

Self-Regulation in the Adult Film Industry: Why Are HIV Outbreaks the Exception and Not the Norm?[†]

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Summary

This paper analyzes how self-interest and long-term profit expectations provided the necessary incentives for the adult film industry to self-regulate and to find mechanisms to minimize the risks of HIV outbreaks that could result from the asymmetric information and network effects that characterize the industry. With the help of the Adult Industry Medical Healthcare Foundation (AIM), the adult film industry developed a corporate culture to facilitate widespread coordination among members and to make the industry similar to a private club. First, I discuss the predicted effects of asymmetric information and network-effect problems on the industry in terms of HIV outbreaks. Second, I tell the story of AIM and present the policies the industry has adopted since AIM's creation to mitigate those predicted effects. In particular, I discuss how the industry managed the 2004 HIV outbreak without government intervention. Finally, I present statistics comparing HIV infection rates in the industry and general population as well as additional observations to assess the relative effectiveness of the industry in preventing and containing HIV outbreaks.

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1. Introduction

In April 2004, when an adult film performer tested positive for HIV and was subsequently found to have potentially infected other performers, public health officials, legislators and some members of the adult film industry saw this outbreak as a failure of the adult film industry to "prevent transmission of HIV and other STDs" (Centers for Disease Control and Prevention 2005, 925).¹ This outbreak underscored a clear need for the government to intervene and regulate.² Los Angeles County Health Department officials urged the California Occupational Safety and Health Administration (Cal/OSHA) to investigate the working conditions of the four performers infected with HIV. Public health officials from the Los Angeles County Department of Health Services announced that they were "initiating an official investigation of this outbreak" and seized a list of the legal names of the performers who were known to have had sexual contact with the four who tested positive (Madigan, Officers Get List of Names of Actors in Sex Films 2004). Several state legislators suggested implementing measures that would require adult film companies to take specific steps to avoid HIV transmission among actors.

For example, in May 2004 Assemblyman Tim Leslie authored a bill (AB 2798) that "would require adult film performers to be screened for HIV and other sexually transmitted diseases before they could be hired for a pornographic movie and would bar producers from hiring anyone who tested positive for disease" (Liu and Richardson 2004). According to Leslie, the purpose of this new legislation was to prevent performers from "spreading diseases" outside the industry and "protect the public" (Liu and Richardson 2004).³ In June 2004, the Assembly Committee on Labor and Employment conducted a hearing on "Worker Health and Safety in the Adult Film Industry," during which Jonathan Fielding, director of public health for the Los Angeles County

¹ This paper addresses the *heterosexual* sector of the U.S. adult film industry, within which the HIV outbreak occurred. This heterosexual sector produces films featuring sexual intercourse between male and female performers, and between female performers.

² Even in the industry, some directors, producers, and actors, usually not in favor of government control over people's lives, agreed that the government should step in. For example, producer Dave Pounder supports a federal law requiring condoms, stating that "any time you do health regulation; it's beneficial ... Only positive things can come from it" (Robert Jablon, "Adult Movie Health Group Says HIV Outbreak Contained," *Associated Press*, April 23, 2004.). Producer and director Rob Spallone also supports government-mandated regulation requiring condoms, arguing that it is time for "the government to flex its muscle" (Josh Rubenstein, "KCAL 9 News, Up Close Condom Controversy," *KCAL*, KCAL, May 4, 2005, http://kcal.dayport.com/viewer/content/special.php?Art_ID=1633&Format_ID=2&BitRate_ID=8&Contract_ID=2 (accessed 2007).)

³ The bill did not go through.

Department of Health Services, stated that "condom use should be mandated by the state and not left to voluntary compliance by producers" (Assembly Committee on Labor and Employment 2004, 4). In August 2004, Assemblyman Paul Koretz sent a letter to 185 producers and directors warning the industry to use condoms, or he would write a law requiring it (Madigan, Sex-Film Industry Threatened With Condom Requirement 2004). In September 2004, Cal/OSHA fined two companies \$30,560 each for "allegedly allowing actors to perform unprotected sex." According Cal/OSHA, those companies "received citations for violating the state's blood borne pathogen standard, a regulation that requires employers to protect workers exposed to blood or bodily fluids on the job" (Malnic and Liu 2004). More recently, Grudzen and Kerndt (2007, 0996) reiterated the need for "state and federal legislation to enforce health and safety standards for adult film performers." They also suggest that "legislation could require that the Custodian of Records (already required under federal law) maintain documentation of screening tests and condom usage in a film's production" (Grudzen and Kerndt 2007, 0996).

Indeed, HIV outbreaks are a serious problem, and not only in the adult film industry.⁴ HIV outbreaks occur first because infected individuals engage in unprotected sexual intercourse with other individuals who are members of the same group or network. Those individuals, in turn, engage in unprotected sexual intercourse, transmitting the disease to other group members. Sometimes an infected member will engage in unprotected sexual intercourse with a member of a different group or network, thus communicating the disease to that network. HIV outbreaks can affect an entire network or multiple networks very quickly, depending of their size. Second, HIV outbreaks occur because infected individuals, while aware of their health status, do not communicate this information to their partners, or, as it is more often the case, because infected individuals are not aware of their health status. Third, HIV outbreaks occur because the commonly available HIV tests cannot detect the virus for weeks or even months after the initial infection. In other words, the main problem with HIV outbreaks is an information problem: individuals lack information about their partner's HIV status. The HIV outbreak in the adult film industry in 2004 resulted from the problems mentioned above.

To economists, such problems are not novel. Market inefficiencies often result from information problems. In such situations, the function of government is to substitute for those

⁴ HIV outbreaks have occurred in the prostitution industry and also in some groups in the general population, such as on college campuses. See, for example, Henry J. Kaiser Family Foundation (2004).

market failures (Arrow 1963, 947). More particularly, the literature on markets with asymmetric information, initiated by Akerlof (1970), has also advanced arguments for government regulation. One of these is that when some individuals are more informed than others, problems of trust arise because more informed individuals will tend to maximize their welfare at the expense of the less informed. Therefore, the literature often argues that government legislation and regulation are necessary to "protect" individuals who are less informed and thus attenuate those trust problems.

In addition to the asymmetric information literature, some economists have focused their attention on network externalities as another possible source of market failures. This literature focuses on optimal network size and argues that sometimes "networks may not reach optimal size, because users fail to take account of external benefits" conferred on the existing users of a product (Page and Lopatka 2000, 952). In other words, the external benefits or network externalities resulting from each additional individual using the product "may cause markets to fail" (Page and Lopatka 2000, 952).

Due to the nature of the HIV virus, the adult film industry fits the model of a market where information and network-effect problems are pervasive. Hence, it should not be a surprise that the 2004 HIV outbreak occurred. In absence of regulation, an industry plagued by such information and network-effect problems is bound to experience repeated outbreaks. As Brian K. O'Neel, spokesman for Tahoe City Republican Assemblyman Tim Leslie, suggested, the outbreak occurred because the adult film industry is the "only unregulated industry in California" (Romero 2004). However, while some economic models might support the public health officials, legislators, and other commentators making the case that the 2004 HIV outbreak shows that regulation of the adult film industry is necessary, two observations must be made.

First, while the literature does tend to favor government regulation of markets with asymmetric information, Arrow (1963, 967) points out in his article's *Postscript* that many social institutions have emerged to help overcome the problems associated with uncertainty. Similarly, as Akerlof (1970, 499-500) observes, "numerous institutions arise to counteract the effects of quality uncertainty." In recent years, a growing literature has investigated how market participants and industries have created private, market-based, institutional mechanisms to mitigate the problems of trust associated with asymmetric information. These studies show how "private institutions have frequently been more important than legal ones for establishing

standards of behavior, ensuring contract compliance, and resolving disputes" (Milgrom and Roberts 1992, 267).⁵

Similarly, the literature on network externalities does not consistently argue in favor of government regulation. For example, one solution is to internalize network externalities through ownership (Liebowitz and Margolis 1994, 137). When network ownership is not possible, other market mechanisms may be available to minimize the social costs associated with network externalities: "Intermediary organizations may, for example, facilitate communication among groups within the population" (Page and Lopatka 2000, 958).

Second, if regulation proponents were correct in their argument that the 2004 HIV outbreak occurred because the adult film industry was unregulated, we should have witnessed more HIV outbreaks in the history of the industry. Actually, if proponents were correct, the adult film industry should be positively plagued with HIV outbreaks. HIV outbreaks should be the *norm*. It is not so. Prior to the 2004 HIV outbreak, only one serious HIV outbreak took place in the adult film industry, in 1998 and none occurred since. The question is why do we not observe more HIV outbreaks in the adult film industry? Why are HIV outbreaks *not* the norm?

This paper answers this question. It discusses how the adult film industry has successfully developed self-policing rules to establish standards of behavior that facilitate widespread coordination among industry participants and minimize the risks of HIV outbreaks. In implementing these policies, the adult film industry has made itself equivalent to a self-policing private club in which applicants need to "show white paw" before being allowed to join. At the core of this argument is the story of Adult Industry Medical Healthcare Foundation (AIM), which developed the self-policing rules. This paper shows how a combination of *entrepreneurship*, defined as a coordinating force of individual plans and decisions (Kirzner 1973, 219) and the development of a *corporate culture*, defined as a set of workable principles and routines that creates shared expectations for group members (Kreps 1996), allowed the industry to mitigate the potentially fatal effects of the adverse selection and network-effect problems associated with HIV. As a result of these policies, HIV outbreaks are the *exception* and not the *norm*.

Section 2 examines the predicted effects that the asymmetric information and network effect problems associated with HIV have on the industry. Section 3 tells the story of Adult Industry

⁵ See, for example, Milgrom, North and Weingast (1997); Milgrom and Roberts (1992); Klein (1997); Klein, (1998); Greif ([1989] 1997); Stringham (2002); and Stringham (2003).

Medical Healthcare Foundation and its crucial role in developing the self-policing rules and facilitating widespread coordination to prevent and contain HIV outbreaks. Section 4 shows how these characteristics allowed the industry to manage the 2004 HIV crisis. Section 5 provides further evidence to illustrate the relative effectiveness of the industry in minimizing and containing outbreaks. Section 6 offers some concluding remarks.

2. The Adult Film Industry, Asymmetric Information, and Network Externalities

2.1 Asymmetric Information in the Adult Film Industry

The adult film industry fits perfectly into the model of a market with asymmetric information as described in the literature.⁶ Moreover, the potential effects of asymmetric information in the adult industry could be deadly. First, adult performers are confronted with adverse selection in that some are better informed about their own health than their partners and/or employers. Therefore, to keep working, they may adopt strategic behaviors to hide from their partners and/or employers their health status, as illustrated by the 1988 HIV outbreak in which actor Mark Wallice falsified his name onto a negative HIV test and infected six actresses through anal intercourse (Kernes 2003, 52).⁷ Second, some HIV tests cannot detect the virus for a certain period. For standard serologic methods, such as ELISA, that detect the presence of antibodies to the HIV virus in the blood, the "window period" extends from six weeks to six months. In addition, as Mitchell (Kernes 2003, 40) observes, because the viral load is very high in the first eighteen to thirty days but often goes down after that, a serologic test can read negative after the spike period. Similarly, PCR-RNA and ELISA tests are susceptible to negative readings if the tested individual takes protease inhibitors that reduce the viral load.

Because of these information problems, a performer can knowingly or unknowingly infect a large number of other performers.⁸ As Mitchell explains, the average performer can have

⁶ See, for example, George A. Akerlof (1970).

⁷ A moral hazard also exists to the extent that performers may engage in risky behaviors, such as intravenous drug use, unprotected male-to-male sexual contact, and unprotected anal sex, in their private lives. For example, the porn community attributed John Holmes's infection with HIV and subsequent death of AIDS to his drug use or bisexuality (Anthony, 2004). See also McNeil and Osborne (2006, 448-451). Similarly, John Stagliano (1999), who tested positive for HIV in 1997, openly admitted that he caught HIV from a transsexual prostitute during Carnival in Rio de Janeiro, Brazil, "during a particularly thought out evening of debauchery". See also McNeil and Osborne (2006, 586-587).

⁸ While our focus is mostly on adverse selection, incomplete information is also a problem in that a performer might not know that he or she is infected.

upwards of twelve sex partners in a given month (Kernes 2003, 44). It is easy to see how, in less than three weeks, the virus through partner-to-partner-to-partner could infect the entire industry.⁹

While HIV is an extreme case, the same problems apply to other STDs. Although the health risks of such diseases are less serious, some can be difficult to detect; herpes is only visible during an outbreak, for example.¹⁰

2.2 Network Effects in the Adult Film Industry

In addition to asymmetric information, the adult film industry faces another type of problem that potentially worsens the situation: network externalities. Page and Lopatka (2000, 7) explains that the existence of positive network externalities in adopting a particular course of action in a network implies that the private benefit of adopting such a course of action within the network is lower than the social benefit. The resulting "equilibrium exhibits unexploited gains from trade regarding network participation," and network externalities cause market failure (Liebowitz and Margolis 1994, 135). The adult film industry exhibits several properties that make it prone to network externalities whether we consider systematic testing and disclosure of HIV and other STDs or systematic use of condoms during filming of sex acts.

The social benefits of testing are clearly greater than the benefits derived by an individual performer; indeed, some individuals might perceive testing as a cost. As mentioned above, a STD test result informs an individual only of his or her own health status; it indicates nothing about the health status of potential partners, although a positive test result indicates that that one or more past partners is (are) infected with a STD as well.¹¹ Test results are clearly more important and beneficial to other performers, signaling to them the health status of the tested performer. To be sure, prior to 1998, individuals who were going to work together often exchanged test results as a signaling mechanism, but the results remained mainly in the possession of the tested

⁹ As seen previously, about 1200 performers work in the industry. Sharon Mitchell estimated that, given the number of partners a performer can have in a 30-day period, the virus could reach about 198 performers in three days. See Mark Kernes (2003, 46).

¹⁰ This paper focuses on HIV because, contrary to most other STDs, not only is the HIV virus not curable, but it is also fatal when it becomes full-blown AIDS. Herpes is not curable, but it's not deadly. Syphilis is potentially deadly, but it is curable. Health officials, policy makers, and legislators' primarily focus on HIV as well, as their desire to make adult film production companies follow OSHA regulations demonstrates.

¹¹ One could object that a performer might put more value in test results than implied here. When it comes to a disease that can endanger life, starting treatment as early as possible is crucial to extend one's life expectancy. Therefore, in this regard, the value of test results is not negligible. The author would like to thank Linley Hall for drawing his attention to this point.

individual. The Wallace case is the only report of falsified test results, but it illustrates why systematic testing and release of results to other performers can be perceived more as a cost than a benefit to the individual. Wallace falsified his test results because he knew that he would not have been able to work with other performers as soon as his HIV-positive status became known. In other words, Wallace did a cost-benefit analysis prior to his decision to falsify his test results, and the expected costs of remaining trustworthy appeared to exceed the benefits.

Similarly, one can reasonably hypothesize that individual performers rationally look at the individual costs and benefits associated with condom use and do not consider the joint or social benefits. Yim, Russo, and La Croix (1995, 107) show, in a more general framework, "that the rates at which individuals used condoms are positively associated with the expected benefits of such use" and that "such benefits vary with respect to epidemiological and economic variables" (Yim, Russo, and La Croix 1995, 107). While studies show that condom use is the most effective way to reduce the risk of HIV transmission during sexual intercourse, and one can assume that individuals do not want to be infected with HIV, this is not the only variable that individuals take into account. Others may include "the rate at which condoms break, the rates of HIV seropositivity, rates of transmission of HIV via unprotected anal and vaginal intercourse, and the value of human life foregone due to HIV" (Yim, Russo, and La Croix 1995, 107). As a result, Yim, Russo, and La Croix (1995, 113-117) find "striking variation in the expected benefits of using a condom across broad demographic groups (heterosexual versus homosexual) and across more narrowly defined demographic groups (black female heterosexuals versus white female heterosexuals)" explaining why individuals do not always choose to use a condom when engaging in sexual intercourse. More particularly, they find that, in some cases, the private benefits of condom use do not exceed its costs, even if the only cost is the price paid for the condom (Yim, Russo and La Croix 1995, 114). In other words, the explanation of why condom use is not systematic in the general population is an economic one. Individuals calculate the costs and benefits associated with condom use. Sometimes, costs outweigh the benefits leading individuals to choose not to use a condom.

Applied to the adult film industry, one can hypothesize that performers adopt the same type of rational economic behavior. The benefits of condom use are often not large enough to give incentives to performers to use condoms, especially given the costs, including that requiring

condom use can lead to a lower salary¹² or not working at all if the production company has a strict non-condom policy (Strauss 2008).¹³ Even if the fact that the per-contact HIV transmission rate for performers engaging in anal intercourse increases the benefits of condom use regardless of gender or ethnicity is accounted for,¹⁴ those benefits are not guaranteed to exceed the costs associated with using condoms. While no documented data exist on which performers, male or female, require condom use, the documented seventeen percent condom use likely often involves female performers who have achieved a status within the industry such as they can afford to require that their partner use a condom.¹⁵ In other words, the low rate of condom use in the adult industry can be explained by the fact that adult performers find that the expected private costs outweigh the benefits; social benefits and costs are not considered. Consequently, one can theoretically argue that condom use in the adult film industry is suboptimal and that this represents an example of market failure resulting from network externalities, which could lead to disastrous public health consequences. Indeed, public officials and other commentators repeatedly emphasized this in the wake of the 2004 HIV outbreak. However, the following

¹² Lower salary for performing with condoms is often mentioned as an explanation of the low rate of condom use in the heterosexual side of the adult film industry. However, lower salaries cannot be dissociated from consumer preferences. Production companies often justify their choices of making no-condom movies on the basis that those movies generate more revenues indicating that consumers have a preference for no-condom movies. Consequently, if a performer requests a condom to be used, given the market conditions and the economic implications of such request, production companies will either offer a lower salary to the performer who asks to work with condoms or refuse to work with the performer. However, a lower salary is not the only factor explaining the low rate of condom use. Some actresses justify their preference not to use condoms based not on explicit monetary considerations but rather on "comfort" considerations. Due to the repetitive nature of the sexual interactions when filming a scene, some female performers insist that using condoms can cause pain, soreness, or skin abrasions (Nina Hartley, interview by Maria Garza, "Dirty Business: Should the Porn Industry Be Saved?," *Zócalo "Public Square" Lecture Series*, Zócalo Radio, KPCC 89.3, Los Angeles, January 13, 2007). If condom use in the workplace can cause injuries that will prevent the performer from working for some period of time, thus leading to income loss, the performer will rationally elect not to use a condom. Such decision is not based on the income loss resulting from the production company paying her less for choosing to use a condom but rather on the expectation that using a condom can lead to income loss due to temporary incapacitation.

¹³ It is worth mentioning that Vivid Entertainment Group, one of the largest adult-entertainment companies with estimated annual revenues of \$100 million, "has returned to a condom-optional policy where the female stars make the decision," justifying its decision on the fact that some female stars had refused to work with Vivid because of its condom-mandatory policy (Mark Kernes, "Analyzing The "Adult Film Industry" Report," *Adult Video News*, November 5, 2007, <http://www.avn.com/performer/articles/472.html> (accessed September 1, 2008)).

¹⁴ One should note that the per-contact HIV transmission rate is always higher in the case of receptive anal intercourse than insertive anal intercourse. See Yim, Russo, and La Croix, (1995, 111, Table 3) and references accompanying the text. However, studies have not measured the per-contact HIV-transmission rate for anal intercourse between heterosexual males and females.

¹⁵ Grudzen and Kerndt (2007, 0993). In addition, some performers have chosen to use condoms at work but not in their personal relationships while others have made the opposite decision. Some female performers in committed relationships cease to work with male performers altogether and instead only work with other females. Such a decision also involves a willingness to accept less pay. See, for example, Acme Andersson (2003, 74).

section shows that, despite those problems, the adult film industry has succeeded to develop mechanisms to mitigate the consequences associated with asymmetric information and network effect problems associated with HIV and other STDs in general.

3. Adult Industry Medical Healthcare Foundation: Watchdog and Knower Organization

3.1 AIM and Testing Policies: The Watchdog of the Industry

Entrepreneurship is crucial to the creation of Adult Industry Medical Health Care Foundation and its development into the industry watchdog. In 1997, Sharon Mitchell, a former adult film performer working as a talent representative, was appointed to the board of the Free Speech Coalition, an industry non-profit organization. She was concurrently involved with the Protecting Adult Welfare Foundation (PAW) as a HIV genealogist. Her principal function was to trace genealogies of infected people to track the original infection, known as 'patient zero. Mitchell (McNeil and Osborne 2006, 575) remembers:

I quickly amassed information on what kinds of tests existed. I got information as fast I could. I brought it back to the Free Speech Coalition board, and I said, "I need about thirteen thousand dollars to start this testing site." ...

Now, it just so happened that the Protecting Adult Welfare office had a sink – which is the only legal requirement to draw blood. And it was next to World Talent Modeling Agency. So, I was given the grant – and as people were going in and out of World Modeling, I'd just grab them, draw their blood, and send them back out. They were like, "What! I've just been branded!" They were like cattle; they didn't really know what hit them. But that's the best way to start an industry standard for HIV testing.¹⁶

When adult star Tricia Devereaux tested positive for HIV on January 7, 1998, Mitchell was put in charge of finding out who could have infected her. Between her HIV tests, however, Devereaux had performed sex acts with a great many partners, providing too many different routes of exposure for effective tracking.¹⁷ Ultimately, Mitchell only discovered patient zero because, after a sixth woman tested positive within four months, "the only one common denominator name on all of their partner lists – that hadn't been tested, and had been actively

¹⁶ See also Kernes (2003, 52).

¹⁷ Sharon Mitchell reported to *Adult Video News* that Devereaux had sixty-five partners. See *Adult Video News*, "HIV Update: Kimberly Jade is Fifth Industry Victim Since January 1," *Adult Video News*, May 26, 2005, <http://www.avn.com/video/articles/13242.html> (accessed April 18, 2006).

avoiding tests – was Marc Wallace" (McNeil and Osborne 2006, 579).¹⁸ As Mitchell attempted to track Devereaux's partners, testing those she found, it became clear that the standard ELISA HIV test then used both in the industry and the general population was inadequate to monitor HIV infections and contain outbreaks in the adult industry. As Mitchell explains, "the antibody test window period can be up to six months in a young healthy person. That's way too long. The antibody test is a very good test for people that have one or two sex partners every few months, but for people that are having upwards of twelve sex partners a month, it's just not appropriate" (Kernes 2003, 44).¹⁹ So, in February 1998, an industry-wide meeting was held in the VCA warehouse. Mitchell recalls, "I brought in some educators from around the local area, some doctors, people from UCLA and the AIDS Healthcare Foundation, and we decided that PCR-DNA was the best way to monitor HIV" (McNeil and Osborne 2006, 578).²⁰

The PCR-DNA – polymerase chain reaction – test detects the DNA of the HIV virus, as opposed to serologic tests that measure the quantity of virus (PCR-RNA) or antibodies to the virus (ELISA). The key difference is that PCR is a qualitative test, while PCR-RNA and ELISA are quantitative tests. As Mitchell explains (Kernes 2003, 64):

The PCR-DNA test is composed of an inhibitory substance, which means it's a replicate of the virus; that's all it means, is that they're making a "puzzle piece," and if there's HIV in the blood, it will react with the inhibitory substance, and if there is a fit, if the "puzzle" fits by polymerase chain reaction, which is an amplification test, then indeed the inhibitory substance is found, and it says, "ALERT: This is a fit for the replicate of the inhibitory substance for the HIV virus." So, when that's alerted, then we have the copy of the virus itself, so we're testing directly for the inhibitory substance of the virus. So, in other words, we're testing for the disease itself rather than the viral load or the antibody.

What makes Mitchell's decision an entrepreneurial one is that, because the PCR-DNA HIV test is qualitative rather than quantitative, it can detect the virus as soon as fifteen days after infection instead of the standard window period of six weeks to six months (Centers for Disease

¹⁸ Two other pieces of evidence appear to confirm that Marc Wallace was patient zero. First, he was found to have forged test results by putting his name on a negative HIV ELISA test. Second, Wallace's May 6 Western Blot test revealed six positive bands and a viral load in excess of 100,000 units, the upper limit of the test's capability, while Tricia Devereaux's load was about 8,000 units indicating that Wallace had been infected for longer. See Mark Kernes, "Too Many Coincidences? The Mark Wallace Case Leaves Issues Unresolved," *Adult Video News*, 1999, http://www.adultvideonews.com/archives/199905/bone/by0599_001.html (accessed November 2007).

¹⁹ See also McNeil and Osborne (2006, 578).

²⁰ See also Mark Kernes, "Does Sex Kill?," *Adult Video News*, August 2003: 40-76, 52.

Control and Prevention 2005, 925). In addition, as Mitchell observes, contrary to an ELISA or a PCR-RNA test, the PCR-DNA test "will not hide a positive reading if someone's on medication" (McNeil and Osborne 2006, 578). Mitchell's alertness to the different tests available allowed the industry to find a more appropriate test to monitor HIV infection among performers and thus to contain the spread of the virus during an outbreak. Once the PCR-DNA test comes up positive, seroconversion (ELISA), viral load (PCR-RNA), and Western Blot tests are run to determine how long a person has had HIV (McNeil and Osborne 2006, 581). As Mitchell explains (Kernes 2003, 64):

If someone is found to be positive by PCR-DNA, we do an ELISA test, which sometimes they're positive and sometimes they're negative. We test them for RNA, because we want to notify partners, and if we find that their viral load is very high, we can determine how far or how not-so-far to go back in terms of partner notification, and of course, the Western Blot, which is very important because when you're dealing with PCR-DNA, your Western Blot test is going to come up positive on one or two bands; in others, it shows which of the antigens are coming up first. That's just a more definitive way of measuring the proteins in the antibody. It's going to tell me whether it's an early or an old infection by how many bands are positive.

Establishing the PCR-DNA test as the standard HIV test in the adult industry permits earlier detection of HIV cases, thus reducing the number of potential partners that the patient zero may infect, which facilitates tracking those partners. This is a clear improvement over the ELISA test.

Along with introducing the PCR-DNA test as the industry standard, Mitchell clearly contributed to making monthly testing a standard as well. Before 1998, testing was not very systematic, with performers getting tested every three months. When producer and director John Stagliano and performer Nena Cherry tested positive for HIV in early 1997, producers and directors began requiring performers to get tested every month, but that was inadequate because of the window period of the ELISA test. And, although performers were supposed to be tested monthly, there were "dozens of people going to dozens of different clinics, with no monitoring at all" (Kernes 2003, 46). Mitchell changed that when she began testing people at the Protecting Adult Welfare office. As she recalls (Kernes 2003, 52):

People were coming out of [World Modeling]; I'd grab their arm, I'd draw blood and say, 'Hey, we're doing this once a month. Why don't you come on back?'

On September 1, 1998, following an industry-wide meeting during which Mitchell made the official announcement that Marc Wallace was patient zero, the Adult Industry Medical Healthcare Foundation (AIM) opened its doors, and became the official watchdog and clearinghouse of the adult film industry. It was a matter of survival (McNeil and Osborne 2006, 581).

Since 1998, the industry has developed additional standards based on recommendations from AIM. Not only must performers be tested monthly for HIV by PCR-DNA, but they also must be tested for gonorrhea and chlamydia.²¹ In addition, every six months performers must undergo a genital exam and syphilis testing. More importantly, a clean bill of health is required for new performers entering the industry. This includes a PCR-DNA HIV test, tests for almost all STDs and a hepatitis screening with vaccination if necessary.

[INSERT APPENDIX 1]

[INSERT APPENDIX 2]

As a result of these self-policing policies, between 1998 (post-outbreak) and 2007 *only* eight performers tested positive for HIV but except for the 2004 outbreak where four performers were infected, none of the other performers who tested positive contracted HIV while working.

The testing standards developed for the adult film industry through the entrepreneurial direction of Sharon Mitchell and the Adult Industry Medical Healthcare Foundation have created a *corporate culture* within the industry. As Kreps (1996) explains, a corporate culture serves two purposes. First, it conditions and synchronizes employees' behavior in accordance with reputational objectives. In other words, corporate culture helps coordinate action within the industry. Second, corporate culture sends a message to transacting partners that informs them about the expectations of the trading/contracting relationship. Therefore, "corporate culture acts as a language for telling 'how things are done and how they are meant to be done'" (Hölmstrom and Tirole 1989, 76).

²¹ If a performer tests positive for a, STD such as gonorrhea or chlamydia, both they and their partners receive treatment. More importantly, AIM asks them refrain from working until the infection has cleared, which can take up to a week. See Adult Industry Medical Healthcare Foundation, "Porn 101," *Adult Industry Medical Healthcare Foundation*, September 24, 2007, <http://www.aim-med.org/library/articles/1193272129> (accessed September 15, 2008).

3.2 Adult Industry Medical Healthcare Foundation: the Knower Organization

Not only does AIM act as the watchdog of the adult film industry, but it also acts as a *knower organization* or clearinghouse. Klein (1997, 112-117) defines knower organizations as those that generate and convey quality information to market participants to mitigate adverse selection problems.

For example, not only does AIM test adult film workers for STDs (such as chlamydia, gonorrhea, and syphilis) and HIV, but AIM also maintains a database of all test results. This database is available online for review, and producers and directors can download these records because performers are *required* to sign a release form allowing AIM to disclose test results to interested parties. In the wake of the 2004 outbreak, AIM entered in partnership with Adult DAT, "an adult industry database for producers, directors, and content shooters" that includes production information such as the shoot date, cast list, scene pairing, and sexual acts performed (Meyer 2004). Data are kept completely confidential. Unless an outbreak occurs, studios can see only their own scene information. If an outbreak occurs, the web-based system allows AIM to generate quarantine lists in a matter of seconds (Meyer 2004). Since, AIM has improved the database system. Not only can performers and producers retrieve their test results or results pertinent to 2257 records but they also can pay online and get information such as the location and directions to the nearest draw stations (Stanton 2006).

AIM's website also provides a lot of information regarding STDs and HIV, including symptoms ("What to watch for"), how the STD is contracted, and the risks associated with lack of treatment (Adult Industry Medical Healthcare Foundation 2007). In addition, since 2005, following "the recent OSHA regulations and actions," AIM provides information regarding "types of porn and their occupational risks." A list of sex acts and the corresponding STDs that can be contracted while performing them without "condom/barrier protection" is also available online (Adult Industry Medical Healthcare Foundation 2005).

[Insert Table 1]

AIM also conducts monthly prevention education meetings for performers, producers, and directors "who want to know more about HIV and STD transmission." (Farrar 2004). Also, AIM maintains *Health Bulletin* and *Ask Dr. Mitch* (Adult Industry Medical Healthcare Foundation

2005) sections on its website. The Health Bulletin provides information about STD outbreaks in the industry but also in foreign countries so that performers can take precautions if they work outside the U.S. Ask Dr. Mitch offers information regarding STDs and the risks associated with some sexual acts.

Finally, AIM asks individuals who are new to the adult film industry to watch the PORN 101 (Adult Industry Medical Healthcare Foundation 2007) and PORN 102 (Adult Industry Medical Healthcare Foundation 2007) DVDs that they receive as part of their initial, mandatory STD screening. These videos are available on the AIM website as well. New performers also receive a packet that contains the same information as in the videos. PORN 101 explains industry testing policies, how to read and verify one's own test results, and how to verify a partner's identity and the accuracy of his/her tests. It also offers information on how to recognize a STD, symptoms, risks associated with some sexual acts, and advice for performers. PORN 102, which was developed more recently, addresses "psycho/social issues such as how do you get paid? When do you get paid? Am I right for this business? How do you know when you've had enough in this business? How to make a plan to get in and out of this business? What do you do in a relationship? How are your children affected when you are in this business?" (Mitchell 2007).²²

As a knower organization, AIM helps buttress the reputation system by providing necessary information to the people who need it and strengthening incentives for reliable behavior (Milgrom and Roberts 1992, 268). The Adult Industry Medical Healthcare Foundation, under the direction of Sharon Mitchell, has been the entrepreneurial driving force behind the development of self-regulating policies and a corporate culture for an industry subject to fatal adverse selection and network effect problems. By playing the role of both watchdog and knower organization/clearinghouse for the industry, AIM has succeeded, by enforcing policies and reducing informational gaps, in mitigating the problems associated with STDs and, more particularly, HIV as the discussion of AIM and the adult film industry handling of the 2004 HIV outbreak shows.

²² Peter Warren, "AIM Offers 'PORN 101' Online," *Adult Video News*, September 7, 2007, <http://www.avn.com/performer/articles/8288.html> (accessed September 15, 2008).

4. The 2004 HIV Outbreak

4.1 Containing the Outbreak

The news that a forty-year-old who had been performing in adult movies since 1998, Darren James, had tested positive for HIV, officially broke on April 13, 2004. The announcement came after James took a confirmatory Western blot test following two positive PCR-DNA HIV tests on April 9. He had tested negative three weeks earlier, on March 17, upon his return from Brazil. While out of the country he had performed in a movie in which he engaged in unprotected, considered risky, penetration (Kerndt 2008, 22-23).²³ Because he reported to AIM that he experienced flu-like symptoms upon his return from Brazil that self-resolved, which often occur with acute HIV infection, it seemed highly likely that James had been infected in Brazil.²⁴ Because James tested negative on March 17 and, therefore, was cleared to work, a race against time started. Given how fast HIV could travel between partners, it became imperative for AIM to create a quarantine as fast as possible.

AIM's first step was to identify the performers with whom James worked between March 17 and April 9, place them on voluntary quarantine, and test them at least twice to avoid possible false-positive test results. Fortunately, as soon as James' positive test became official, the three companies for which he had worked released the names of his on-screen partners. Within thirty-six hours, AIM had compiled a list of the first generation of performers, the ones who had direct sexual contact with James. AIM needed only an additional twelve hours to compile the second generation, those who had direct sexual contact with a first-generation performer (Sanders 2005). As AIM documented (see Figure 1), thirteen female workers and one male worker had direct sexual contact with James, while the second generation included thirty-three performers. AIM managed the situation methodically and systematically. First, it checked its database for the date of the last test of first-generation performers and the date they worked with James.²⁵ Second, those workers were called "for emergency protocol testing" through PCR-DNA; they were "tested again at the thirty-day mark." The results of their second test were posted on the AIM

²³ Darren James also tested negative on February 12, 2004.

²⁴ *Adult Video News*, "Man Claims Bianca Biaggi Is HIV Positive," *Adult Video News*, May 2, 2004, <http://www.avn.com/video/articles/15934.html> (accessed April 18, 2006) reported that Bianca Biaggi, a Brazilian actress, might have infected Darren James with HIV.

²⁵ Those dates along with James's on-screen partners were provided by the three studios he worked for between March 17 and April 9, 2004.

website. AIM placed second-generation talents on voluntary quarantine, requesting that they not work until the first-generation talent(s) they had worked with were cleared from the quarantine. If a first-generation performer they worked with tested positive, the second-generation performers had to go through the same procedure of immediate testing and then retesting after thirty days.

Unfortunately, three first-generation female performers tested positive: Laura Roxx (April 15), Jessica Dee (April 29), and Miss Arroyo (May 5). As a result, AIM extended the quarantine from thirty to sixty days, plus built new first-generation and second-generation performer quarantine lists for each performer who tested positive. These performers were asked to follow the same voluntary requirements as those on the original quarantine lists built in connection with Darren James. Of the fifty-three performers (twenty-five first-generation and thirty-six second-generation) quarantined, only one (who worked with Jessica Dee) is known to have broken the quarantine, leading to another female performer being placed on the quarantine list (Ross, Male Performer Breaks Quarantine Despite Risks 2004).

[INSERT FIGURE 1]

On May 11, AIM (Ross, Many Performers Removed from Quarantine; Moratorium Lifted 2004) announced that a large percentage of performers were cleared to work after having tested negative multiple times with multiple tests:

It is our view that with the definitive testing we have done in the last 30 days by PCR/DNA, PCR/RNA Quant and Logarithmic, Western Blot, P24 antigen, and the ELISA methodology for HIV, after multiple batteries of testing with comparable dates from exposure, sufficiently confirms negative status.

The quarantine list was officially maintained until June 30. Except for the performers infected by Darren James, all quarantined performers were cleared.

4.2 The Moratorium

At the same time that AIM was tracking the performers who had worked with Darren James, a "historical" event took place that shows a self-regulating industry attempting to mitigate the

adverse selection problems and network effects associated with the HIV virus: adult film companies stopped production.²⁶

As soon as it was officially announced that James had worked with thirteen women, AIM and many members of the adult film industry knew that the virus had very likely spread, but not how far. As discussed above, a STD could theoretically reach about one hundred ninety-eight workers in three days. It appeared that "a third and even a fourth-generation" already could be "in the outbreak." However, AIM could not quarantine the third and fourth generation, given that it was technically impossible for them to "track that many people fast enough" (Adult Video News 2004). The only way to contain the outbreak and prevent the industry from collapsing appeared to be for "adult companies to cease production, or at the minimum shoot condom-only productions, until all women who have worked with Darren James since his last negative test, known as the 'first-generation' had cleared, that is June 8, 2004" (Adult Video News 2004).

As soon as James' HIV-positive status became official, three companies, Cherry Boxxx Pictures, Red Light District, and VCA, had declared a moratorium on production until the second- and possibly third-generation had been identified (Ross, AIM Working to Contain HIV; Search for Second-Generation Continues 2004). After AIM and *Adult Video News* called for a moratorium on production on April 14, twenty-five production companies voluntarily halted production, including some that did not have any quarantined performers and others that had a condom-only policy, such as *VIVID Video* and *Wicked Videos*. While not all adult companies halted production, evidence suggests that those that did were the largest film producers (Ross, More and More Companies Declare Moratorium on Production 2004).²⁷

In addition, the adult film industry provided some incentives for performers to respect both the quarantine and the moratorium, and to discourage them from entering the underground market. For instance, in April 2004 performer Jenna Jameson created the *Adult Industry Assistance Fund* (AIAF) to financially help performers affected by the moratorium. Another company, Juicy Entertainment, prepaid people who were scheduled to work on productions to be

²⁶ The history of the adult film industry includes no such event prior to 2004.

²⁷ While there is no data available on the respective size of those production companies except for Vivid, Wicked Videos, Private USA, and Hustler Video that are regularly featured in the medias, the other companies listed as declaring a moratorium on production are occasionally mentioned in the media and, therefore, suggest that their size is not insignificant.

shot when the moratorium was lifted (Ross, *Adult Industry Offers Help for Those Affected by the Moratorium* 2004).

Originally, the moratorium was supposed to last sixty days, until every first and second-generation performer should have been cleared from the quarantine list. However, the moratorium was officially lifted on May 11, thirty days after it was self-imposed, as most quarantined performers were cleared after testing negative three times in forty-five days using several testing methods (Ross, *Many Performers Removed from Quarantine; Moratorium Lifted* 2004).²⁸

4.3 Stocktaking and Interpretation

During the 2004 HIV outbreak in the adult film industry, Darren James infected three performers. To this day, no other HIV infections have been reported as the result of working with James. There is little doubt that if the Adult Industry Medical Health Care Foundation had not existed, production companies had not cooperated with AIM, and quarantined performers had not voluntarily respected the quarantine and moratorium, more performers could have contracted HIV, and the dramatic predictions of pro-government-regulation commentators could have been accurate.

From an economic viewpoint, performers cooperated because it was in their best interest. Not cooperating could have led to more significant costs than those associated with the loss of income during the moratorium or while under quarantine. As stated above, in their decisions to perform in the adult industry, performers likely take into account not only the risks associated with some sex acts but also the costs associated with being infected with HIV or another STD. Those costs include treatment fees but also the loss of income associated with being out of work during the treatment period.²⁹

Similarly, one could also interpret the decision of production companies to cooperate and to attempt to coordinate their actions to contain the HIV outbreak as an economic one. Given that the pool of applicants is virtually unlimited, production companies can have little regard for the

²⁸ Those testing methods were PCR/DNA, PCR/RNA Quant and Logarithmic, Western Blot, P24 antigen, and ELISA. See Scott Ross, "Many Performers Removed from Quarantine; Moratorium Lifted," *Adult Video News*, May 11, 2004, http://www.avn.com/index.php?Primary_Navigation=Articles&Action=View_Article&Content_ID=83522 (accessed 2007).

²⁹ Legal, monetary, and non-monetary costs are also possible if the performer is infected with HIV or another STD and transmits that infection to another partner. Not only may the performer be brought to court, but he or she is likely to be ostracized from the industry, as the Marc Wallace case illustrates.

health of their performers; what matters is that those performers bring revenues to the companies. However, those companies, in agreeing to adopt the self-regulating policies described above, do protect the health of their performers, particularly their contract performers, because they bring revenues to those companies. From a strict economic viewpoint, long-run expected profits associated with keeping a company's performers healthy largely exceed the costs associated with shutting down production for two months. Therefore, it was in production companies' best interest to attempt to control the spread of the disease.³⁰

5. Some Additional Evidence and Other Observations

Between 1997 and 2007, the adult film industry reported that seventeen performers tested positive for HIV. Ten of those performers were infected during two major outbreaks in 1998 and 2004 (Barrett, Exposed: Porn in the Valley, Part II: Health Issues in Porn are a "ticking time bomb" 2007, 8). The 1998 outbreak, in which a performer forged his test results and knowingly infected six performers with HIV, took place prior to the creation of Adult Industry Medical Healthcare Foundation and the adoption of self-regulating testing policies. In addition, except for the 2004 outbreak, all cases in which performers tested positive for HIV were detected prior to them transmitting the virus to others. Therefore, only the 2004 outbreak in which Darren James transmitted HIV to three female performers in the workplace could be considered a failure of the adult film industry to prevent HIV transmission. However, concluding that the government should regulate the adult film industry and mandate condom use because STD transmission risks are not null, as they would be in the absence of asymmetric information and network effects, would be "a thoroughly bad, pernicious, and harmful approach" to the problem (Coase 1964, 194-195). To quote Ronald Coase (1964, 195), "until we realize that we are choosing between social arrangements, which are all more or less failures, we are not likely to make much headway." In other words, a comparative institutional analysis is the only appropriate method to derive economic policy conclusions. Therefore, at this point of the study, it is relevant to initiate such an analysis through a few observations and questions.

First, a comparison of HIV infection in the industry and within the general population can help provide a better assessment of the adult film industry's overall performance in minimizing

³⁰ As for performers, production companies likely also take into account the expected legal costs that would result from allowing a quarantined performer to work with non-quarantined performers if the quarantined performer turned out to be infected.

the risks of HIV transmission. Hall *et al.* (2008, 520) provides "the first direct estimates of HIV incidence in the United States using laboratory technologies previously implemented only in clinical-based settings." This study shows that previous research significantly underestimated the number of annual new infections. Hall, *et al.* (2008, 524, Table 1) estimates the total number of new infections in the United States in 2006 at 56,300 and the incidence rate at 22.8 per 100,000 population (with a 95 percent confidence interval). More importantly, the study shows that 33 percent of new HIV infections (13,100) occurred through heterosexual intercourse (Hall, *et al.* 2008, 522, Table 1).³¹ Extended back-calculation to measure incidence per year suggests that an estimated 16,400 new infections (30 percent of the total new infections) occurred through heterosexual contact annually between 2003 and 2006 (Hall, *et al.* 2008, 522, Table 1 & Figure 2).

Between 1997 and 2007, a total of seventeen adult film industry performers were infected with HIV, but only eight performers tested positive after the industry implemented mandatory testing every 30 days.³² However, only the three female performers who tested positive for HIV in 2004 contracted HIV while working (with Darren James).³³ As for the other four performers, none of them reported contracting HIV while working in the industry. Similarly, the Adult Industry Medical Healthcare Foundation reports that, every month, of the 300 to 500 aspiring performers who come to AIM for STD testing, one to four individuals test positive for HIV, but they never get to the set (Mitchell, *Dirty Business: Should the Porn Industry Be Saved?* 2007, 38:25 min).

Assuming that Darren James contracted HIV while working in Brazil, a total of four performers were infected with HIV on the set between 1999 and 2007. Performing a simple calculation, the number of new HIV infections in the adult film industry can be estimated as 0.44 per year. Including the performers who contracted HIV in 1998, the number of new HIV

³¹ Estimates of new HIV infections by transmission category are based on self-reported data. Therefore, one can assume that those estimates might not be accurate, as cultural norms and other sociological and psychological factors could affect the honesty with which positive individuals respond to the questionnaire, particularly in some ethnic groups.

³² Mark Wallace reportedly did not contract HIV while working with another performer in the adult film industry. In 1998, therefore, the number of performers who contracted HIV while working is six and not seven. Two performers (John Stagliano and Nena Cherry) contracted HIV in 1997, but not while working.

³³ It is unclear whether Darren James contracted HIV while working in Brazil or as a result of engaging in high-risk behavior in his private life. However, the assumption remains that he contracted HIV while working in Brazil. See *Adult Video News*, "Mark Anthony Addresses Reports," *Adult Video News*, April 19, 2004, <http://www.avn.com/video/articles/15777.html> (accessed September 1, 2008).

infections climbs to one per year. Those estimates are much lower than those in the general population. This statistical comparison is anecdotal, but in the adult film industry, as opposed to the general population: (1) sex acts are much riskier, and (2) each performer has a very large number of partners; a performer can work with up to twelve partners in a given month, excluding those outside of work.³⁴

In addition, condom use differs in the general population and the adult film industry. Condom use at last intercourse outside an ongoing relationship is traditionally reported as higher among adults in the general U.S. population (percentages vary between 37 percent and 62.1 percent) than in the adult film industry (17 percent). However, in ongoing relationships, condom use in the general population is similar to that in the adult film industry, varying between 16.5 percent and 18.7 percent.³⁵ Therefore, one could reasonably assume that, despite the higher condom use rate in the general population, the risk of contracting HIV is higher in the general population than in the industry because no law requires individuals to not only get tested for STDs prior to engaging in sexual intercourse outside an ongoing relationship but also to disclose the results of those tests, contrary to the testing policies in the adult film industry.³⁶

Finally, one must raise another question: how will the alternative condom-only mandate work in practice? Ira Levine (2007, 40:15-41:50) describes the dilemma perfectly:

The issue here really in terms of making it mandatory is a classic example of competing goods. There are two things we would like to see happen. We would like to see everybody use condoms. So if they were mandatory it will be a good thing, but the only way to enforce that would be to make everybody who works as a performer into an employee and subject to the State jurisdiction under Cal/OSHA regulation. However, if you do that you run into a competing good, which has to do with non-discrimination against people who are HIV positive. California State law forbids requiring a HIV test as a condition of employment. So if everybody who reclassifies as employee, a producer who asks for a HIV test from a potential performer would be violating that law and

³⁴ Answers to questions about sexual behavior given in the General Social Surveys (1972-2006) illustrate the differences in sexual behavior between the general and adult film industry populations. University of California, Berkeley, "Latest (1972-2006) GSS Cumulative Data Set: On-line Analysis and Subsetting," *SDA: Survey Documentation and Analysis*, May 2008, <http://sda.berkeley.edu/sdasearch> (accessed September 16, 2008).

³⁵ See Anderson *et al.* (1999); Anderson (2003).

³⁶ Some states do require a HIV test prior to obtaining a marriage license, and other states have made it a felony offense to expose another to HIV by engaging in unprotected sexual activity when the infected person (1) knows he/she is infected; (2) has not disclosed his/her HIV-positive status; and (3) acts with the intent to infect the other person with HIV (see, for example, Office of AIDS (2007, 13). However, the latter laws are likely to produce unintended harmful consequences, as they discourage individuals from getting tested to avoid being prosecuted.

indeed would be violating that law if they refuse to employ a HIV positive performer on that basis. So what we have to choose between are the benefits of testing or the benefits of condoms. But, unfortunately, when it comes to make either one universal, it would be at the expense of the other.

If condom-only mandates are to be enforced in the adult film industry, under *current* California HIV/AIDS laws and, more particularly, Health and Safety Code Section 120980 (Office of AIDS 2007, 2), the adult film industry will have to abandon its mandatory testing policies. Not only will the Adult Industry Medical Healthcare Foundation be unable to maintain its database of test results, but it will be unable to allow producers and directors to access the database to check their employees³⁷ test results because "the use of HIV testing to determine suitability for employment" is forbidden (Office of AIDS 2007, 2).

One must also keep in mind that, while condoms are the most effective means to protect individuals from HIV infection, not only is condom effectiveness not 100 percent,³⁸ but such effectiveness only exists as long as the barrier against HIV and STDs that a condom represents is not compromised.³⁹ In other words, despite the high effectiveness of condoms in preventing HIV transmission, the probability of a HIV outbreak in the adult film industry under government-enforced condom-only legislation is not zero either.

Without the ability to legally maintain a database of test results in conjunction with other performer-related information, generating a quarantine list to contain an HIV outbreak will not be legally possible (*at least under* California's current HIV/AIDS laws). Consequently, it is difficult

³⁷ In the adult film industry, except for a few performers who are under exclusive contract with a production company and, therefore, have employee status, adult film industry performers are independent contractors. It is because of this status that the adult film industry can legally require performers to be tested as a condition of their "employment" as well as ask them to sign a release form to allow AIM to release their test results to the companies, directors, and performers they work with. Health and Safety Code Section 120980 does not cover independent contractors. As for the contract performers, production companies pay for their tests and therefore, technically, do not require their performers to get tested; they just pay for their tests.

³⁸ See Davis and Weller (1999) who find that "the condom's effectiveness at preventing HIV transmission is estimated to be at 87, with a range varying from as low as 60% to as high as 96% depending upon the incidence among condom nonusers." See also Pinkerton and Ambramson (1997) who develop a meta-analysis showing that condoms are 90 to 95 percent effective in preventing HIV transmission when used consistently.

³⁹ See, for example, Trussell, Warner and Hatcher (1992) who estimate condom breakage or slippage during intercourse at 7.9%. See also Lindberg, Sonenstein, Ku and Levin (1997) who estimate condom breakage rates at 2.5 percent but also shows that increased experience with condoms reduces the likelihood of experiencing condom breakage. Sex education is also associated with a 80 percent decrease in the risk of breakage among young men who use condoms infrequently. See also Thomas Yim, Russo and La Croix (1995, 109 and references accompanying Table 1).

to see how, in such a legal environment, an HIV outbreak would have less damaging consequences for adult film industry performers as well as the general public.

6. Concluding Remarks

This analysis has several implications. First, the adult film industry provides a natural experiment in self-regulation and emergent rules facilitating widespread coordination between group members as opposed to systemic breakdowns. The adult film industry succeeded in developing self-policing rules to establish standards of behavior among industry participants, thus allowing the industry to successfully minimize and contain HIV outbreaks. As a result of this, HIV outbreaks are the *exception* and not the *norm*. Returning to Coase (1964), in terms of economic policy implications, the choice is not between first best (no outbreak) and second best (pervasive outbreaks) options, but between second best options (more or fewer outbreaks). This implication leads to a second one.

Condoms are highly effective in preventing HIV and other STDs. Therefore, there is little doubt that a *voluntarily* adopted condom-only policy in conjunction with the industry's current mandatory testing policies would constitute a better option. However, this does not imply that government-enforced condom-only legislation imposed on the industry would be an equally better option. A study of the unintended and possibly counterproductive public health consequences that such legislation might bring about is needed. As many insiders have observed, not only would mandating condom use mean abandoning the current industry-enforced mandatory testing policies because HIV testing as a condition of employment is illegal under current California's HIV/AIDS laws, but it would also likely drive the industry underground or abroad. One cannot ignore that such legislation would negatively impact production companies' revenues if consumers prefer no-condom movies. If the costs of the legislation become prohibitive for production companies, they will likely attempt to move abroad to avoid the legislation or go underground. Then, the self-regulating policies that have been successful in recent years will be much more costly to maintain and thus less likely to be enforced, leading to an increase in HIV outbreaks, as many policymakers dread. In addition to these potential unintended consequences, other questions remain to be answered. For example, how would such legislation be applied and enforced when adult film companies produce movies on foreign sets or

work with non-resident foreign actors? Moreover, the costs of implementing and enforcing such legislation must be accounted for.

Finally, this analysis opens the path to future research on the emergence and function of self-policing rules that facilitate widespread coordination in other legal segments of the adult film industry or other sex-related industries, such as prostitution and escort services. How do these industries address the asymmetric information and network effect problems associated with HIV and STDs? What self-policing rules, if any, have these industries developed to prevent and contain HIV outbreaks? Does the illegal operation of some of these industries hinder the development of self-policing rules? When these self-policing rules differ between industries, do they produce the same levels of coordination among industry participants? To what extent do different levels of coordination between these industries lead to more or fewer HIV outbreaks?

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Appendix 1: Talent Testing Requirements

IF YOU ARE NEW TO THE ADULT FILM INDUSTRY THIS IS WHAT YOU NEED TO DO BEFORE YOU START WORKING

- 1) * Get your blood tested for:
 - a. HIV (by "PCR DNA").
 - b. Syphilis (and "RPR" test).
- 2) * Get your urine tested for:
 - a. Gonorrhea (by "ultra-sensitive DNA amplification").
 - b. Chlamydia (by "ultra-sensitive DNA amplification").
- 3) *View the "PORN 101" video, which is available to take home and is also displayed in a condensed version at AIM Healthcare. Also pick up a copy of the "Responsibilities of Performers" list to help make your job easier.
- 4) *Every month get re-tested for gonorrhea, Chlamydia and HIV.
- 5) Get a genital exam:

If you are a woman:

Get a pelvic exam that includes an evaluation for herpes, genital warts, and the following tests:

- a. PAP smear ("thin-prep with reflex HPV").
- b. Vaginal culture for bacterial vaginosis.
- c. Vaginal culture for trichomonas.

If you are a man:

Get a genital exam that includes an evaluation for herpes and genital warts.

- 6) Get your blood tested for Hepatitis A, B, and C.:
(If your test comes back negative it is highly recommended that you get vaccinated for Hepatitis A & B. There is no vaccine for Hepatitis C).
- 7) Get a skin test for tuberculosis.
- 8) Every six months:

- a. Women should have a genital exam with a PAP smear.
- b. Men should have a genital exam.
- c. Both men and women should be re-tested for syphilis.

*These items are recommended mandatory industry requirements to be done before your first shoot.

Source: Adult Industry Medical Health Care Foundation, "Talent Testing Requirements," *Adult Industry Medical Health Care Foundation*, October 09, 2007, <http://aim.graphicsandtext.com/library/articles/1194643255> (accessed September 3, 2008).

Appendix 2: Recommendations & Requirements for Adult Entertainment Industry

Here are the recommendations and requirements for the Adult Entertainment Industry:

* The term Adult Industry includes Gay and Straight, Bi and Transsexual talent members. It is assumed that you are exercising your human rights to choice regarding condoms.

* Each Month, all talent members will be screened by for HIV (via PCR DNA).

* Each Month, all talent members will be screened for Chlamydia, and Gonorrhea (via urine sample).

* Upon Entry into the Adult Entertainment Industry, all talent members shall get information and prevention education regarding HIV and STDs, as well as psychosocial issues specific to the Adult Entertainment Industry.

* Each Month, all talent members will be updated about prevention and education regarding high-risk sex work.

* Upon Entry into The Adult Entertainment Industry, all talent members will be screened for Syphilis and every 6 months thereafter.

* Upon Entry into The Adult Entertainment Industry, it is hereby recommended that all talent members be screened for Hepatitis, and vaccinated if indicated.

* Talent members should have the availability to view each others test results before working.

* It is hereby recommended that all talent members get routine check-ups every six months for general health and STDs including Bacterial Vaginosis, Herpes, Genital Warts, Pap Smears, Giardia and other Bacterial/Viral infections including tuberculosis.

* It is hereby beneficial to the liability of the companies to keep records of bills of health regarding each talent member and their partners for each day they are employed.

AIM Healthcare is your 501(c)3 non-profit organization and we have low or no cost programs to address the aforementioned requirements.

We have an online subscription database program available so you can download records for your company. We are able to serve you expediently and accurately and have had an obvious hand in writing the requirements. We have done this carefully with your concerns in mind. AIM is a community-based organization and we are open to your feedback.

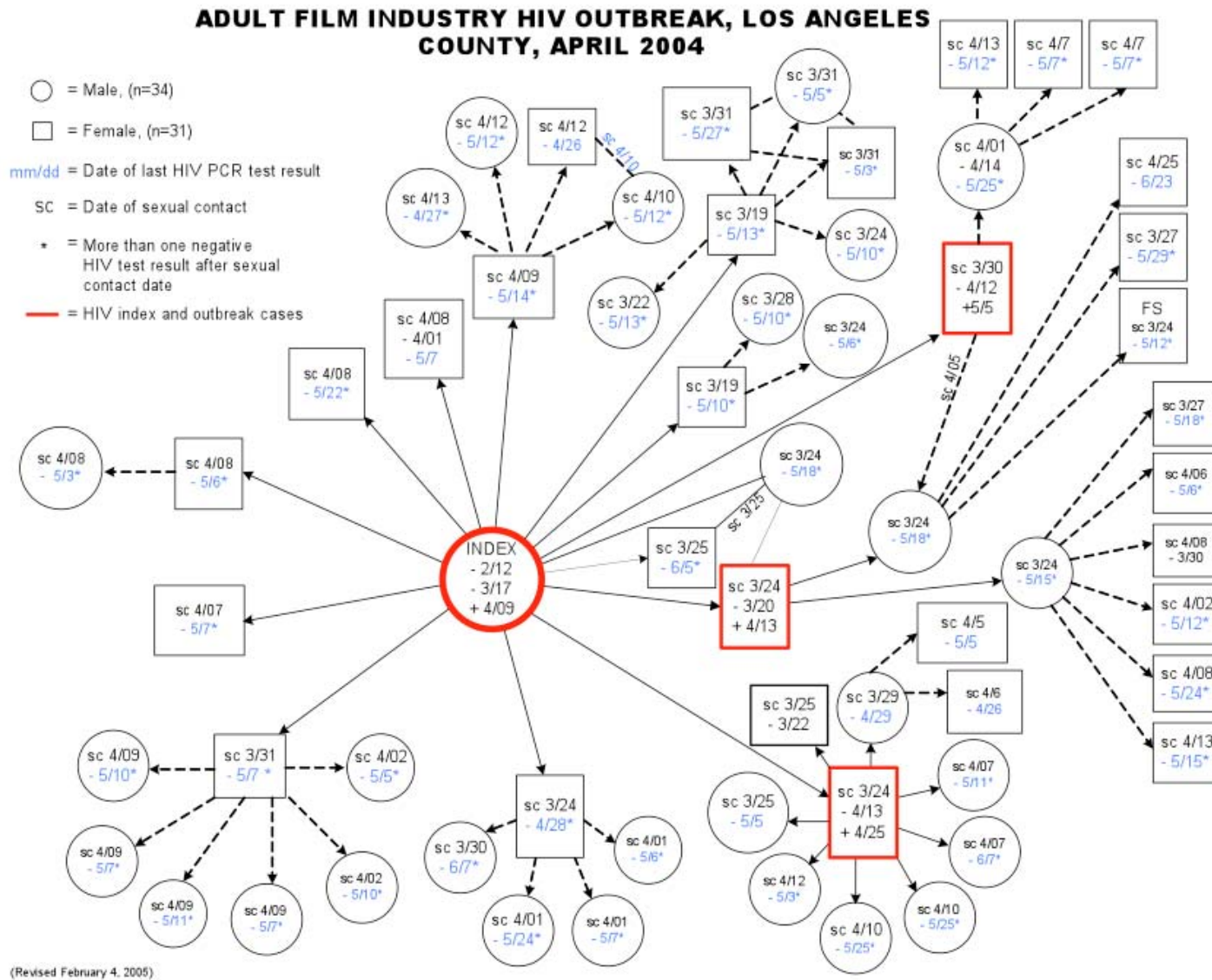
Source: Adult Industry Medical Healthcare Foundation, "Recommendations and Requirements for the Adult Entertainment Industry," *Adult Industry Medical Healthcare Foundation*, October 9, 2007, <http://www.aim-med.org/library/articles/1194641251> (accessed September 6, 2008).

Table 1: STD Reference Table

Test	How did I get It?	Symptoms	Test Disc	Window Period
HIV PCR/DNA Qualitative Test HIV ELISA Antibody	Unprotected vaginal/anal sex, broken condom, any blood or bodily fluid contact.	There can be no symptoms of early HIV. Flu like symptoms, or sores on gums.	PCR/DNA checks for actual HIV in bloodstream ELISA checks for antibody response.	PCR/DNA detects HIV 10-14 days after exposure ELISA detects HIV six weeks to six months after exposure.
Urine Chlamydia Gonorrhea	Unprotected vaginal, anal, oral sex, sharing toys with no condom, any mixes of semen and vaginal fluid	Chlamydia: Clear or white discharge, burning with urination, cramps. Gonorrhea: Same as above green/yellow discharge.	Urine test Early detection sensitive and specific urine amplification test.	This test can pick up Chlamydia and Gonorrhea three days after exposure.
Hepatitis A, B, C Antibody Panel Blood Test	A=fecal/oral, bad food or water. B= blood, semen, vaginal secretions. C= blood to blood.	Dark urine, light stools, yellow eyes and skin. Nausea, vomiting abdominal pain	Blood test that looks for the antibody response for all three types of hepatitis.	Hepatitis A= 2-7weeks Hepatitis B= 6-23weeks Hepatitis C= 2-25weeks
Herpes I, II Panel	Unprotected/protected vaginal/anal/oral contact.	Small blisters or sores painful, itchy, cannot urinate, can transmit without symptoms	Blood test that looks for the antibody response for both types of herpes.	Symptoms can be early as two days. Test will detect after six weeks.
Urinary Tract Infection	Rough vaginal/anal sex, lubricants, condoms, allergies, no panties, wet clothes, and hot tubs.	Painful burning with frequent urination.	Urine test culture and sensitivity, looks for bacteria.	At onset of symptoms. Test as soon as possible.
Syphilis	Unprotected/protected anal, vaginal, oral, wherever legion is exposed to body.	Sore (chancre) firm, round, small painless. Skin rash, can progress to paralysis, blindness, etc.	RPR, Quant (Rapid Plasma Reagent, Quantitation) blood test checks for bacteria.	Symptoms 10-90 days, tests for the antibody two weeks after exposure.
Everything Panel	Apply all the risks from above mentioned diseases, and click for more info on risk chart.	Apply all the symptoms from above mentioned diseases.	Apply all descriptions of tests above, click for details.	Up to 4 days to receive all test results.

Source: Adult Industry Medical Healthcare Foundation, "STD Reference Guide," *Adult Industry Medical Healthcare Foundation*, October 10, 2007, <http://aim.graphicsandtext.com/library/articles/1194568589/> (accessed 07 21, 2008).

Figure 1: ADULT FILM INDUSTRY HIV OUTBREAK, LOS ANGELES COUNTY, APRIL 2004



Source: Peter R. Kerndt, *Worker Health and Safety in the Adult Film Industry*, PowerPoint Presentation, UCLA School of Public Health, UCLA (Los Angeles: Bixby Program in Population and Reproductive Health, 2008).