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## How Much More XXX is Generation X Consuming? Evidence of Changing Attitudes and Behaviors Related to Pornography Since 1973

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*We use data from the General Social Survey (GSS) over a 40-year period (1973–2012) to evaluate changes in attitudes about pornography and pornography consumption among American young adults. One of the major challenges in making comparisons across birth generations is separating the effect of birth cohort from age and period effects. We use an intrinsic estimator to separately identify the effects of age, birth cohort, and time period using 40 years of repeated cross-section data. We find that, relative to the general population, young people’s beliefs about whether pornography should be illegal have stayed relatively constant over this 40-year period and, if anything, have slightly increased. We also find that pornography consumption has been increasing across birth generations, though this increase has been smaller than would be inferred based on differences across generations at a single point in time, due to a strong age component in consumption patterns.*

Over the past 40 years the delivery of pornographic media has shifted from theaters to home video and television, and now most recently to the Internet and smartphones. Each technological development has made pornography cheaper, more accessible, and easier to discreetly consume (Cooper, Delmonico, & Burg, 2000). These dramatic changes in the ease of access have contributed to the conventional wisdom that the current generation of young adults are much more likely to consume pornography than previous generations. This perception of pornography use among young adults today has led some to refer to the current generation as the “Porn Generation” or “Generation XXX” (Shapiro, 2005).

Generational comparisons are often made by comparing the behavior of individuals of different ages at any given point in time. For example, Carroll and colleagues (2008) compared the attitudes toward pornography between college students and their parents and found

that while 67% of male college students agreed that pornography viewing is “an acceptable way to express one’s sexuality,” only 37% of their fathers felt the same way. For women, 49% of female college students agreed with this statement, compared to just 20% of their mothers. While these results may be driven by genuine generational differences in attitudes toward pornography, they could also reflect men and women adopting more conservative attitudes and practices as they get older. The challenge of inferring generational differences using data at a single point in time is part of a broader empirical concern about distinguishing age, period, and cohort effects (Zink, Regan, Jacobson, & Pabst, 2003).

We used data from the General Social Survey (GSS) to examine whether the differences between young adults and older adults that we observe today are truly a generational change or a reflection of an age effect that has always existed. The GSS has included a similar question about pornography consumption nearly every year over a 40-year period. The long-range nature of our data set allows us to test whether young adults today exhibit different attitudes and behaviors about pornography than older cohorts did when they were the same age. Specifically, we looked at whether young adults today

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view more pornography than previous generations and whether they differ about whether pornography should be illegal.

### Literature Review

It is generally believed that widespread Internet access has led to notable increases in pornography consumption (Fisher & Barak, 2001). Three characteristics allow the Internet to deliver pornography to an increasingly broad set of users: anonymity, accessibility, and affordability (Cooper et al., 2000). However, a number of past technological changes or innovations have influenced the ease with which individuals could access pornography, including the video cassette recorder (VCR), cable television, satellite television, and post office boxes. Arguments similar to those about the rapid increase in pornography consumption today have been made in various decades prior to the introduction of the Internet (Bonniwell, 1971; Brosius, Weaver, & Staab, 1993).

One reason that technological changes could lead to smaller-than-anticipated increases in pornography consumption is that technological changes are typically accompanied by innovations that allow consumers and households who do not want to be exposed to porn to avoid it. For example, the effect of the Internet on pornography consumption was likely blunted by increased precautions taken by individuals and families, such as the placement of computers in open areas of the home, changes in default settings on browsers that make it less likely to inadvertently stumble upon pornographic Web sites, legal restrictions on accessing or viewing pornography at work, and the introduction of products designed to filter Web content.

Providing accurate information about how much pornography consumption has changed over time may have a meaningful impact on society, because perceptions about the prevalence and patterns of certain behaviors can have a significant impact on an individual's behavior. This phenomenon is known as *pluralistic ignorance*, a term coined by social psychologist Floyd Allport. Pluralistic ignorance occurs within a group of individuals when each individual believes his or her personal beliefs are discrepant from the norm. Each group member believes he or she is the only one experiencing conflict and thus in public conforms to the norm. Individuals believe others in the group actually endorse the norm, so they follow only to fit in with the group (Lambert, Kahn, & Apple, 2003, p. 129).

The influence of such misperceptions about others' behavior is often notable; researchers have located its impact on tax evasion (Wenzel, 2005), alcohol use on college campuses (Miller & Prentice, 1993), sex (Regnerus & Uecker, 2011), and smoking (Sherman, Presson, Chassin, Cortsy, & Olshavsky, 1983). That is, people

often shift attitudes and practices toward the direction of perceived trends and norms about which they are actually mistaken. Studies that do not separate age, period, and cohort effects may generate misperceptions about how pornography consumption and beliefs have changed over time. These misperceptions could affect social norms, which in turn may influence behavior.

In contrast to the common belief that pornography use is much more prevalent today than in previous generations, two recently published papers (one about men and one about women) paint a much more nuanced portrait of the growth in pornography consumption over the past few decades. Wright (2013) examined the growth in pornography consumption in men since the early 1970s and concluded it increased by only 0.3% each year prior to 1986 and 0.1% after 1986. Wright, Bae, and Funk (2013) noted that the introduction of the Internet in the 1990s seems to have stabilized consumption rates among women; previously, levels were more erratic from year to year.

While Wright's work is important and provides evidence that the belief that pornography consumption has increased dramatically in the past few decades is mistaken, the methods employed and described in Wright's (2013) paper do not adequately distinguish among age, cohort, and period effects that underlie the overall increase in porn consumption. He did provide age correlates for each of the years he looked at in the data set—and they were all negative and around the same magnitude, suggesting that as individuals age they decrease their porn usage. However, the model we employed in this article was designed to separate and test differences in age, birth cohorts, and periods in time and their specific effect on porn use. In this way our work builds on Wright's initial analysis by testing whether the increase in porn use over the past few decades is due to a general increase across all birth cohorts or whether more recent cohorts have significantly different or higher consumption patterns than earlier generations.

### Data and Methodology

For our analysis, we required a data set that includes information about pornography consumption over enough years to compare the behaviors and attitudes of young adults today to those of young adults in prior generations. Also, because the technology through which pornography is accessed has changed over time, we also needed a measure of pornography consumption that was relevant across the different modes of delivery. Finally, because individuals may have different ideas of what constitutes pornography, we required an objective measure of pornography that was independent of the specific moral standards of the individual.

The data set best poised to meet these data requirements is the General Social Survey, a nationally

representative, repeated, cross-section sample of adults, which has included a question nearly every year since 1973 about whether the respondent has viewed an X-rated movie in the past year. This specific question has two major advantages that help it meet the data requirements described here. First, it provides a comparable measure of pornography consumption that focuses specifically on the video portrayal of pornography (rather than still images only). Although technological advances have changed the delivery system by which individuals access X-rated movies (theaters, videotapes, cable television, Internet), the nature of the media has stayed the same: watching video. Second, the standard of what constitutes an X-rated movie is made by an external group (the Motion Pictures Association of America [MPAA]) and avoids the problem of individuals employing different standards of what constitutes pornography.

A major weakness of this measure of pornography use is that, since the advent of the Internet, some respondents might not consider short pornographic clips to constitute “movies.” Because this is a key concern about our measure of pornography, we provide some additional information about how individuals respond to pornography questions using the four years in the General Social Survey in which participants were also asked about whether they visited a pornographic Web site in the past month. In the appendix, Table 1A shows a sample of GSS respondents from 2000 to 2004 who were asked both questions related to pornography consumption: having seen an X-rated movie in the past year and having visited a pornographic Web site in the past month. We evaluated these rates for both the full sample of adults and also specifically for young adults (ages 18 to 25). We also separated the results by gender.

If young adults today access pornography through short clips on the Internet but do not consider these clips to be X-rated movies, then we would expect to find many young adults who reported visiting a pornographic Web site but did not report having watched an X-rated movie. In contrast, what we find is that 67% of young adult men respond yes to either one of the two pornography questions, but only 8% report that they visited a pornographic Web site in the past month but did not see an X-rated movie in the past year. This 8% would be entirely consistent with there being a set of young adults who only view images rather than videos when they visit pornographic Web sites. For young adult women, we find that 38% responded yes to either of the two pornography questions but no respondents reported that they visited a pornographic Web site in the past month but did not see an X-rated movie in the past year. This information suggests that the Internet has not dramatically altered the way young adults report whether they have watched an X-rated movie.

Other major advantages of using data from the GSS are that the survey provides an exceptionally large sample size and has an extremely high response rate. The

total sample size for the GSS between 1973 and 2012 is about 57,000. During this time there are four years in which the question regarding X-rated movies was not included in the survey (1974, 1977, 1982, 1985), and only a subset of the respondents were asked the question from 1988 to 2006. Among the 27,284 respondents in our sample who were asked the question, the response rate has consistently been over 99% each year that the question was included in the GSS data. This is much higher than the response rates of many previous studies, which were as low as 45% (Wolak, Mitchell, & Finkelhor, 2007).

In addition to asking about pornography consumption, the GSS consistently asked respondents whether they believed pornography should be illegal for all citizens, illegal for those under 18, or legal for all. Over the period 1973 to 2012, only 5% of respondents reported believing pornography should be legal for all, while 56% of respondents reported believing that pornography should be illegal for those under 18, and 39% of respondents believed pornography should be illegal for all. One limitation of this variable is that an individual’s response to whether pornography should be illegal is an imperfect proxy for social acceptability of pornography. When respondents state they feel pornography should be illegal it is quite possible they may not actually want viewing pornography to be a criminal offense but rather they might be expressing a desire that pornography did not exist or that it was not pervasive or readily accessible. In addition, changes in the general content and location of pornography may change the general social acceptability of pornography over time. Despite the limitations, however, observing trends in attitudes about the legality of pornography does increase our understanding about how opinions about pornography have changed over time.

Using these data we begin by observing raw data and the differences between ages and cohorts in their consumption of pornography as well as views concerning its legality. The primary goal of this article was to disentangle which portion of the differences in pornography consumption and attitudes between older and younger generations can be attributed to age effects, compared to period and cohort effects. When data are available only at a single point in time—which is common for data about pornography consumption—it is impossible to discern whether large differences by age are driven by actual age differences or differences across different birth cohorts. We divide our data by age groups and time periods to make such comparisons.

To provide some insight concerning these differences by age and time period we ran statistical tests using age groups 18 to 26 and 45 to 53 and two time periods (1973 to 1980 and 1999 to 2007). We chose these two age groups and time periods because the 18- to 26-year-old age group in 1973 to 1980 represents the same birth cohort as the respondents who were 45 to 53 in 1999

to 2007. We also chose these groups because they set up the type of generational comparison that is most similar to the comparison used by Carroll and colleagues (2008) between college-aged students and their parents. We estimated two-tailed *t* tests of pornography use and legality views between age groups and birth cohorts.

While instructive, these generational comparisons did not allow us to separate whether these cohort differences arise from changes in individual behavior as people age or because of changes over time in society. The primary challenge in separating the effects of age, period, and cohort on behavioral trends is the linear dependence of each of these effects (because period minus age is equal to cohort). This linear dependency makes standard regression analysis infeasible (Fienberg, 1979). Models with additional constraints must be used to separately identify age, period, and cohort effects in repeated cross-sectional data. Although various age-period-cohort (APC) models have been designed to disentangle age period and cohort effects (Fienberg & Mason, 1985; O'Brien, 2000), we used a method developed by Yang, Fu, and Land (2004) called the intrinsic estimator.<sup>1</sup>

The intrinsic estimator is a special form of the principle components regression model that utilizes the structure of the data to orthogonally transform age, period, and cohorts into linearly uncorrelated variables (Yang, 2008). This approach is particularly attractive because it provides consistent estimates that are more efficient and require less restrictive constraints than estimation techniques like constrained general linear estimation (Yang et al., 2004; Yang, Schulhofer-Wohl, Fu, & Land, 2008). For example, other approaches to estimating age-period-cohort effects often require researchers to impose constraints on their model, such as constant-age effects. Another advantage of the intrinsic estimator approach is that the coefficients of the model can be interpreted in a similar fashion as the marginal effects or odds ratio of a logistic regression (Hoffman, 2013).

## Results

We begin with descriptive information about differences in pornography usage patterns and attitudes by age, gender, and time period. In Table 1, we present the fraction of individuals who reported having watched an X-rated movie in the past year (Panel A) and the fraction of respondents who felt pornography should be illegal for everyone (Panel B).

Moving across rows in Table 1 illustrates how pornography consumption and opinions have changed over time for each age group. Moving across the row of 18- to 26-year-old men in Panel A reveals a steady increase in the share of men who report using pornography, from 45% in the 1970s to over 61% since 1999. The change over time is smaller for the older age groups. Women follow a somewhat similar pattern, though with much smaller changes—and even a decline in porn use among older women since the 1990s. Among women ages 18 to 26, the fraction who report using pornography increased, but only from 28% in the 1970s to 36% since 2008; while women ages 45 to 53 decreased from 16% in the 1980s and 1990s to 10% since 1999.

Comparing the results down the rows in each column of Table 1 illustrates the degree to which pornography consumption and attitudes vary by age at a point in time. In Panel A, in every time period for both men and women, pornography consumption steadily decreases with age, and this relationship does not appear to have weakened over time. In the 1970s, young adult men (ages 18 to 26) were more than twice as likely to report using pornography as men ages 45 to 53, and the size of this age gap was roughly the same for each of the three subsequent decades. For women, the overall levels of reported pornography consumption are lower than men, but the differences across the age groups are similarly large across each of the time periods. However, it is interesting that in the 1980s and 1990s, women ages 18 to 26 were twice as likely to use pornography as women ages 45 to 53, while this gap has increased to more than three times as likely since 1999.

In Table 1, we have divided both our age groups and time periods into nine-year intervals to allow us to roughly compare changes in pornography consumption among specific birth cohorts over time. For example, the main diagonal going down and rightward represents the changes over time in the patterns for respondents who were 18 to 26 in 1972 to 1980. We see that, as this cohort ages, the fraction of respondents who report having seen an X-rated movie in the past year drops from 45% to 22% for men and from 28% to 7% for women. By comparing the other downward diagonals in Panel A of Table 1 we find that for all cohorts there is a steady decrease in reported pornography use rates. These changes over time represent both the effects of the cohort becoming older as well as any societal changes that affect all age groups over time. The intrinsic estimator approach we use later in this section allows us to separately identify the magnitude of these two effects.

In Panel B of Table 1, we provide results for the question of whether pornography should be illegal for everyone. Although reported pornography use rates among young adults has steadily increased over the past three decades, attitudes about pornography among this group have experienced a more jagged pattern, with antipathy to pornography rising during the 1980s and 1990s and

<sup>1</sup>The intrinsic estimator has been used recently in several similar applications, such as using the GSS to examine APC trends in religious activity (Schwadel, 2011), social capital (Schwadel and Stout, 2012), adult mortality rates (Yang, 2008), and confidence in religious leaders (Hoffman, 2013).

**Table 1.** *Changes in Pornography Consumption and Attitudes Over Time*

Age	Years				
	1973–1980	1981–1989	1990–1998	1999–2007	2008–2012
<i>A. Percentage of individuals who have seen an X-rated movie in the past year</i>					
Men					
18–26	44.9%	50.0%	51.8%	61.1%	61.5%
27–35	32.5%	40.5%	42.1%	45.5%	54.4%
36–44	24.3%	36.4%	34.4%	34.5%	43.8%
45–53	20.6%	28.6%	26.8%	26.9%	34.1%
54–62	13.6%	16.6%	21.1%	25.0%	22.5%
Women					
18–26	28.0%	31.0%	29.2%	36.1%	35.7%
27–35	20.1%	28.2%	24.7%	25.0%	30.3%
36–44	13.6%	25.4%	19.4%	16.1%	17.7%
45–53	11.2%	15.9%	16.3%	10.5%	10.4%
54–62	6.5%	9.3%	8.6%	10.4%	7.2%
<i>B. Percentage of respondents that feel pornography should be illegal</i>					
Men					
18–26	11.2%	16.0%	14.7%	13.6%	11.2%
27–35	17.6%	18.8%	17.9%	19.3%	14.2%
36–44	32.3%	21.2%	22.4%	21.6%	18.2%
45–53	40.9%	34.9%	27.6%	24.1%	20.3%
54–62	46.2%	44.9%	33.6%	28.9%	28.2%
Women					
18–26	27.1%	30.1%	30.3%	24.3%	24.4%
27–35	33.1%	37.1%	34.7%	34.5%	27.2%
36–44	48.2%	40.1%	40.1%	42.5%	36.2%
45–53	56.0%	59.3%	49.6%	46.6%	38.9%
54–62	61.8%	65.2%	57.7%	58.7%	48.3%

*Note.* The age and year groupings were chosen so the downward diagonals all represent the same birth cohorts.

then declining during the early 2000s, returning to 1970s levels. Among older adults, the patterns are less jagged, exhibiting a general decline in the fraction of individuals who believe that pornography should be illegal. This is particularly true among the adults in our sample ages 45 to 53, whose affirmative responses to this statement dropped relatively steadily from 41% to 20% for men and from 56% to 39% for women.

When we compare the pornography attitudes of different age groups by moving down the rows, we find significant gaps between the attitudes of older and younger respondents, but these age gaps have diminished over time. In addition, when we compare results down each of the diagonals, we find that each birth cohort adopts

increasingly strict attitudes against pornography, with a few exceptions, such as when cohorts move from the 36 to 44 age range to the 45 to 53 range, though we can't separate the degree to which this is driven by an age effect or a change over time.

Table 2 shows results from *t* tests for the differences in pornography use and attitudes toward pornography between age groups and birth cohorts. The results in this table demonstrate that comparisons made at a single point in time exaggerate generational differences because of the large role that age plays in pornography consumption. When we used the later years of data (1999–2007), we found that younger adults were more than twice as likely to report using pornography as the

**Table 2.** *Statistical Test of the Differences by Age and Time Period for Pornography Consumption and Attitudes*

Age	Watched X-Rated Movie			Pornography Should Be Illegal		
	1973–1980	1999–2007	<i>p</i> Value	1973–1980	1999–2007	<i>p</i> Value
Men						
18–26	44.9%	61.1%	<0.001	11.2%	13.6%	0.277
45–53	20.6%	26.9%	0.030	40.9%	24.1%	<0.001
<i>p</i> value	<0.001	<0.001		<0.001	<0.001	
Women						
18–26	28.0%	36.1%	0.004	27.1%	24.3%	0.312
45–53	11.2%	10.5%	0.710	56.0%	46.6%	0.002
<i>p</i> value	<0.001	<0.001		<0.001	<0.001	

older adults in the sample (61% versus 27%), and this difference was statistically significant ( $p < 0.001$ ). However, if instead we compare the current rates of pornography consumption among young adults to the rates of their parents' generation when that generation was the same age, we find that the gap between the two generations' consumption is over 50% smaller than the estimated gap found by simply comparing across generations using data at a single point in time. Nonetheless, this more appropriate generational comparison is still statistically significant at the 1% level and represents a rather substantial change over time, with an increase in pornography consumption of 16 percentage points between young men in the 1970s and young men in the 2000s (a 36% increase), and an increase of 8 percentage points between young women in the 1970s and young women in the 2000s (a 29% increase).

When we look at changes in attitudes toward pornography, we find that making generational comparisons based on measures at a single point in time leads to an even larger difference in the comparison than for the measures of pornography consumption. For both men and women, comparing different age groups at a single point in time would indicate that the older generation (ages 45 to 53) is nearly twice as likely to report that pornography should be illegal for everyone. However, when we compare the two generations when they are both ages 18 to 26, we find no statistically significant change in their attitudes toward pornography, and this is true for both men and women. Comparing those who were 18 to 26 in 1973 to 1980 to those who were 45 to 53 in 1997 to 2007 approximates an age effect.

When we do so, we find that both sets of men were significantly less likely to have watched an X-rated movie in the past year ( $p$  value  $< 0.001$  for both) and were significantly more likely to believe porn should be illegal ( $p$  value  $< 0.001$  for both).

We provide estimates of age, period, and cohort effects obtained using the intrinsic estimator approach in Table 3. Each of the intrinsic estimator coefficients can be interpreted as deviations of the group from the population mean, and we have estimated the model so that coefficients are reported in a way similar to the marginal effects of a logistic regression. For example, the coefficient in the upper left corner of Table 3 indicates that 18- to 26-year-old men are 15.2 percentage points more likely to have seen an X-rated movie in the past year than the average male in our sample.

The results from the intrinsic estimator approach indicate large and significant age effects for both men and women, with age decreasing pornography consumption and increasing the likelihood that the individual believes that pornography should be illegal. This is precisely what we would expect and corroborates nicely with the age correlate coefficients in Wright's work (Wright 2013; Wright et al., 2013). The magnitudes of the coefficients indicate that men ages 18 to 26 are about 29 percentage points more likely to have seen an X-rated movie in the past year than men ages 54 to 62. The same age gap for women is about 20 percentage points. In contrast, the numbers are almost exactly flipped across men and women in terms of the age gap for attitudes about whether pornography should be illegal, with an age gap of 28 percentage points for women

**Table 3.** *Estimates of Age, Cohort, and Period Effects Using the Intrinsic Estimator*

	X-Rated Movie		Pornography Should Be Illegal	
	Male	Female	Male	Female
<b>Age</b>				
18–26	0.152*** (0.009)	0.103*** (0.007)	-0.111*** (0.008)	-0.140*** (0.008)
27–35	0.058*** (0.008)	0.052*** (0.006)	-0.051*** (0.007)	-0.070*** (0.007)
36–44	-0.004 (0.008)	-0.000 (0.006)	0.005 (0.008)	-0.006 (0.008)
45–53	-0.067*** (0.009)	-0.052*** (0.007)	0.057*** (0.008)	0.075*** (0.008)
54–62	-0.139*** (0.010)	-0.103*** (0.007)	0.101*** (0.009)	0.141*** (0.009)
<b>Cohort</b>				
1954–1962	-0.022** (0.010)	-0.016** (0.008)	-0.051*** (0.009)	-0.031*** (0.009)
1963–1971	-0.013 (0.011)	-0.029*** (0.008)	-0.032*** (0.010)	-0.023** (0.010)
1972–1980	0.016 (0.013)	-0.012 (0.010)	-0.008 (0.011)	-0.006 (0.012)
1981–1989	0.081*** (0.015)	0.063*** (0.011)	-0.001 (0.013)	-0.041*** (0.014)
1990–1994	0.053* (0.031)	0.066*** (0.023)	0.026 (0.028)	0.017 (0.028)
<b>Period</b>				
1973–1980	-0.066*** (0.008)	-0.028*** (0.006)	0.035*** (0.007)	0.011 (0.007)
1981–1989	0.006 (0.008)	0.040*** (0.006)	0.031*** (0.008)	0.034*** (0.008)
1990–1998	0.002 (0.008)	0.012* (0.006)	0.007 (0.007)	0.008 (0.008)
1999–2007	0.011 (0.009)	-0.009 (0.007)	-0.012 (0.008)	0.009 (0.008)
2008–2012	0.046*** (0.011)	-0.015* (0.009)	-0.061*** (0.010)	-0.063*** (0.011)
<i>N</i>	14,971	19,181	14,825	19,025

*Note.* Standard errors are in parentheses. Birth cohorts prior to 1954 are included in the analysis but not reported in the table. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels respectively.

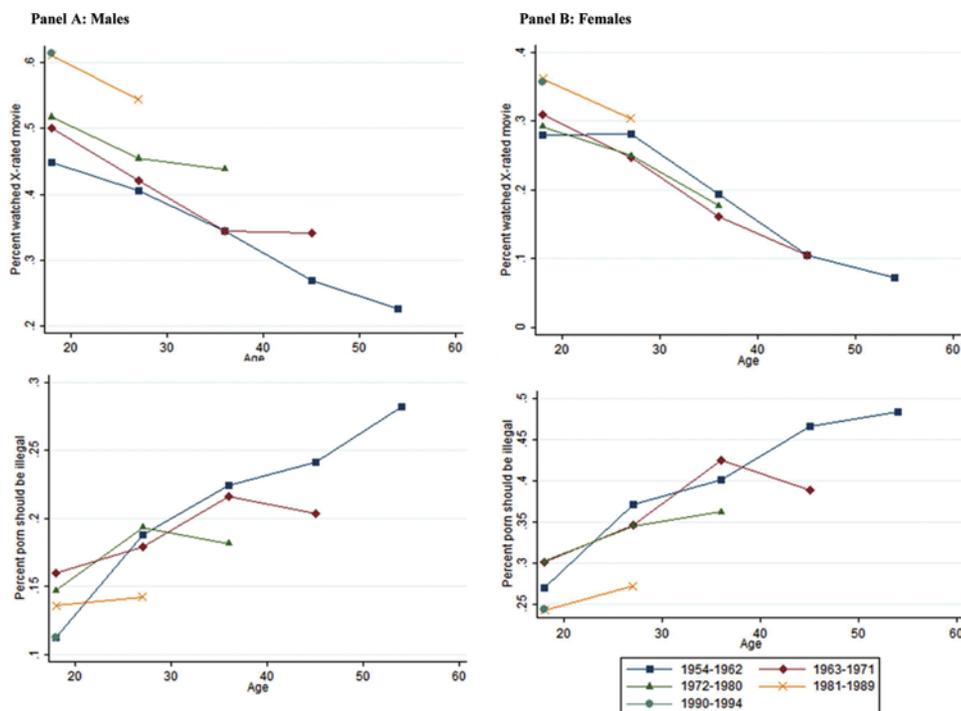


Figure 1. Average porn use and porn attitudes by cohort-age.

and 20 percentage points for men. These age gaps are sufficiently large that any inference based solely on data at a single point in time is likely to have very biased estimates of the generational differences.

In the second group of results in Table 3, we find that, for both men and women, there is a sizable, positive cohort effect on porn consumption, beginning with the 1972 cohort and then taking a big jump starting with the 1981 cohort. Figure 1 helps illustrate this point, as well as the differences across cohorts in porn consumption and attitudes. In the consumption graphs for both men and women, the 1981 cohort—the first cohort to experience the Internet as adolescents—displays the largest increase in consumption when compared with the previous cohort. In contrast, there was almost no change in consumption levels of young adults between the 1981 and 1990 cohorts. One observation of note is that consumption steadily declines in each cohort as they grow older, but from the 1999–2007 period to the 2008–2012 period, the 1972 and 1963 male cohorts show only a very small decline in their pornography usage, which demonstrates that, since 1999, porn consumption by these two cohorts has remained relatively constant.

Looking at cohort effects on attitudes about whether pornography should be illegal, we find that, since the 1945–1953 cohort, the male cohort effect steadily increases for each succeeding cohort, indicating that each succeeding generation of men takes a slightly more conservative stance than the cohort immediately prior. For women, the cohort coefficients since 1945 have remained nearly identical, showing effectively no cohort

effect, with the exception of a dip down in the 1980s, which shows relatively more lenient attitudes toward pornography among women born during that time. However, when comparing these intrinsic estimator results with the raw averages, there seem to be a few discrepancies. As shown in Figure 1, the 1981 and 1990 cohorts for both men and women exhibit the most lenient attitudes toward pornography on average, so it is unclear why for males, with cohorts beginning in the year 1945, intrinsic estimator results show a steady increase in the cohort effect on the view that pornography should be illegal.

## Discussion

It is common for the public to expect various behaviors among young adults today to differ greatly from those of the young adults of the past. Part of the reason this occurs is that individuals' recollection about past behavior is influenced by their current behavior (Collins, Graham, Hansen, & Johnson, 1985). We present one example in which attempts to document generational differences are confounded by large changes in individual behavior with age and significant changes over time in the behavior of all age groups.

We found that any comparisons of generational differences in pornography consumption and attitudes using data from a single point in time are likely to overestimate generational differences. These generational differences in pornography consumption are largely driven by both age and cohort effects, with a sizable jump in

this measure of at least once-a-year consumption beginning with cohorts in the 1980s, but still only a modest rise. Interestingly, we found evidence that—at least in males—younger generations take a more strict view on whether pornography should be legal when compared with earlier cohorts, the opposite of what would be found based on data gathered at a single point in time.

More recent generations may not have actually become stricter in their attitudes toward pornography. Rather, a more sensible interpretation holds that more recent generations perceive pornography as more explicit and hard-core than the softer forms of pornography to which earlier generations were more apt to be exposed (Paul, 2005). Moreover, as use rates increase among more recent cohorts, it should be expected that attitudes will change in step, even if some users have misgivings about their own porn use.

In terms of overall changes in pornography use over time, our results match those of recent work by Wright (2013). Though these changes are likely much smaller than what might be expected, we find that a large share of this increase in pornography consumption is due to increases concentrated in the most recent cohorts, especially cohorts beginning in the 1980s. There is about a 10% increase in porn use between these cohorts and the 1972 cohort for men, and about a 7% increase in porn use between the same cohorts for women. While it may be true that these increases are substantially smaller than people might expect, they represent the largest jump in porn use between any of the cohorts in our data.

The best explanation for this jump is the advent of the Internet. Children born from the 1980s onward are the first to grow up in a world where they have access to the Internet beginning in their teenage years, and this early exposure and access to Internet pornography may be the primary driver of this gap. Additional evidence that the Internet is a major factor in the increase in porn use is that, since 1999 (the past 15 years), consumption among the 1972 and 1961 male cohorts has stayed at about the same levels. This finding provides a counterexample to the general trend that as cohorts get older, they view less pornography, and the most likely reason for this exception is that, since about 15 years ago, most adults have had access to Internet pornography.

While our analysis provides a relatively rich view of generational patterns in pornography attitudes, it does have some limitations. Although the measure of pornography use that we used in this article, having viewed an X-rated movie, has the advantage of being externally defined and relatively portable across a set of technological changes, the measure is not always optimal. With the advent of the Internet, what actually constitutes a “movie” or even “X-rated” may have changed. It is quite possible that many young adults think of a movie as a full-length feature film and thus would not answer yes to the X-rated movie question, even if they are actually viewing short pornographic video clips online.

Moreover, the term “X-rated” is infrequently used today, in comparison with “porn” or “pornographic.” Although we used data from the few years in which the GSS included questions about whether the respondent had visited a pornographic Web site to provide some evidence to allay some of these concerns, it is still quite possible that the measure we used is an undercount of the true changes over time. Unfortunately, a measure of pornographic consumption that improves validity may come at the cost of reliability and comparability over time, impairing the ability to examine age and cohort effects as we have here. Thus, even with the limitations of this particular measure, it provides one of the few opportunities to examine a long-run view of changes in pornography consumption over time.

Another caveat to the results that we presented in this article is that we have focused exclusively on the fraction of individuals who report a certain level of pornography consumption, with no attempt to document changes in the nature or frequency of pornography consumption. Our data does not allow us to document whether the amount of time people spend using pornography or whether the prevalence of compulsive pornography use has increased over time. In this way, a measure of usage “in the past year” is not a substitute for actual average usage time. Past research on other young adult behaviors, such as sex, drug use, or cohabitation, has examined both the fraction of individuals who participate in such activities as well as the frequency and nature of the participation. It is likely that as more detailed data about pornography consumption become available to researchers, social scientists will be able to examine how these other measures of pornography consumption change over time as well.

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Appendix

**Table A1.** Comparison of Different Types of Pornography Consumption (2000–2004)

Type of Pornography Consumption	Men		Women	
	All Adults	Young Adults	All Adults	Young Adults
None during past year	55.5%	32.7%	77.1%	61.5%
Includes both Internet porn and X-rated movies	17.4%	28.6%	3.2%	5.1%
Includes X-rated movies but not Internet porn	19.0%	30.6%	17.8%	33.3%
Includes Internet porn but not X-rated movies	8.1%	8.2%	1.9%	0.0%
N	310	49	314	39

*Notes.* The sample is restricted to those respondents who were asked both pornography questions. The X-rated movie question is about having viewed an X-rated movie in the past year and the Internet pornography question is about having visited a pornographic Web site in the past month. The Internet pornography questions were included in the General Social Survey only between 2000 and 2004.