

Holier Than Thou: Partisan Gap in Consumption of Pornography Online*

Lucas Shen[†] Gaurav Sood[‡]

December 17, 2022

Abstract

Consumption of pornography has been blamed for a variety of societal ills, including the rise in misogyny, sex crimes, and the coarsening of culture. Using passively collected browsing data from YouGov, we investigate how much pornography Americans consume online. We find that there is a sharp positive skew in the consumption of pornography, with a small number of users consuming lots of pornography and most consuming small amounts. The median American Internet user today spends X minutes per month consuming pornography, visiting Y sites per month; the 95th percentile is X and Y respectively. Lastly, we find that, unlike previous research (MacInnis and Hodson, 2015; Edelman, 2009), which relied on ecological inference, Democrats consume slightly more pornography than Republicans.

*You can download the replication materials from <https://github.com/soodoku/adult>

[†]Lucas is a Research Fellow at Asia Competitiveness Institute, Lee Kuan Yew School of Public Policy, at the National University of Singapore, lucas@lucasshen.com

[‡]Gaurav can be reached at gsood07@gmail.com

Consumption of pornography is associated with a variety of disturbing attitudes, beliefs, emotions, and behaviors. Consuming pornography is associated with support for violence against women (Hald, Malamuth and Yuen, 2010; Malamuth, Hald and Koss, 2012; Donnerstein, 1984), belief in rape myths (Foubert, Brosi and Bannon, 2011), increased gender role conflict, lesser sexual satisfaction (Szymanski and Stewart-Richardson, 2014; Stewart and Szymanski, 2012), poorer relationship quality (Szymanski and Stewart-Richardson, 2014; Szymanski, Feltman and Dunn, 2015), and sexually risky behaviors such as engaging in paid sex, and having extramarital sex (Wright and Randall, 2012). A lot of popular pornography also contains a healthy dose of violence. An analysis of popular pornography revealed that 88.2% of the scenes contained physical aggression, and 48.7% verbal aggression (Bridges et al., 2010). For all these reasons, there are serious concerns about consumption of pornography.

In this paper, using passive browsing data from YouGov, we investigate how much pornography Americans consume online. We find that there is a sharp skew in the consumption of pornography, with a small set of users consuming a large chunk of pornography. The median American Internet user spends X minutes per month (Y% of their time online) consuming pornography, visiting Y unique sites; the 95th percentile for time spent consuming pornography online is YY minutes.

We also use the data to shed light on an age-old debate — whether Democrats consume more pornography than Republicans or vice versa. Both parties claim the higher moral ground. And in surveys both parties think consumption of pornography is abhorrent, plausibly for different reasons. Unlike previous research, which relied on ecological inference, we find that Democrats consume slightly more pornography online than Republicans (MacInnis and Hodson, 2015; Edelman, 2009). Adjusting for background covariates like age, gender etc., further mutes the differences.

Data

We use passively observed browsing data from a YouGov survey to measure the consumption of adult content. YouGov maintains a large online panel recruited through a variety of methods. It uses matched sampling to survey respondents: The provider first draws a random sample from a large synthetic representative sampling frame, finds respondents that match the sampled individuals from its panel, and invites them to take a survey. For details and validation, see [Rivers and Bailey \(2009\)](#). For this particular sample, panelists also provided de-identified access to their web browsing activity via passive metering software installed voluntarily on their computers. The software, called RealityMine, can be uninstalled at any point and captures visited web URLs independent of the type of browser or browser-specific privacy settings.¹ At the time this data was made available in June, 2022, YouGov had recruited 1,200 individuals to the web tracking panel, which is currently marketed as YouGov Pulse. The passive metering component of this particular opt-in panel adds a layer of selectivity to the sampling process.

Measuring Consumption of Adult Content

For YouGov, we only observe data from a single machine per person. Our analyses should hold if people exhibit similar consumption patterns across devices. If that is too implausible an assumption, then we must decide on the direction of error and how it affects our analyses. We think it is likely that people would be less likely to search for pornography on machines on which they have installed passive monitoring software (though the data are de-identified). If that is so, our estimates are a lower bound of net consumption of pornography per machine.

¹RealityMine does not save passwords or financial transactions, and personally identifying information is screened out by the survey provider.

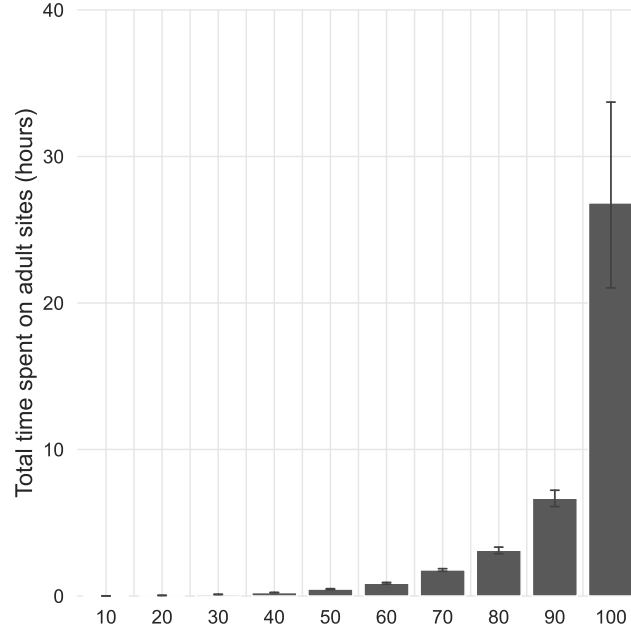
As the number of devices per person is increasing, all these numbers need to be adjusted. Next, is measurement error correlated with ideology? We have little reason to expect that, but we have no capacity to check if it is true. Thus, for current purposes, we assume that it is so.

We code pornographic content at the domain level. Our main analysis depends on the domain classifications that come with YouGov data (see [Figure SI 1.1](#) and [Figure SI 1.2](#) for the most visited domains). In the Appendix, we use a keyword classifier and a machine learning classifier. As you will see, all of these methods consistently show the same thing. All of this ignores pornography available via more conventional channels. For instance, some pornography is consumed on sites like Tumblr.

Results

Our primary dependent variables of interest are: total time spent on pornographic sites and the proportion of time spent on pornographic sites. (In the appendix, we show similar analysis for visits.)

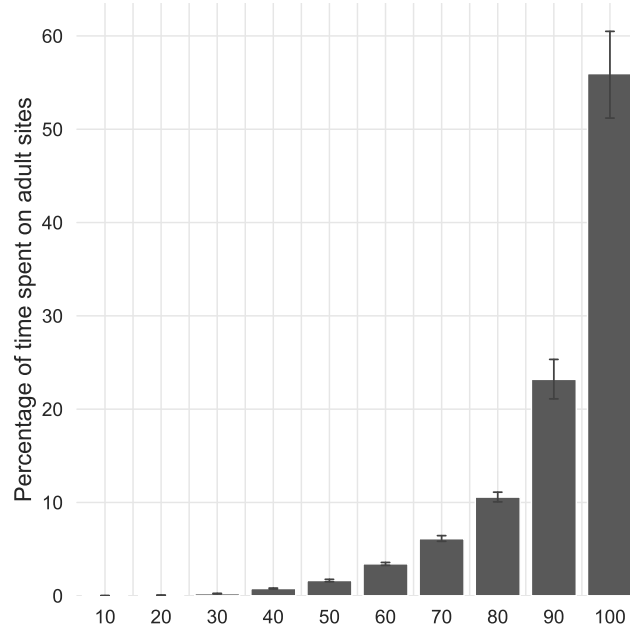
Figure 1: Distribution of Consumption of Pornography Online



Notes: Figure shows the number of hours spent on adult sites by individuals who consumed pornography in the sample period. Individuals are split into deciles with each bin containing approximately the same number of individuals. Height of bars indicate mean of each bin. Capped vertical bars are 95% confidence intervals. See [Table SI 1.1](#) for the more tabulated values.

To formally test for these differences, we ran quantile regression, regressing the duration on party.

Figure 2: Percentage of Time Spent on Pornographic Sites



Notes: Figure shows the proportion of time spent on adult sites by individuals who consumed pornography in the sample period. Individuals are split into deciles with each bin containing approximately the same number of individuals. Height of bars indicate mean of each bin. Capped vertical bars are 95% confidence intervals. See [Table SI 1.2](#) for the more tabulated values.

These minor differences (or lack of differences) could be because of the demographic differences we see across the party. This lack of difference also partly stems from a lack of difference in the tendency to consume pornography (see [Figure SI 1.3](#)). Next, we control for immutable characteristics like age and gender to see if that adjustment changes the picture much. Given how concentrated pornographic consumption is in our data, it is unlikely to make much of a difference and that is indeed what we find.

Discussion

Consumption of pornography is also problematic from a religious perspective. Christian theologians believe that consumption of pornography leads people away from purity and

Table 1: The effect of ideology on four separate dependent variables measuring pornography consumption.

	Number of visits	Pct. visits	Total time (seconds)	Pct. time
	(1)	(2)	(3)	(4)
Ideology: Conservative	−0.60* (0.33)	0.001 (0.004)	−929.60 (759.29)	0.001 (0.004)
Ideology: Don’t know	−1.02** (0.44)	−0.005 (0.01)	−862.56 (1,068.65)	0.001 (0.01)
Ideology: Liberal	−0.64** (0.30)	−0.004 (0.004)	−1,228.61 (771.12)	−0.003 (0.004)
Ideology: Very conservative	−0.93** (0.39)	−0.004 (0.004)	−1,265.14 (805.47)	−0.002 (0.004)
Ideology: Very liberal	−0.04 (0.28)	0.01* (0.004)	1,723.00** (856.46)	0.01*** (0.004)
Age: 25-44	−0.55** (0.27)	−0.004 (0.004)	−2,024.46** (885.57)	−0.01*** (0.004)
Age: 45-64	−1.69*** (0.35)	−0.01* (0.004)	−3,347.91*** (907.86)	−0.01*** (0.004)
Age: 65+	−1.69*** (0.41)	−0.01** (0.005)	−2,415.55** (1,035.71)	−0.01*** (0.005)
Gender: Male	2.39*** (0.31)	0.02*** (0.002)	3,448.81*** (515.79)	0.02*** (0.002)
Married	−1.31*** (0.28)	−0.01*** (0.003)	−2,120.98*** (546.76)	−0.01*** (0.003)
Constant	4.54*** (0.37)	0.01*** (0.004)	4,429.11*** (894.76)	0.02*** (0.004)
N	1,367	1,367	1,367	1,367
Adjusted R ²		0.07	0.06	0.07

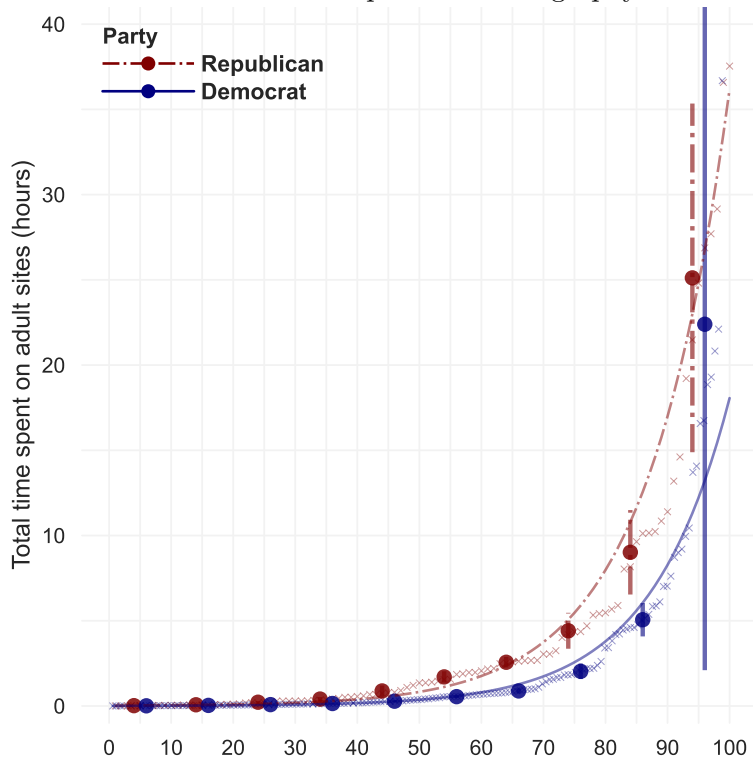
*p < .1; **p < .05; ***p < .01

Model 1: Quasi-Poisson; Models 2-4: OLS. Standard errors in parentheses.

The base category for ideological self-placement is “independent.”

All models use weights raked to population by age, gender, race, party ID, and region.

Figure 3: Distribution of Consumption of Pornography Online by Party

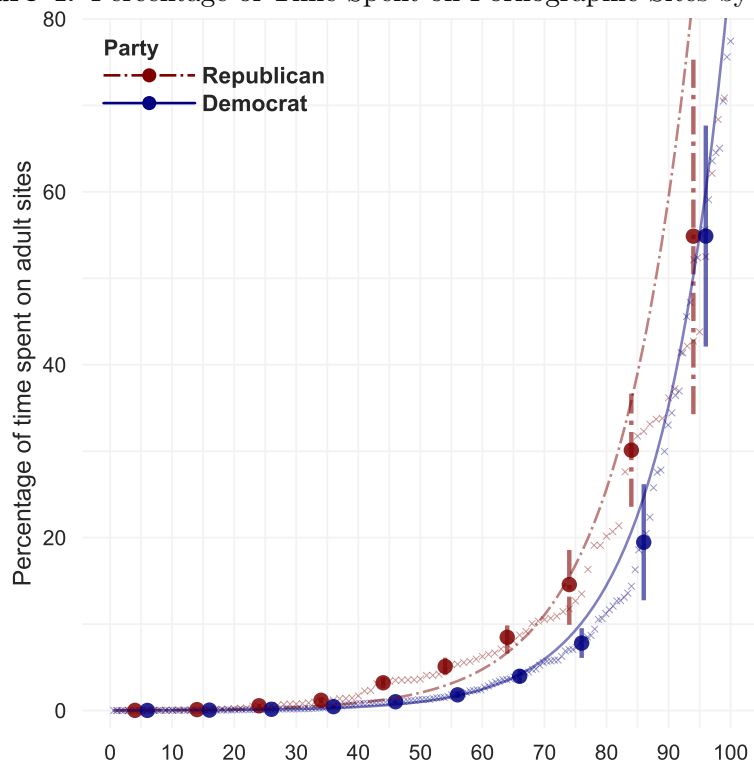


Notes: Figure shows splits by party and by percentiles for the total time spent on adult sites for panelists in the sample who consumed pornography in the sample period. Round markers and the corresponding vertical lines indicate the mean and 95% confidence intervals for each bin. The x symbols indicate actual panelists based on their percentiles. See [Table SI 1.3](#) for the more tabulated values.

hence should be avoided.².

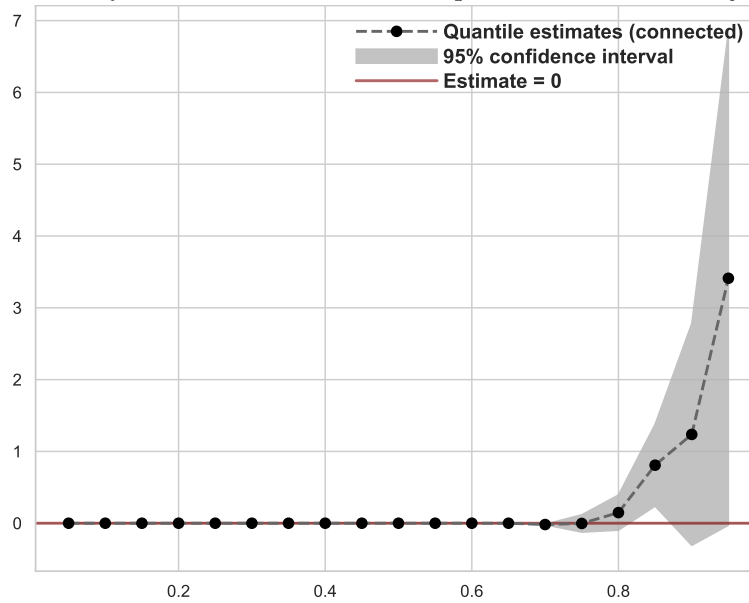
²<https://www.churchofjesuschrist.org/study/manual/help-for-pornography-users/effect-of-pornography>

Figure 4: Percentage of Time Spent on Pornographic Sites by Party



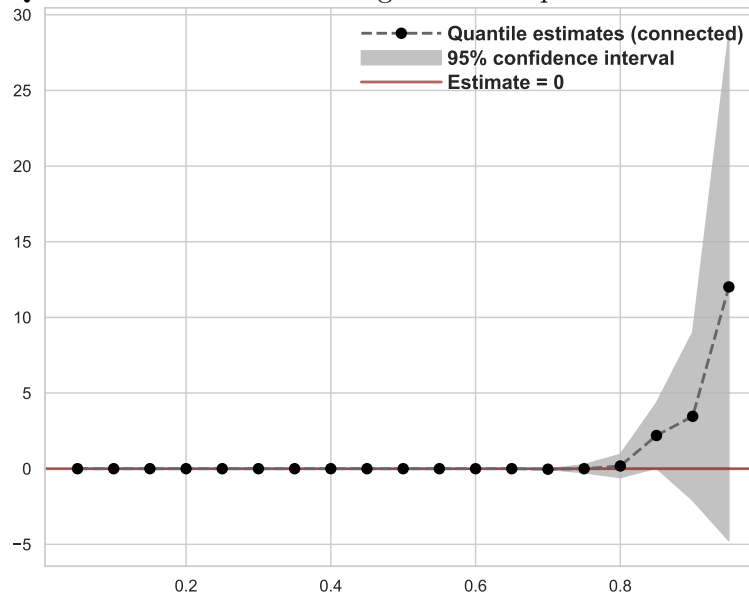
Notes: Figure shows splits by party and by percentiles for the proportion of time spent on adult sites for panelists in the sample who consumed pornography in the sample period. Round markers and the corresponding vertical lines indicate the mean and 95% confidence intervals for each bin. The x symbols indicate actual panelists based on their percentiles. See [Table SI 1.4](#) for the more tabulated values.

Figure 5: Quantile Estimates—Hours Spent on Adult Sites by Party



Notes: Dependent variable is the number of hours panelists in our sample spent on adult sites. Each point indicates the difference between Republicans and Democrats and corresponds to a quantile regression at the quantile indicated by the x-axis. 95% confidence intervals constructed from robust standard errors. See [Figure SI 2.1](#) for the same plot controlling for individual characteristics.

Figure 6: Quantile Estimates—Percentage of Time Spent on Adult Sites by Party



Notes: Dependent variable is the percentage of time panelists in our sample spent on adult sites. Each point indicates the difference between Republicans and Democrats and corresponds to a quantile regression at the quantile indicated by the x-axis. 95% confidence intervals constructed from robust standard errors. See [Figure SI 2.4](#) for the same plot controlling for individual characteristics.

References

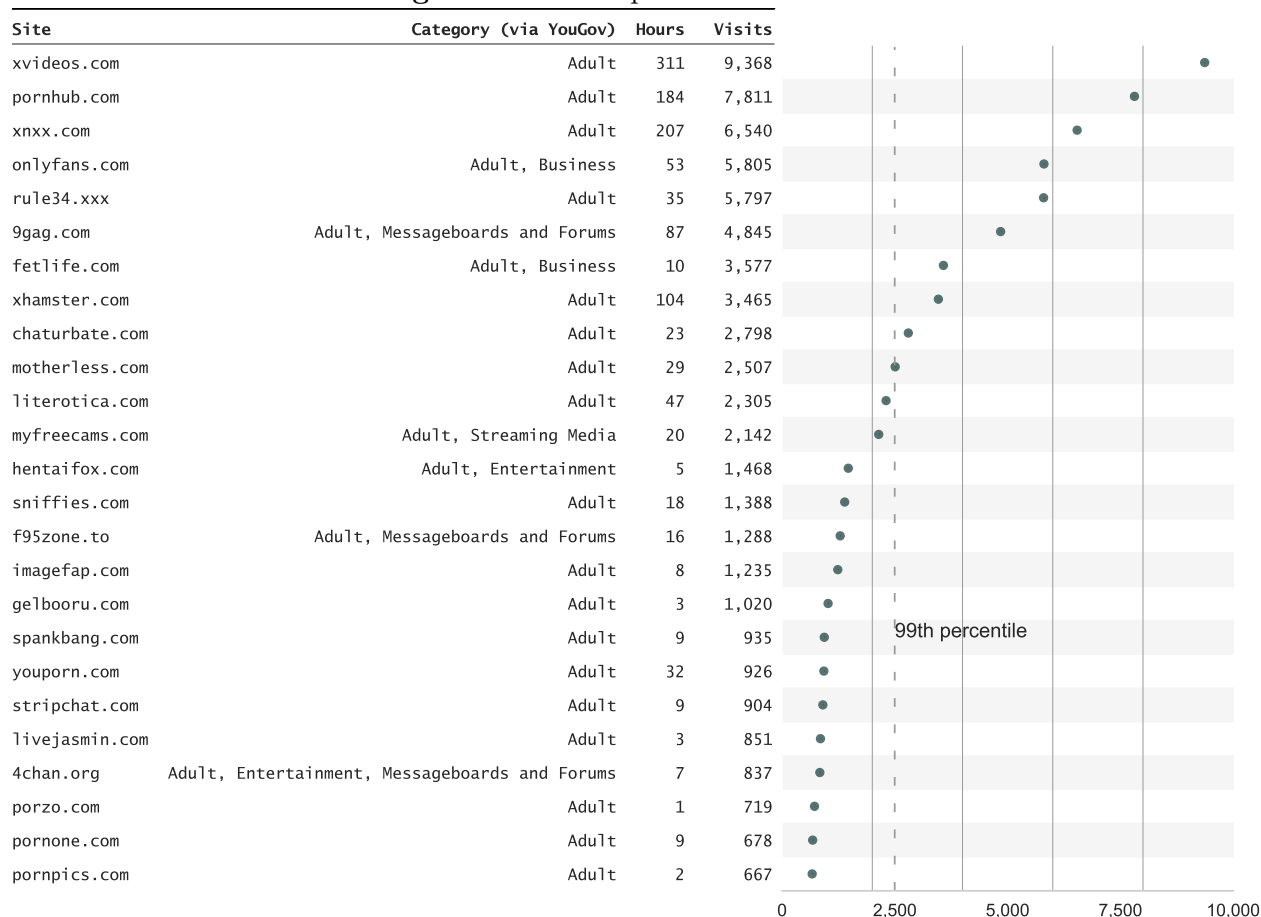
- Bridges, Ana J, Robert Wosnitzer, Erica Scharrer, Chyng Sun and Rachael Liberman. 2010. “Aggression and sexual behavior in best-selling pornography videos: A content analysis update.” *Violence Against Women* 16(10):1065–1085.
- Donnerstein, Edward. 1984. “Pornography: Its effect on violence against women.” *Pornography and sexual aggression* pp. 53–81.
- Edelman, Benjamin. 2009. “Markets Red Light States: Who Buys Online Adult Entertainment?” *The Journal of Economic Perspectives* 23(1):209–220.
- Foubert, John D, Matthew W Brosi and R Sean Bannon. 2011. “Pornography viewing among fraternity men: Effects on bystander intervention, rape myth acceptance and behavioral intent to commit sexual assault.” *Sexual Addiction & Compulsivity* 18(4):212–231.
- Hald, Gert Martin, Neil M Malamuth and Carlin Yuen. 2010. “Pornography and attitudes supporting violence against women: Revisiting the relationship in nonexperimental studies.” *Aggressive Behavior* 36(1):14–20.
- MacInnis, Cara C and Gordon Hodson. 2015. “Do american States with more religious or conservative populations search more for sexual content on google?” *Archives of sexual behavior* 44(1):137–147.
- Malamuth, Neil M, Gert Martin Hald and Mary Koss. 2012. “Pornography, individual differences in risk and men’s acceptance of violence against women in a representative sample.” *Sex Roles* 66(7-8):427–439.
- Rivers, Douglas and Delia Bailey. 2009. Inference from matched samples in the 2008 US national elections. In *Proceedings of the joint statistical meetings*. pp. 627–639.

- Stewart, Destin N and Dawn M Szymanski. 2012. "Young adult women's reports of their male romantic partner's pornography use as a correlate of their self-esteem, relationship quality, and sexual satisfaction." *Sex Roles* 67(5-6):257–271.
- Szymanski, Dawn M, Chandra E Feltman and Trevor L Dunn. 2015. "Male Partners' Perceived Pornography Use and Women's Relational and Psychological Health: The Roles of Trust, Attitudes, and Investment." *Sex Roles* 73(5-6):187–199.
- Szymanski, Dawn M and Destin N Stewart-Richardson. 2014. "Psychological, relational, and sexual correlates of pornography use on young adult heterosexual men in romantic relationships." *The Journal of Men's Studies* 22(1):64–82.
- Wright, Paul J and Ashley K Randall. 2012. "Internet pornography exposure and risky sexual behavior among adult males in the United States." *Computers in Human Behavior* 28(4):1410–1416.

Supporting Information

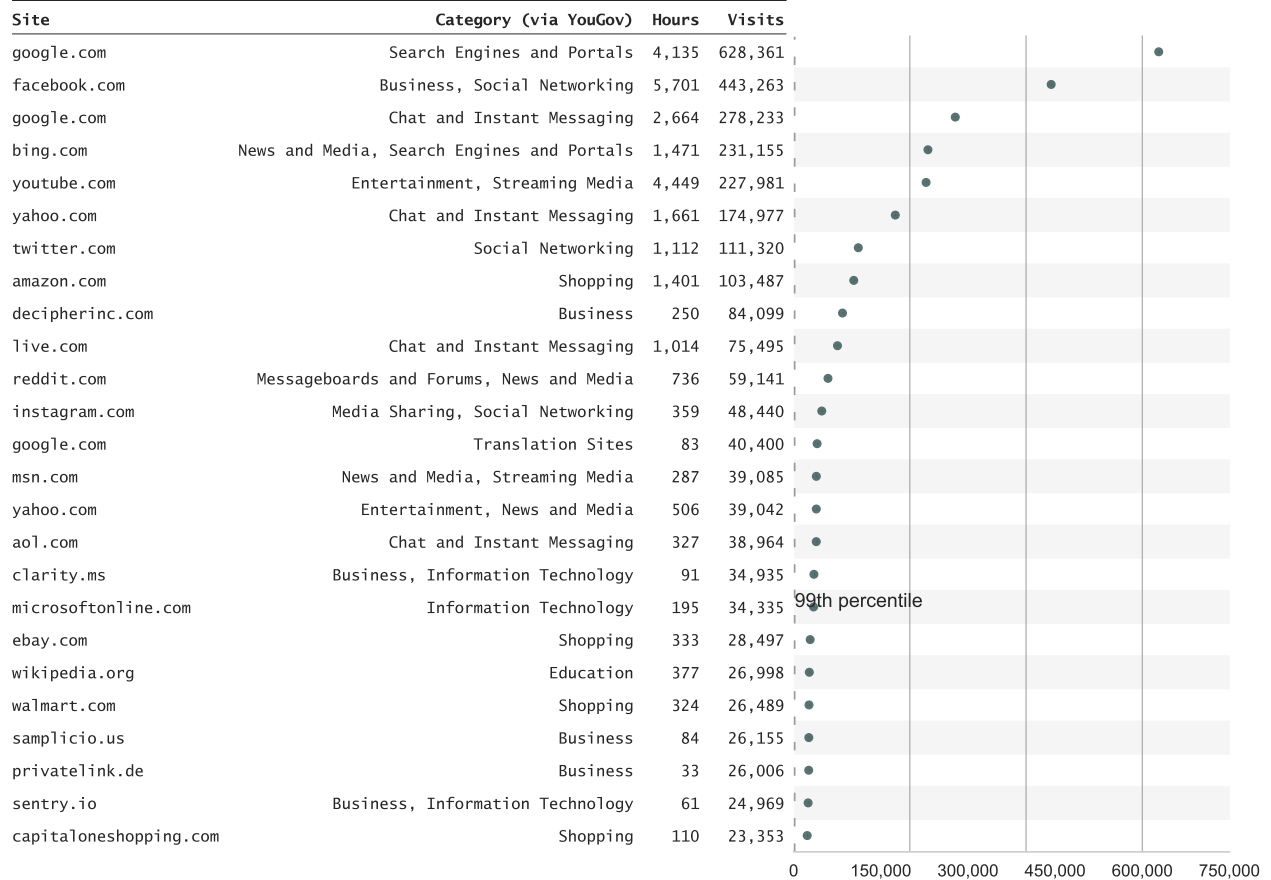
SI 1 Supplementary Descriptive Figures and Tables

Figure SI 1.1: Top 25 Adult Domains



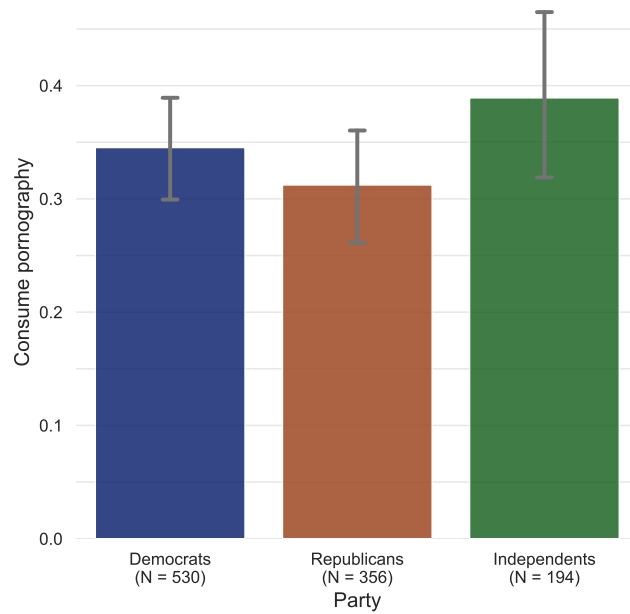
Notes: Table shows the top 25 adult sites that panelists visit in the sample period. Adult sites are categorized by YouGov. The *Hours* column are the total number of hours that panelists in the sample spent on the site. The *Visits* column is total number of visits by panelists in the sample to the site. Sites to the right of the vertical dashed are the top 1 percent.

Figure SI 1.2: Top 25 (Non-Adult) Domains



Notes: Table shows the top 25 non-adult sites that panelists visit in the sample period. The *Hours* column are the total number of hours that panelists in the sample spent on the site. The *Visits* column is total number of visits by panelists in the sample to the site. Sites to the right of the vertical dashed are the top 1 percent.

Figure SI 1.3: Porn Consumption by Party



Notes: Figure shows proportion of panelists in the sample who ever consumed pornography in the sample period by party. Capped vertical bars are 95% confidence intervals from bootstrapped standard errors (n = 1,000).

Table SI 1.1: Distribution of Consumption of Pornography Online

Percentile	Hours
0.00	0.00
0.10	0.02
0.20	0.07
0.30	0.16
0.40	0.33
0.50	0.64
0.60	1.30
0.70	2.20
0.80	4.49
0.90	10.15
0.95	19.50
0.96	21.93
0.97	27.31
0.98	32.22
0.99	46.47
1.00	93.96

Notes: Table shows key percentiles (each of the ten deciles plus quantiles at the right tail) and their corresponding values for the duration (hours) spent by individuals who consumed pornography in the sample period. See [Figure 1](#) for the plot.

Table SI 1.2: Percentage of Time Spent on Pornographic Sites

Percentile	Hours
0.00	0.0
0.10	0.0
0.20	0.1
0.30	0.5
0.40	1.0
0.50	2.4
0.60	4.3
0.70	7.9
0.80	13.5
0.90	34.3
0.95	55.6
0.96	62.8
0.97	64.3
0.98	68.9
0.99	73.9
1.00	87.5

Notes: Table shows key percentiles (each of the ten deciles plus quantiles at the right tail) and their corresponding values for the duration (hours) spent by individuals who consumed pornography in the sample period. See [Figure 2](#) for the plot.

Table SI 1.3: Distribution of Consumption of Pornography Online by Party

Percentile	Republicans	Democrats
0.00	0.00	0.00
0.10	0.04	0.02
0.20	0.12	0.05
0.30	0.29	0.11
0.40	0.58	0.18
0.50	1.36	0.38
0.60	2.11	0.69
0.70	3.04	1.37
0.80	5.51	3.41
0.90	11.57	7.15
0.95	24.91	15.57
0.96	26.91	17.33
0.97	27.74	19.28
0.98	29.30	21.65
0.99	36.59	43.01
1.00	37.54	90.48

Notes: Table shows splits by party and by key percentiles (each of the ten deciles plus quantiles at the right tail) for the duration (hours) spent by individuals who consumed pornography in the sample period. See [Figure 3](#) for the plot.

Table SI 1.4: Percentage of Time Spent on Pornographic Sites by Party

Percentile	Republicans	Democrats
0.00	0.0	0.0
0.10	0.0	0.0
0.20	0.3	0.1
0.30	0.8	0.2
0.40	2.0	0.8
0.50	3.8	1.3
0.60	6.4	2.6
0.70	10.6	5.6
0.80	20.3	11.4
0.90	36.3	33.3
0.95	44.2	54.1
0.96	52.9	56.6
0.97	62.3	63.4
0.98	68.4	64.9
0.99	71.0	72.1
1.00	87.5	77.4

Notes: Table shows splits by party and by key percentiles (each of the ten deciles plus quantiles at the right tail) for the duration (hours) spent by individuals who consumed pornography in the sample period. See [Figure 4](#) for the plot.

SI 2 Consequence of Using Alternate Ways of Measuring Pornography and Alternative Analyses on Time Spent on Pornography

SI 2.1 Keyword Classifier

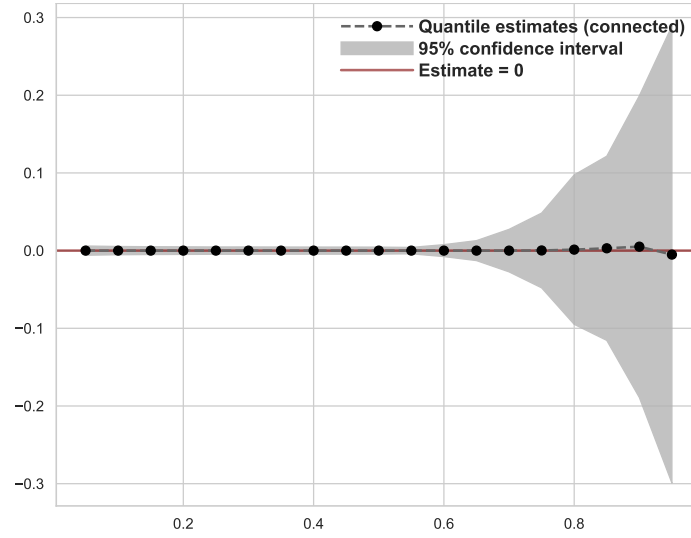
Our first classifier is based on just the domain name and domain suffix. In particular, we use a calibrated keyword classifier. The features of the model are whether any of the following keywords are present in the domain name:

cumshot, dildo, anal, adult, porn, mature, sex, xx, bbw, slut, whore, tits, titty, titties, pussy, sperm, gay, cheat, booty, ebony, asian, brazilian, fuck, cock, cunt, lesbian, shemale, boob, naughty, fatty, bitch, granny, jizz, faggot, horny, bukakke, bdsm, vagina, smut, x-rated, lusty, erotic, cunnilingus, blowjob, panty, hentai, latex, fetisch, fetish, erotik, bondage, naked, strip, teen, stocking, coitus, deprav, tube, perverse

SI 2.2 Machine Learning Classifier

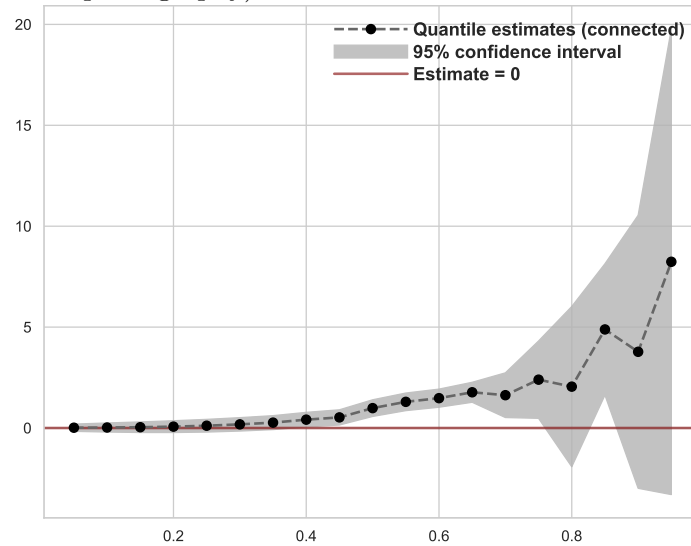
SI 2.3 Alternative Analyses of Time Spent on Pornography

Figure SI 2.1: Quantile Estimates–Hours Spent on Adult Sites by Party (with covariates)



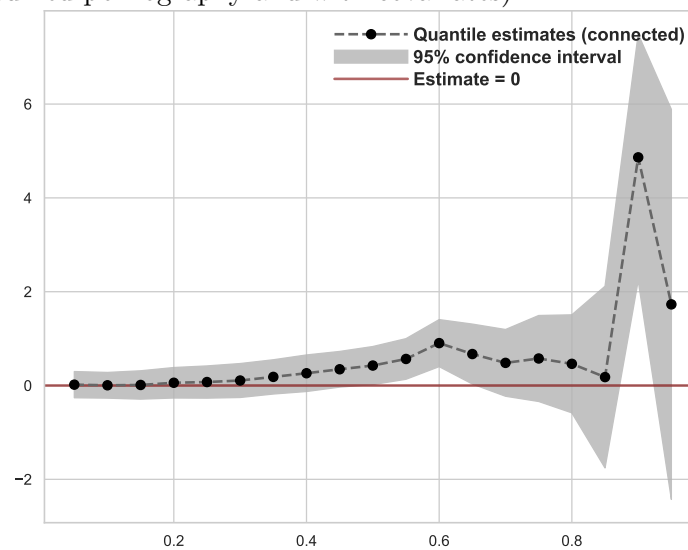
Notes: Dependent variable is the number of hours panelists in our sample spent on adult sites. Each point indicates the difference between Republicans and Democrats and corresponds to a quantile regression at the quantile indicated by the x-axis. Covariates included on the right-hand side are: gender (Female/Male), race (White/Black/Hispanic/Asian/Others), education level (no HS/HS graduate/some college/college graduate), age and its quadratic, and region (NE/MW/S/W). 95% confidence intervals constructed from robust standard errors. See [Figure 5](#) for the same plot without covariates.

Figure SI 2.2: Quantile Estimates–Hours Spent on Adult Sites by Party (for individuals who consumed pornography)



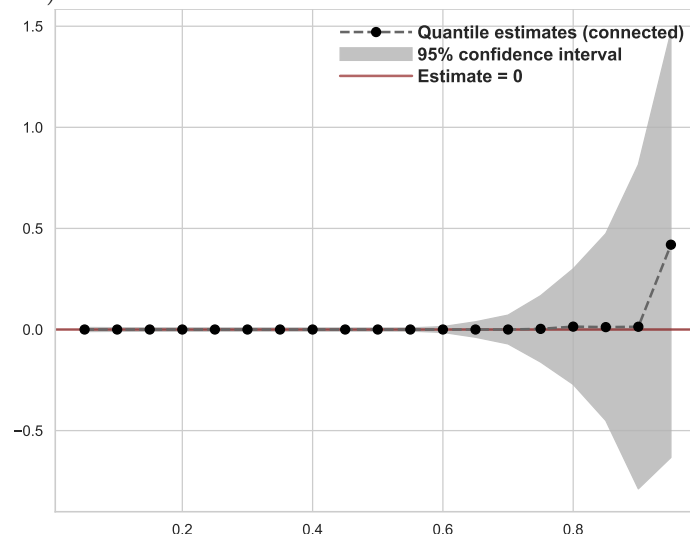
Notes: Dependent variable is the number of hours panelists in our sample spent on adult sites. Each point indicates the difference between Republicans and Democrats and corresponds to a quantile regression at the quantile indicated by the x-axis. Only includes panelists who consumed pornography in the sample period. 95% confidence intervals constructed from robust standard errors. See [Figure 5](#) for the same plot for the full sample.

Figure SI 2.3: Quantile Estimates—Hours Spent on Adult Sites by Party (for individuals who consumed pornography and with covariates)



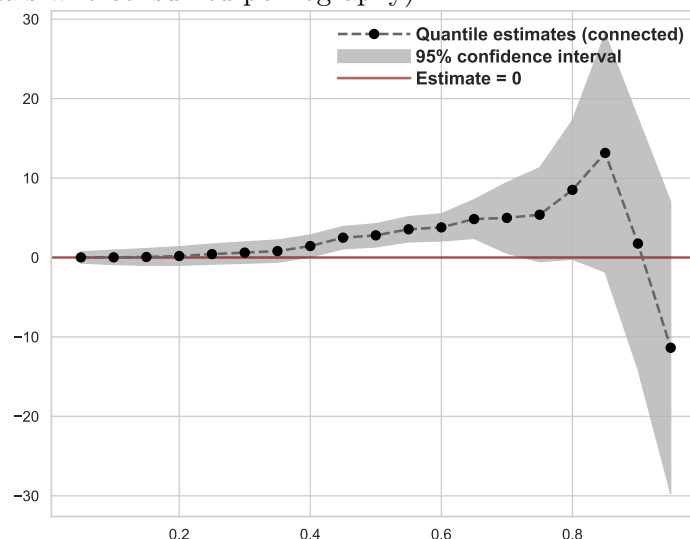
Notes: Dependent variable is the number of hours panelists in our sample spent on adult sites. Each point indicates the difference between Republicans and Democrats and corresponds to a quantile regression at the quantile indicated by the x-axis. Only includes panelists who consumed pornography in the sample period. Covariates included on the right-hand side are: gender (Female/Male), race (White/Black/Hispanic/Asian/Others), education level (no HS/HS graduate/some college/college graduate), age and its quadratic, and region (NE/MW/S/W). 95% confidence intervals constructed from robust standard errors. See [Figure SI 2.1](#) for the same plot for the full sample.

Figure SI 2.4: Quantile Estimates–Percentage of Time Spent on Adult Sites by Party (with covariates)



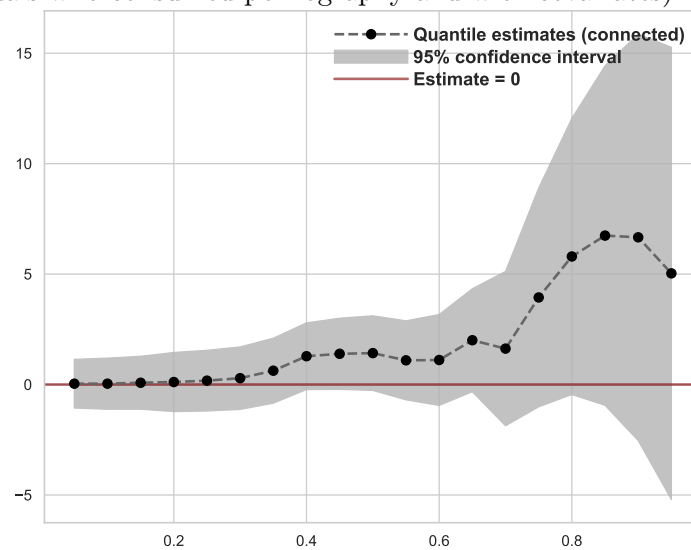
Notes: Dependent variable is the percentage of time panelists in our sample spent on adult sites. Each point indicates the difference between Republicans and Democrats and corresponds to a quantile regression at the quantile indicated by the x-axis. Covariates included on the right-hand side are: gender (Female/Male), race (White/Black/Hispanic/Asian/Others), education level (no HS/HS graduate/some college/college graduate), age and its quadratic, and region (NE/MW/S/W). 95% confidence intervals constructed from robust standard errors. See [Figure 6](#) for the same plot without covariates.

Figure SI 2.5: Quantile Estimates–Percentage of Time Spent on Adult Sites by Party (for individuals who consumed pornography)



Notes: Dependent variable is the percentage of time panelists in our sample spent on adult sites. Each point indicates the difference between Republicans and Democrats and corresponds to a quantile regression at the quantile indicated by the x-axis. Only includes panelists who consumed pornography in the sample period. 95% confidence intervals constructed from robust standard errors. See [Figure 6](#) for the same plot for the full sample.

Figure SI 2.6: Quantile Estimates–Percentage of Time Spent on Adult Sites by Party (for individuals who consumed pornography and with covariates)



Notes: Dependent variable is the percentage of time panelists in our sample spent on adult sites. Each point indicates the difference between Republicans and Democrats and corresponds to a quantile regression at the quantile indicated by the x-axis. Only includes panelists who consumed pornography in the sample period. Covariates included on the right-hand side are: gender (Female/Male), race (White/Black/Hispanic/Asian/Others), education level (no HS/HS graduate/some college/college graduate), age and its quadratic, and region (NE/MW/S/W). 95% confidence intervals constructed from robust standard errors. See [Figure SI 2.4](#) for the same plot for the full sample.

SI 3 Analysis of Visits