

Industry Size, Measurement, and Social Costs

K. Doran

Bradley Visiting Fellow, The Witherspoon Institute

In order to estimate the effect of pornography on societal well-being we must study *how* it is distributed and consumed, and the effects on individuals and society of this distribution and consumption. In this paper, I attempt to make an initial contribution to the study of these areas by drawing on many underutilized sources of data regarding a relatively new and significant branch of pornography: internet pornography.

First, I explain the main mechanisms of distributing pornography on the internet. Next, I demonstrate that although the industry's own estimate of \$2.5 billion in annual revenue from internet pornography is often considered an exaggeration, it corresponds well with independent data—and in fact significantly underestimates total consumption, because between 80 and 90% of internet pornography consumers seem primarily to consume free internet pornography.

My analysis suggests that there is not yet any convincing *statistical* evidence that the consumption of pornography has either positive or negative effects, but that several promising techniques exist for improving this research. The study concludes by considering the possibility of regulating pornography. The relatively large market for help overcoming pornography addiction strongly suggests that there are large personal costs to pornography consumption, which opens up the possibility of welfare-improving government regulation. Eliminating copyright protections for pornographic materials will only succeed in limiting pornography consumption under certain conditions, but regulation of Internet Service Providers could quickly reduce pornography consumption, especially the vast majority of such consumption that occurs for free.

Distribution and Consumption

Internet pornography does not differ substantially from other pornography in the manner of production, but rather in the manner of distribution. Today, with high-speed internet connections quite common across the United States, it consists of (sometimes quite large) digital files containing videos or photographs, distributed to consumers through as many as 40,634 websites around the world.¹ Some videos and photographs are identical to those that can be purchased through pornographic print media or pornographic video vendors, but others are only distributed through the internet.

Pornographic photographs can either be downloaded and stored on the consumer's computer or viewed directly from the website without downloading. Some videos can be downloaded and stored on the consumer's own computer, but others, presented in a "streaming" format, can be viewed but not downloaded. Some streaming videos claim to be live video feeds from a "webcam" that is currently filming pornographic activity.

The websites that distribute this pornography may roughly be divided into three categories: pay sites that allow users to consume pornographic content for a fee, often paid for by credit card; free sites that allow consumers to view either samples or the full photographs and videos without paying; and various versions of Youtube that cater to pornography consumers.

The pay sites usually charge anywhere from \$10 to \$100 per month for access.² Some are connected with massive webs of gateway sites. Users who stumble upon one of these gateway sites will be led by a series of links to the main site, where they will have the opportunity to pay for pornographic content.³ The free sites may be for-profit ventures typically supported by advertising or personal home pages that contain (sometimes illegally copied) pornographic content. The pornographic versions of Youtube are for-profit ventures, and the pornographic content on them is sometimes produced by amateurs.

¹ Tancer, Bill. "Click: What Millions of People Are Doing Online and Why It Matters" *Hyperion*, September 2, 2008.

² Caslon Analytics. "Adult Content Industries," last updated February 2008.
<http://www.caslon.com.au/xcontentprofile.htm>

³ Edelman, Ben. "Domains Reregistered for Distribution of Unrelated Content: A Case Study of 'Tina's Free Live Webcam'" mimeo, last updated February 18, 2003,
[://cyber.law.harvard.edu/archived_content/people/edelman/renewals](http://cyber.law.harvard.edu/archived_content/people/edelman/renewals)

Thus, there are three revenue models for internet pornography: the end-user model (in which pay sites charge customers for personal access), the advertiser model (in which websites distributing pornography support themselves by selling advertising space, sometimes to other pornography sites), and the model of various free pornography sites that may not be profitably supported by either end-user subscriptions or advertising.

Consumption for payment and for free

Before one can analyze the likely effects of pornography on society, it is important to get an estimate of the industry's total revenues to make progress in understanding its effects—without reliable numbers, there is little hope for assessing its impacts. The industry publication *AVN* reports that total internet pornography revenues for 2005 were about \$2.5 billion.⁴ Although many mainstream news sources take *AVN*'s numbers at face value, some academic sources claim that the pornography industry has enough of an incentive to exaggerate revenues that their numbers simply cannot be trusted.⁵ In light of this problem, it is necessary to evaluate the industry's revenue reports using independent data.

First, using information from the US Census bureau on 2005 e-commerce revenues by industry sector, the reported \$2.5 billion amounts to 18% of the total e-commerce revenues earned from publishing, arts, entertainment, and recreation services, 2.5% of the total e-commerce revenues earned from all business-to-consumer "service" industries combined, and 1.3% of the total e-commerce revenues earned from all business-to-consumer industries combined.⁶ These percentages do not seem too large.

Furthermore, a trick can determine the reliability of both the *AVN* revenue numbers and the Pew Internet and American Life (PIAL) Project's internet pornography consumption numbers. According to the PIAL 2005 May tracking poll, 66% of Americans aged 18 or over used the internet, and 11.25% of these (about 16.7 million) accessed pornography. According to the May 2004 tracking poll data, 20% of internet pornography consumers admit to paying for online

⁴ Johnston, David Cay. "Indications of a Slowdown in Sex Entertainment Trade" *New York Times*, January 4th, 2007.

⁵ Ackman, Dan. "How Big is Porn?" and "How Grown up is Adult Video?" *Forbes.com*, May 25, 2001, <http://www.forbes.com/2001/05/25/0524porn.html>

⁶ U.S. Census Bureau. "E-stats," May 25th, 2007; U.S. Census Bureau. "E-stats," May 16th, 2008.

content, which, combined with PIAL's finding on consumption, yields about 3.3 million paying internet pornography consumers in 2005.

These numbers could be an underestimate, because people may fear revealing themselves as an internet pornography user during a telephone survey.⁷ But dividing the revenue estimate by the pornography consumer estimate helps evaluate whether either of them seems to be biased in the directions we fear.

So I divide the \$2.5 billion by 3.3 million consumers to get \$737 per paying customer per year, or \$61 per month. Pay sites charge \$10 to \$100 per month (in 2007, for example, Vivid.com charged \$30 per month), so \$61 per month is a fairly reasonable average.⁸ Thus, the \$2.5 billion in annual internet pornography revenue and the 3.3 million internet pornography paying customers seem reasonable estimates. Since this was calculated using the Pew pornography consumption data, it indirectly suggests that Pew's 11-to-15% rate of total internet pornography consumption is also not too low.⁹

These numbers reveal a potentially important fact about internet pornography consumption: most users are using it for free. Of the 14% who admitted to consuming it during the May 2004 Pew survey, only 20% said that they pay for it.¹⁰ In the February 2007 Pew survey, 4.5% of internet users admitted to watching online adult videos, but only 10% of them said that they ever pay to access them.¹¹

Finally, "hits" on internet pornography websites are broadly distributed, with "the top five hundred sites account[ing] for only 56% of all visits to the adult category," even though only a few firms bring in most of the revenue.¹² These two facts can be reconciled if a large number of the hits on pornography sites are users downloading free material. It is also possible

⁷ Tancer, Bill. "Click: What Millions of People Are Doing Online and Why It Matters" Hyperion, September 2, 2008.

⁸ Caslon Analytics

⁹ 2 Some examples might make this logic more clear. Suppose that the industry revenue numbers were correct, but that twice as many consumers actually view pornography as admitted it in the surveys, and rather than 20 percent of them all of them paid for it. This would result in each paying \$6.14 per month. This is outside the range of monthly rates reported by Caslon Analytics, although it could be obtained if people use the cheapest sites and only subscribed half their months. But if the revenue numbers were also ten times too large, each would be paying 61 cents per month. This seems much too small. Thus, the data for both revenue and consumption are probably not both severely biased in the directions sometimes feared in the literature on pornography.

¹⁰ Need source.

¹¹ Need source.

¹² Caslon Analytics.

to reconcile them by noting that some central sites register innumerable gateway sites that link to the central site.¹³

In short, the evidence suggests that a large number of internet pornography consumers—probably the vast majority—are usually consuming free internet pornography. This free material consists of samples of the pay material, illegally copied versions of the pay material, and amateur material.

Who is consuming internet pornography?

The number of consumers and the total dollars of revenue can both be estimated fairly reliably by combining independent data sources, in spite of the potential for aggregate measurement error. But in order to analyze the demographic characteristics of these consumers, I would have to evaluate whether measurement error is distributed unequally across demographic groupings. For instance, are men more willing to admit the truth about their pornography consumption than are women?

It is impossible to do justice to this question in this paper, but comparing results across independent sources of data can provide an answer. Claims about pornography usage consistently reported within each of these sources over time and across each are less likely to be the results of chance or survey methodology and more likely to be accurate. There are three main sources of data: the General Social Survey (GSS), administered since 1972 across the United States; the Pew Internet and American Life (PIAL) project telephone surveys, which have occurred several times a year since 2001; and data from Internet Service Providers collated by Bill Tancer of the internet tracking firm Hitwise.¹⁴

Table 1 collects pornography usage data from the May 2004 PIAL survey and the GSS. In both surveys, men more frequently claim to be pornography users than do women, and the young more often do than the old, while the married and the widowed are less likely than people of other marital status to claim to use it. Each of these patterns is largely confirmed by data from four other PIAL surveys, dating from February 2001 through May 2005. Furthermore, the data from Internet Service Providers, which may be less likely to have differential

¹³ Edelman, 2003.

¹⁴ Tancer, 2008.

measurement error across demographic groups, confirms that men are more likely to use internet pornography than are women.¹⁵ Table 1 shows that admitted pornography consumption varies considerably across religious groups.

All three sources are consistent with a decline over the last several years in the proportion of people consuming pornography. Figure 1a shows a small decrease between 2004 and 2006 in the proportion of respondents who claim to have seen an X-rated movie during the past year. Figure 2 shows a small decrease from May 2004 to May 2005 in the proportion of respondents who report using the internet to visit adult websites. Finally, Figure 3 shows that the pornographic website market share has declined from 17% of all visits to websites in September 2005 to 11% in September 2007.

This decline in market share is consistent with constant consumption of pornography and an increase in the consumption of other services, but it is also consistent with a continued decline in pornography consumption. Nevertheless, as shown in Figure 1a, over the long term, the consumption of pornography has increased since a low point in the late 1970s up until the latest year of 2006. This is even more obvious in Figure 1b, where 54% of men aged 29 or under used pornography in 2006 (the most recent pornography usage figure), almost twice the usage during the low point in 1978.

Summary facts

There are at least 40,634 websites that distribute pornographic material on the internet. About 11% of all internet visits are to one of these sites. About 14% of the online population in America (17 million Americans) visits these sites, spending on average 6.5 minutes per visit.¹⁶ About 80 to 90% only access free pornographic material. This free material consists of samples of the pay material, illegally copied versions of the pay material, and amateur material.

The remaining three million Americans who pay for internet pornography pay an average of about \$60 per month. This generates \$2.5 billion in annual revenues for the internet pornography industry, making its revenues a very small percentage of total e-commerce revenues. While this number is frequently cited as an overestimate, it is reasonable when

¹⁵ Tancer, 2008.

¹⁶ The minutes per visit number is taken from Tancer, 2008.

estimated by independent data sources, and in fact severely underestimates the total amount of consumption, because of the prevalence of free material. Most of these revenues are apparently earned by a small number of top firms.¹⁷

Most of the consumption, on the other hand, is spread widely across a number of websites, with the top 500 of these 40,000 websites earning only 56% of the total traffic. Consumption of pornography is spread unevenly according to gender, age, marital status, and religion, and has no clear relationship with education or income. In spite of a recent decrease in consumption, a considerably higher proportion of the population consumes pornography than did at the recent low point in the late 1970s, especially among young men.

The Effects of Consumption

Does consuming pornography affect behavior? There is not yet convincing *statistical* evidence in favor of either a yes or a no answer. In an ideal experiment (ideal for identification, not ethics), people would be randomly exposed to pornography and their sexual and criminal behavior (if any) observed. Without doing this, some random variation in access to, exposure to, or temptation to use pornography must be found—that is, a variation in the “price” of consuming pornography that can be correlated with behavior. This is the most difficult requirement in studying the effects of the consumption of pornography (positive or negative). Two recent papers claim to have found such variation, and with it evidence that pornography does affect behavior, but their evidence is not convincing.

The first, a working paper by Todd Kendall, formerly an assistant professor at Clemson University, uses variation in state internet usage over time to proxy for variation in the “price” of accessing pornography.¹⁸ His first claim is that the difference in the speed of internet adoption between states is largely attributable to reasons unrelated to rape. His second is that this variation led to variation in the rate of rapes across states. His final claim is that internet pornography consumption caused the link between internet usage and rape.

Each of these claims is difficult to prove empirically, and the fact that Kendall has found some evidence in support of them is impressive. Nevertheless, there remain important

¹⁷ Caslon, 2008.

¹⁸ Kendall, 2007.

concerns about his approach. The first problem is an old one: endogeneity. In Kendall's natural experiment, differing rates of usage of the internet should create differing rates of access to pornography. But changes in internet usage could be caused by changes in other variables related to rape, such as preferences and unobserved demographics. Normally, what a researcher would do in this circumstance is find an "instrument" for internet access: a variable that would lead to random variation in internet usage but that would not directly affect outcome variables such as rape. Kendall could not find such a variable, so he relied on the older technique of simply including controls for whatever potentially related variables he could find. Given the prospect for omitted variable bias here, this is a serious issue.

The second problem is an odd one: Kendall controls simultaneously for changes in the internet and computer usage within states over time. So the results are driven by states in which internet usage has risen by either more or less than their increase in computer usage. Since we do not know why some states experience slower increases in internet usage (relative to their increase in computer usage) than others, we cannot assume that this variation in relative internet usage is unrelated to important variables Kendall did not include.

The second paper, by Winai Wongsurawat, is entitled "Pornography and Social Ills: Evidence from the Early 1990s," and was published in 2006.¹⁹ Wongsurawat uses variation in availability of post office boxes as an instrument for variation in the overall psychological "cost" of subscribing to *Penthouse* magazine. The theory is that, *ceteris paribus*, greater ease of obtaining a private post office box will make other people less likely to notice one's *Penthouse* consumption, thereby lowering the psychological cost of subscribing, and that if pornography affects behavior then places where post office boxes are more easily acquired will have higher rates of rape. In order for this instrument to reliably reveal something about the effect of pornography, the effect of post office box availability on subscriptions must have a statistically significant effect on *Penthouse* consumption, and not be related through another mechanism to the incidence of rape.

In the previous paper there was no instrument, but in this paper the instrument is not convincing. Wongsurawat demonstrates that in fact post office box availability does not have a

¹⁹ Wongsurawat, 2006.

strong effect on *Penthouse* subscriptions, but rather has a borderline-strong effect on subscriptions *and* individual (e.g., newsstand) sales. This implies that availability mainly affects the individual sales, which strongly suggests the existence of an unmeasured third variable affecting *both* post office boxes and individual sales. Furthermore, he admits that the F-statistic on the joint significance of the instruments is not quite at the level sometimes used as a rule of thumb for avoiding the weak instrument problem. Finally, Wongsurawat finds that the availability of post office boxes has a statistically significant and apparently positive effect on *Discover* magazine subscriptions, and thus has no way of ruling out the possibility that subscriptions to *Discover* magazine rather than *Penthouse* connects availability to rape.

While both papers point out inadequacies in much of the statistical evidence that consumption of pornography does not affect behavior, their own evidence that it does is not convincing. In both cases, their results are driven strongly by their techniques for obtaining variation in the “price” of pornography consumption, and in both cases this variation is unlikely to be exogenous. Therefore, their results are not a substantial improvement on the older literature that showed positive effects of pornography consumption on rape.

Nevertheless, more can be done to use statistical evidence to measure the effect of pornography consumption. The first step would be finding a useful instrument for pornography availability or consumption: one that has a strong and measurable effect on pornography usage, and is also unlikely to have an independent effect on the behavior being measured. One example of this would be variation in broadband internet availability that comes from a known source. Another example would be using the similarity in take-up rates of technology over time.²⁰ In fact, this approach is being used in ongoing work.²¹

Consumption Theory and Consumption Effects

Samuel Cameron asks, “Why . . . should we be spending time trying to define porn in the first place? If individuals are rational utility maximizers, then why do they need to be barred from pornography?”²² The answer, as Cameron himself later admits, is that pornography may

²⁰ Stevensen, 2008.

²¹ Doran and Price, 2008.

²² Cameron, 2006.

be addictive, and thus that it may be optimal for the state to attempt to reduce consumption. “We’re seeing it [addiction] with epidemic proportions now, particularly with regards to cybersex,” says Mark Schwartz, psychologist and former director of the Masters and Johnson Institute in St. Louis, Missouri.²³

Consumption theory typically assumes that anything a person chooses to consume will be the precise choice (subject to the relevant scarcity constraints) that makes that person best off. This assumption implies that those who choose to consume pornography are improving their own well-being by doing so. Thus, adding an additional constraint to their decision-making (such as raising the price of pornography or making consumption a punishable offense) would necessarily reduce their well-being by decreasing the frequency of their choosing pornography.

In fact, there is a lot of money being made helping people overcome their “sex-addiction,” a condition that increasingly refers to the use and abuse of internet pornography.²⁴ There are numerous self-help books on breaking pornography addiction, in addition to numerous internet filters designed to prevent temptation. People feel the costs of their addiction are so high that they pay for such services as PureOnline’s \$165 counseling sessions for married men, or Covenant Eyes’ \$55 per year accountability software. There is no money being made helping people with tooth-brushing addiction, or kite-flying addiction. All of this evidence should be sufficient to convince us that using pornography can result in great costs for the person consuming; costs not incurred by truly innocuous activities such as brushing one’s teeth.

But we are left with a contradiction. It appears that the same person is willing to spend a positive amount of money to consume pornography and a positive amount of money to be prevented from consuming pornography. The first expense would imply that a constraint to prevent him from consuming pornography would have negative value to him, but the second expense implies that such a constraint would have positive value. Clearly, researchers need to make use of various models of addiction to properly understand the effects of pornography

²³ Landau, 2008.

²⁴ Landau, 2008.

consumption, and we can assume that the most relevant theoretical research on pornography will make use of addiction theories in the future.

Summary Facts on the Effects of Pornography Usage

There is no convincing *statistical* evidence that consumption of pornography does or does not affect behavior. However, some people do appear to have a strong incentive to prevent themselves from consuming pornography, and to pay more for this prevention than for the pornography itself. This suggests that there may be large personal costs of consumption associated with pornography, and opens up the possibility that it may be optimal for the state to use regulation to limit the distribution and consumption of pornography.

The Regulation of Pornography

Between 80 and 90% of the people who consume internet pornography generally consume free content. Thus, if we want to know the effects on consumption of eliminating copyright protections, the most important question is: will the large number of consumers currently accessing free content still be able to do so after elimination of copyright?

This free content is a combination of legally posted content supported by advertising, legally posted content serving as an advertisement (e.g., samples), illegally posted pay content, and amateur content. Only the first two categories could possibly be negatively affected by elimination of copyright: illegally posted material will be instantly turned into legally posted material, and amateur material will be posted for the same reasons it already has been. I have not found what portion of free pornography consumption comes from these two sources, but whatever level it is at will be a lower bound for the amount of free pornography consumption that can persist after elimination of copyright.

The revenues for the first two categories will primarily come from end-users, since much of the advertising on pornography sites is from other pornography sites.²⁵ So it remains to find out whether the end-user revenue model can persist after elimination of copyright, whether

²⁵ Caslon Analytics

some other source of revenue can be found, or whether these first two categories of free content will disappear entirely.

A useful way of answering this question is to ask whether there already exists an industry that distributes public domain works and supports itself through its own revenues. The answer is yes. There is money to be made from reworking public domain books and selling them, often over the internet.²⁶ Many major publishers sell large numbers. They are not printing and distributing these works out of charity—the revenues must be greater than the costs. Jane Austen's *Pride and Prejudice* has long been in the public domain. At least fifteen editions are currently available as new purchases, including several by major publishing houses, even though the complete text is available for free online. The bestselling Dover thrift edition of three Austen works packaged together has a sales rank of 2,140, and this implies yearly sales of about 3,300 copies.²⁷ It is therefore clear that the fact that *Pride and Prejudice* is in the public domain has not reduced its availability for consumption whatsoever. In fact, it is currently quite cheap to consume *Pride and Prejudice*, and it would be much more expensive if it was still under copyright.

How can this be? The answer is that publishing houses can make money on public domain works by distinguishing their product from the other versions currently available. Many editions of *Pride and Prejudice* contain special annotations and essays to make the text more readable and interesting. Some contain illustrations, or are printed or digitally stored in an especially attractive format. This is likely to be what would happen to the internet pornography industry were copyright to be revoked. Some websites would package and organize the pornographic material in a better way than others. They would make an extra effort to ensure that the digital videos and photographs on their site were free of computer viruses. They would develop interfaces that were easier and more pleasant to use. It is likely that their profits would go down. But there would still be profits to be made from high-quality distribution. The price would likely decline, and the consumption of pornography would either remain constant or increase.

²⁶ Beers, 2006 and Sloan, 2007.

²⁷ Rosenthal, 2008.

The same cannot be said for production. In the absence of copyright protection, the service that is being profitably sold is efficient distribution, not quality production, since any well-produced product can be taken and distributed by anyone. Thus, there would be little incentive to continue to produce works for profit. If the moral costs of producing pornography are high, then eliminating copyright will reduce the social costs of pornography. However, elimination of copyright will, in the short term at least, either leave constant, or increase, consumption, as the price of consumption decreases.

The one possibly good effect of copyright elimination will be that, as decades pass, the lack of new production will make the available material seem dated. Few people now consume the pornographic postcards of the late nineteenth century. Thus, after the changes in tastes that occur over generations, it is possible that elimination of copyright will succeed in reducing consumption of pornography.

An Easier Way to Reduce Consumption

If eliminating copyright protection will not reduce the consumption of pornography, is there another legal change that might do so? It is possible that regulating what information could be transferred by Internet Service Providers (ISPs) would be an effective way to reduce internet pornography. At least 80% of internet users nationwide make use of the top twenty-five ISPs,²⁸ and it would thus be relatively simple to prevent large numbers of consumers from accessing internet pornography by regulating the degree to which internet lines can be used to transmit obscene material, and heavily enforcing this regulation for the top one hundred ISPs around the country.

It is unlikely that the vast majority of internet pornography consumers (especially those who only consume free internet pornography) would be willing to risk using a black market ISP just to access pornography. We already know the 80 to 90% of internet pornography consumers who consume free pornography are unwilling to pay rates as low as \$10 or \$30 per month in order to obtain higher-quality pornography from subscription sites. This suggests that they would also be unwilling to pay for a black market ISP just to consume pornography.

²⁸ Goldman, 2008. This is an underestimate of the market share of top ISPs because it was not possible to obtain data for several key players.

References

Ackman, Dan. "How Big is Porn?" and "How Grown up is Adult Video?" Forbes.com, May 25, 2001, <http://www.forbes.com/2001/05/25/0524porn.html>

Beers, Lisa. "Making Easy Profit With Public Domain" Article Alley, 18th June 2006. http://www.articlealley.com/article_64452_81.html

Caslon Analytics. "Adult Content Industries," last updated February 2008. <http://www.caslon.com.au/xcontentprofile.htm>

Doran, Kirk and Joseph Price. "The Effect of Internet Pornography on Marital Intimacy," in progress, 2008.

Edelman, Ben. "Domains Reregistered for Distribution of Unrelated Content: A Case Study of 'Tina's Free Live Webcam'" mimeo, last updated February 18, 2003, [://cyber.law.harvard.edu/archived_content/people/edelman/renewalS](http://cyber.law.harvard.edu/archived_content/people/edelman/renewalS)

Goldman, Alex. "Top 23 U.S. ISPs by Subscriber: Q2 2008" ISP-Planet: Market Research. August 28, 2008. <http://www.isp-planet.com/research/rankings/usa.html>

Johnston, David Cay. "Indications of a Slowdown in Sex Entertainment Trade" New York Times, January 4th, 2007.

Kendall, Todd. "Pornography, Rape, and the Internet" Mimeo. March, 2007.

Landau, Elizabeth. "When sex becomes an addiction" CNN.com. September 5th, 2008. <http://www.cnn.com/2008/HEALTH/09/05/sex.addiction/index.html>

Thornburgh, Dick, and Herbert S. Lin, eds. "Youth, Pornography, and the Internet" National Academy Press, 2002.

Rosenthal, Morris. "Amazon Sales Rank For Books" website, copyright 2008. <http://www.fonerbooks.com/surfing.htm>

Sloan, Paul. "Free and Easy. How material in the public domain can be turned into your own private revenue stream." CNNMoney.com. March 15th, 2007. [://money.cnn.com/magazines/business2/business2_archive/2006/12/01/83949_75/index.htm](http://money.cnn.com/magazines/business2/business2_archive/2006/12/01/83949_75/index.htm)

Stevenson, Betsey. "The "The Internet and Job Search," mimeo, September 2008, forthcoming, *Labor Market Intermediation*, University of Chicago Press.

Tancer, Bill. "Click: What Millions of People Are Doing Online and Why It Matters"
Hyperion, September 2, 2008.

U.S. Census Bureau. "E-stats," May 25th, 2007.

U.S. Census Bureau. "E-stats," May 16th, 2008.

Wongsurawat, Winai. "Pornography and Social Ills, Evidence from the Early 1990s"
Journal of Applied Ec., May, Vol. IX, number 1, 2006.