partner. We calculate each of these probabilities assuming a single instance of sexual intercourse. We then combine these probabilities with estimates of the share of males who are clients and share of females who are sex workers in Indonesia and our estimated change in market size due to the closures to extrapolate these estimates to the broader population. All probabilities used in these calculations can be found in Table III.I.

III.A Transmission Probabilities

We use the following abbreviations:

- STI_i is equal to 1 if an STI is contracted by individual i and equal to 0 otherwise, where $i = s, c, cp, sp$ and s denotes a sex worker, c a client, cp a client partner, and sp a sex worker partner;
- C_i is equal to 1 if a condom is used with individual i and 0 otherwise, where $i = s, c, cp, sp$ as above;
- T_j is equal to 1 if disease transmission occurs during sexual contact and 0 otherwise, where $j = f, m$ and f is female-to-male and m is male-to-female;
- P is equal to 1 if the condom protects from transmission and 0 otherwise;

- CP is equal to 1 if the client has a partner and 0 otherwise;
- SP is equal to 1 if the sex worker has a partner and 0 otherwise.

Probability that a sex worker transmits an STI to a client

The probability that a client contracts an STI from a sex worker during a commercial sex transaction can be written as the sum of the conditional probability that a client contracts an STI given that the sex worker has an STI and the probability that the client contracts an STI given that the sex worker does not have an STI. In practice, the second term is zero, so can be dropped:

$$Pr(\mathrm{STI}_c = 1) = Pr(\mathrm{T}_f = 1|\mathrm{STI}_s = 1)Pr(\mathrm{STI}_s = 1) \tag{2}$$

Conditioning on whether or not a condom is used during the transaction and whether or not the condom is effective, this can be re-written as:[3]

$$\begin{aligned} Pr(\mathrm{STI}_c = 1) =& Pr(\mathrm{T}_f = 1|\mathrm{STI}_s = 1)Pr(\mathrm{STI}_s = 1)Pr(\mathrm{P} = 0|\mathrm{C}_s = 1)Pr(\mathrm{C}_s = 1)+ \\ & Pr(\mathrm{T}_f = 1|\mathrm{STI}_s = 1)Pr(\mathrm{STI} = 1)Pr(\mathrm{P} = 0|\mathrm{C}_s = 0)Pr(\mathrm{C}_s = 0) \end{aligned} \tag{3}$$

The first term, $Pr(\mathrm{STI}_c = 1|\mathrm{C}_s = 1)$, is the probability that a client contracts an STI conditional on using a condom times the probability of using a condom. The second term, $Pr(\mathrm{STI}_c = 1|\mathrm{C}_s = 0)$, is the probability of a client contracting an STI conditional on not using a condom times the probability of not using a condom. The term $Pr(\mathrm{P} = 0|\mathrm{C}_s = 0)$ is the probability that a condom does not protect against transmission given that the client did not use a condom with the sex worker, and is therefore equal to 1 and can be omitted.

[3] We are assuming independence between a sex worker testing positive and whether she uses a condom. We haven't directly calculated the joint probability between testing positive and condom use because the respondent sample for which we have health exam results does not overlap perfectly with the survey data.

The probability that a client in our sample contracts an STI from a single transaction can be calculated by substituting in the values from our survey data on the probability that a client uses a condom with a sex worker and the resulting STI transmission probabilities shown in Table III.I.[4] We show the calculations of these transmission probabilities here to demonstrate. The resulting STI transmission probabilities are reported in Row 1 of Table III.II.

Baseline

$$\begin{aligned} Pr(\mathrm{STI}_c = 1) = &(0.2)(0.547)(0.2)(1-0.253)+ \\ &(0.2)(0.547)(0.253) = \\ &0.0163 + 0.0277 = \\ &0.0440 \end{aligned} \tag{4}$$

Endline

$$\begin{aligned} Pr(\mathrm{STI}_c = 1) = &(0.2)(0.690)(0.2)(1-0.389)+ \\ &(0.2)(0.690)(0.389) = \\ &0.0169 + 0.0537 = \\ &0.0705 \end{aligned} \tag{5}$$

Thus, the probability that a client contracts an STI from a single transaction is 4.4 percent at baseline and increases to 7.1 percent at endline due to the higher STI rates among sex workers and the lower probability that a client uses a condom.

[4] We assume that the STI rate is the same across women with whom a client uses a condom and those with whom he does not.

Probability that a Client Transmits an STI to a Partner

The probability that a client passes an STI to a partner is a linear combination of the probabilities that a client's partner contracts an STI in each of four cases: (1) the client uses a condom with sex workers and with his partner; (2) the client uses a condom with sex workers but not with his partner; (3) the client does not use a condom with sex workers but does with his partner; and (4) the client does not use a condom with sex workers nor with his partner. The probability of contracting an STI in each scenario is multiplied by the probability that a client does (or does not) use a condom with a sex worker and the probability that client has a partner conditional on whether or not he uses a condom with sex workers.

$$
\begin{aligned}
&Pr(\text{Client transmits an STI}) = \\
&\quad Pr(\text{C}_s = 1)Pr(\text{CP} = 1|\text{C}_s = 1)\big(Pr(\text{STI}_{cp}|\text{C}_s = 1, \text{C}_{cp} = 1) + Pr(\text{STI}_{cp}|\text{C}_s = 1, \text{C}_{cp} = 0)\big)+ \\
&\quad Pr(\text{C}_s = 0)Pr(\text{CP} = 1|\text{C}_s = 0)\big(Pr(\text{STI}_{cp}|\text{C}_s = 0, \text{C}_{cp} = 1) + Pr(\text{STI}_{cp}|\text{C}_s = 0, \text{C}_{cp} = 0)\big)
\end{aligned} \tag{6}
$$

The probability $Pr(\text{STI}_{cp}|\text{C}_s = j, \text{C}_{cp} = k)$ is given by:

$$
\begin{aligned}
Pr(\text{STI}_{cp}|\text{C}_s = j, \text{C}_{cp} = k) = &\; Pr(\text{STI}_c|\text{C}_s = j)Pr(\text{C}_{cp} = k|\text{C}_s = j)\times \\
&Pr(\text{T}_m = 1)Pr(\text{P} = 0|\text{C}_{cp} = k),
\end{aligned} \tag{7}
$$

where k,j=0,1 depending on which of the four cases is relevant. The resulting baseline and endline probabilities that a client transmits an STI to a partner are 0.5 percent and 0.8 percent, respectively, shown in Row 2 of Table III.II.

Probability that a Sex Worker Transmits an STI to a Partner

The probability that a sex worker passes an STI to a partner is dependent on her STI status, the probability that she has a partner, and the probability that she uses a condom with her partner:

$$
\begin{aligned}
Pr(\text{STI}_{sp}) =& Pr(\text{SP} = 1)\times \\
& \Big(Pr(\text{T}_f = 1|\text{STI}_s = 1)Pr(\text{STI}_s = 1)Pr(\text{P} = 0|\text{C}_{sp} = 1)Pr(\text{C}_{sp} = 1|\text{SP} = 1)+ \\
& Pr(\text{T}_f = 1|\text{STI}_s = 1)Pr(\text{STI} = 1)Pr(\text{P} = 0|\text{C}_s = 0)Pr(\text{C}_{sp} = 0|\text{SP} = 1)\Big)
\end{aligned} \tag{8}
$$

At baseline, the probability that a sex worker passes an STI to a partner is 3 percent, and this increases to 4.2 percent at endline. This is shown in Row 3 of Table III.II

III.B Impacts on General Population

Table VII in the main paper shows how the increased transmission probabilities calculated in the previous section translate into changes in the probability of STI transmission to the general population before and after the worksite closures, taking into account changes in the size of the market.

The transmission probabilities for males and females are calculated using the estimated shares of clients and sex workers in Indonesia, shown in Panel E of Table III.I. The probability that a male contracts an STI is given by:

$$
\begin{aligned}
Pr(\text{Male Contracts STI}) =& Pr(\text{SW transmits STI to Client})Pr(\text{Client} = 1)+ \\
& Pr(\text{SW transmits STI to Partner})Pr(\text{Sex Worker} = 1),
\end{aligned} \tag{9}
$$

where $Pr(\text{Client} = 1)$ is the share of males in the population that are clients and $Pr(\text{Sex Worker} = 1)$ is the share of women in the population that are sex workers. Likewise, the probability that a (non-sex worker) female contracts an STI is given by:

$$Pr(\text{Female Contracts STI}) = Pr(\text{Client transmits STI to SW})Pr(\text{Client} = 1) \tag{10}$$

The counterfactual transmission probabilities in the absence of criminalization are calculated by adjusting the percent of the population that are clients or sex workers according to the assumed change in the market.

Table III.I Components Used in Construction of Transmission Probabilities

Panel A. Transmission Probabilities		
Gonorrhea (female to male) ($Pr(\mathrm{T}_f)$)	0.2	
Source: (Centers for Disease Control and Prevention, 2013)		
Condom effectiveness ($Pr(\mathrm{P})$)	0.8	
Source:(Gertler et al., 2005)		
Panel B. Probability sex worker is infected		
	Baseline	**Endline**
Test Positive ($Pr(\mathrm{STI}_s)$)	0.547	0.690
Panel C. Condom use behavior of clients with sex workers		
	Baseline	**Endline**
Never Condom with Sex Worker ($1 - Pr(\mathrm{C}_s)$)	0.253	0.389
Panel D. Probability of having a partner and condom use with partners		
D.i) Clients	**Never Condom with SW**	
	Baseline	**Endline**
Have Partner ($Pr(\mathrm{CP}\|\mathrm{C}_s = 0)$)	0.632	0.544
Conditional on having a partner:		
Did not use condom with partner last time ($1 - Pr(\mathrm{C}_{cp}\|\mathrm{CP} = 1, \mathrm{C}_s = 0)$)	0.938	0.968
	Use Condom with SW	
	Baseline	**Endline**
Have Partner ($Pr(\mathrm{CP}\|\mathrm{C}_s = 1)$)	0.621	0.553
Conditional on having a partner:		
Did not use condom with partner last time ($1 - Pr(\mathrm{C}_{cp}\|\mathrm{CP} = 1, \mathrm{C}_s = 1)$)	0.820	0.788
D.ii) Sex workers	**Baseline**	**Endline**
Have Partner ($Pr(\mathrm{SP})$)	0.364	0.414
Conditional on having a partner:		
Did not use condom with partner last time ($1 - Pr(\mathrm{C}_{sp}\|\mathrm{SP} = 1)$)	0.701	0.671
Panel E. Percent of Population In Sex Market		
% of Men who are clients	0.118	
Source: (Kendall and Razli, 2010)		
% of Women who are sex workers	0.014	
Source: (Vandepitte et al., 2006)		

Notes. Unless otherwise stated, these figures are from authors' calculations using the project data.

Table III.II Impact of Criminalization on Probability of STI Transmission

	(1)	(2)
	Baseline	**Endline**
1. Pr(SW Transmits STI to Partner)	0.0440	0.0705
2. Pr(Client Transmits STI to Partner)	0.0053	0.0079
3. Pr(SW Transmits STI to Partner)	0.0303	0.0421

Notes. See Appendix III for details on how these probabilities were calculated.

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