I Z A Institute of Labor Economics

Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 17191

Looks and Gaming: Who and Why?

Andy Chung
Daniel S. Hamermesh
Carl Singleton
Zhengxin Wang
Junsen Zhang

JULY 2024

DISCUSSION PAPER SERIES

IZA DP No. 17191

Looks and Gaming: Who and Why?

Andy Chung
University of Reading

Daniel S. Hamermesh
University of Texas at Austin, IZA and NBER

Carl Singleton
University of Stirling and IZA

Zhengxin Wang
Zhejiang University of Finance and Economics

Junsen Zhang
Zhejiang University, The Chinese University of Hong Kong and IZA

JULY 2024

ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Looks and Gaming: Who and Why?*

We investigate the relationship between physical attractiveness and the time people devote to video/computer gaming. Average American teenagers spend 2.6% of their waking hours gaming, while for adults this figure is 2.7%. Using the American Add Health Study, we show that adults who are better-looking have more close friends. Arguably, gaming is costlier for them, and they thus engage in less of it. Physically attractive teens are less likely to engage in gaming at all, whereas unattractive teens who do game spend more time each week on it than other gamers. Attractive adults are also less likely than others to spend any time gaming; and if they do, they spend less time on it than less attractive adults. Using the longitudinal nature of the Add Health Study, we find supportive evidence that these relationships are causal for adults: good looks decrease gaming time, not vice-versa.

JEL Classification: J22, L82, L86

Keywords: physical attractiveness, beauty, time allocation, social activity, teenage behavior

Corresponding author:
Carl Singleton
Economics Division
Stirling Management School
University of Stirling
Stirling FK9 4LA
Great Britain

E-mail: carl.singleton@stir.ac.uk

* We are grateful for helpful comments from Sarah Jewell, Simonetta Longhi, Samantha Rawlings, Rachel Scarfe, Dominik Schreyer, and Paul Telemo.

1. Introduction and motivation

Within just three days in 2023, Nintendo sold 10 million copies of *The Legend of Zelda: Tears of the Kingdom* (BBC News, 2023; Tassi, 2023). Some reviews of this popular new game belabored the point that today's gamers are not only teenage boys but also adult men and women, who likely became *Zelda* fans and gamers during their formative years.[1] As today's adults have grown up with a series like *Zelda*, it has become increasingly relevant to investigate the determinants of who becomes and remains a video-gamer.[2] Despite the ubiquity and popularity of gaming as a leisure activity, several stereotypes persist about the average gamer. For instance, the sociology literature consistently documents that being physically unattractive is ascribed to gamers as a norm (e.g., Kowert et al., 2012; Stone, 2019).

In the economics literature, early studies on video-gaming have predominantly centered on its impact on crime or violent behavior (Ward 2010, 2011; Cunningham, et al., 2016). Taking a different approach, Aguiar et al. (2021) fit the choice to game within a standard theoretical framework that features trade-offs, both contemporaneous and dynamic, among labor supply, gaming, and other leisure or productive activities. Departing from previous research, we explore the influence of an overlooked

---

[1] *Tears of the Kingdom* is surely not the only modern game that appeals to different age groups and genders. As many as four in ten people worldwide were video gamers in 2022 (*The Economist*, 2023). An estimated 212 million people were gamers in the United States that year, with 48% being female and only 24% below age 18 (Clement, 2022-23). In the U.K., 55% and 56% of adult men and women, respectively, play some form of video games (Clement, 2022-23).

[2] We do not distinguish video games from computer games. Gaming, video-gaming and computer-gaming are used interchangeably throughout. We acknowledge the growing trend of mobile gaming (Mackenzie 2022); however, this study focuses on video gaming due to data limitations.

factor—physical attractiveness (or “looks”)— on individuals' time spent playing video games during their teen years and adulthood. To our knowledge, this is the first study examining how personal attributes influence gaming behavior.

Economic research has examined the influence of beauty beyond conventional labor market outcomes.[3] For instance, Hamermesh & Parker (2005) found positive effects of a university instructor’s beauty on their course evaluations. Babin et al. (2020) identified positive beauty effects on college face-to-face teaching evaluations for female teachers. Also in the classroom, Mehic (2022) found that better-looking students receive higher grades during in-person education. Sheehan & Hamermesh (2024) found that individuals, especially women, rated as the least attractive tend to have shorter lifespans.

Other studies have investigated the effects of beauty on risky behavior. Using the National Longitudinal Study of Adolescent Health (Add Health), Mocan & Tekin (2010) documented negative impacts on criminal behavior. Green et al. (2023) also found evidence within the same dataset that physical attractiveness affects risky behavior during the teen years. Using these same data, Chung & Zhang (2024) documented a significant difference by gender in the effects of beauty on drug-taking, with the negative relationship weaker among females.

Especially relevant to our research, some recent studies found that better-looking people have an advantage in social networks (e.g., O’Connor & Gladstone, 2018). For instance, using a school-based

[3] Many studies have documented a positive labor-market effect of beauty (Hamermesh & Biddle 1994; Deryugina & Shurchkov 2015; Scholz & Sicinski 2015; Stinebrickner et al., 2019).

survey conducted in China, Zhai et al. (2022) found that children with a more attractive physical appearance are more popular in their friendship groups.

Building upon this literature, we propose a simple economic hypothesis. Video gaming is generally a stay-at-home leisure activity, frequently carried out alone in single-player mode. Even in a multiplayer mode, interactions are predominantly mediated through online platforms, allowing players to assume virtual identities. Video-gaming involves very few, if any, face-to-face interactions. Given that physical attractiveness confers advantages in face-to-face interactions within social or leisure activities, individuals deemed more physically attractive will face a higher opportunity cost of engaging in video-gaming. Consequently, we hypothesize a negative relationship between beauty and gaming time, suggesting that individuals considered more attractive are likely to spend less time gaming. In other words, good-looking gamers will be relatively scarce because of the higher cost of gaming that they face.

We test this hypothesis first using teenagers from Wave I of the Add Health dataset. Our analysis reveals supportive evidence that is robust to a variety of alternative specifications of the measure of beauty and to different sets of covariates. However, the evidence holds only for the extensive margin of time spent gaming among teens. We then examine the same hypothesis among adults and observe that those deemed more physically attractive are less likely to spend time gaming, and if they do game, they dedicate less time to it.

We also explore whether the estimated relationships between gaming and beauty can be interpreted causally. One concern might be that gaming affects beauty rather than the other way around, if, for instance, gaming time replaces activities that can bolster physical attractiveness, such as grooming and regular exercise. We exploit the longitudinal dimension of the Add Health study and find that our estimates of beauty's effect on gaming time are robust to accounting for these concerns.

The remainder of the paper proceeds as follows: Section 2 introduces the Add Health dataset and how we estimate the relationship between beauty and video-gaming among teenagers and among adults. Section 3 presents and discusses the baseline results for teens; Section 4 presents the results for adults; Section 5 examines robustness tests and the causal interpretation of beauty's effect on gaming; and Section 6 concludes.

2. Data and empirical specification

To investigate the impact of beauty on time spent video gaming, we employed the public-use sample of the Add Health study, a widely used longitudinal American dataset (UNC Carolina Population Center. n.d.). Add Health comprises a representative sample of American adolescents spanning grades 7 through 12 (generally ages 12-18) during the 1994-95 school year, with four follow-up waves, the most recent collected between 2016 and 2018.

We focus on Wave I to examine teenage behavior and Wave IV, conducted in 2008, when respondents had reached adulthood (generally ages 26-32). In each wave, at the end of each interview, the field interviewer rated the physical attractiveness of the respondent according to the following question:[4]

How physically attractive is the respondent? with the following options: 1. "very unattractive", 2. "unattractive", 3. "about average", 4. "attractive", and 5. "very attractive".[5]

The distributions of interviewers' responses for the male and female teenage Add Health study members are depicted in Figures 1a and 1b. Following a pattern observed in previous studies (Mocan & Tekin, 2010; Stinebrickner et al., 2019), females have a slightly higher average attractiveness score and standard deviation than males. The sample exhibits sparse responses for the "very unattractive" and "unattractive" options. We combine these responses into one category, constructing a 0-1 indicator "unattractive or very unattractive" (or "bad looks"). Similarly, we define another 0-1 indicator, "attractive or very attractive" (or "good looks"), based on the responses of "very attractive" or "attractive". Table 1 provides summary statistics for these two variables. Figure 2 shows the equivalent distributions of physical attractiveness scores for the Add Health study members who went on to be interviewed in Wave IV. These distributions are similar to those observed among the teenagers.[6]

Since our hypothesis stems from the notion of a beauty advantage in social networking, as already

---

[4] We refrain from using data from Wave V, collected between 2016 and 2018, as it lacks pertinent information regarding the physical attractiveness of the respondents.

[5] One might be concerned that interviewers' ratings have been affected by the interviewee's responses during a face-to-face interview. In the German ALLBUS surveys (see Hamermesh & Abrevaya, 2013), in which interviewers rated subjects' looks at both the start and end of the interview, there is an extremely high correlation between the two ratings, one that is unaffected by any of the observables in the survey.

[6] For example, Sheehan & Hamermesh (2024), Appendix Table A2) demonstrated the very strong correlation of beauty ratings across waves in the Add Health dataset.

described in the existing sociological literature, we examine the presence of this advantage among the Add Health study members, using responses to the following question asked of adults:

How many close friends do you have? (Close friends include people whom you feel at ease with, can talk to about private matters, and can call on for help.) with categories as: 1. “none”, 2. “1 or 2 friends”, 3. “3 to 5 friends”, 4. “6 to 9 friends”, and 5. “10 or more friends”. (Regrettably this question was not asked of teenagers.)

The summary statistics in Table 1 show that “3 to 5 close friends” is both the median and the modal response to the question, although 13% of the respondents say that they have 10 or more close friends. The response “no close friends” is rare, at 3%. First, we regress an indicator of “no close friends” on the two indicators of perceived physical attractiveness, with the results presented in the first three columns of Table 2. The estimated effects on the number of close friendships for being among the 44% of adult respondents deemed “attractive or very attractive” are consistently negative and significant, at least at the 5% level, compared, to the 48% of respondents with average looks. There is no significant evidence that being among the 8% of adults rated as “unattractive or very unattractive” increases the chances of having no close friends, compared to being “about average” in looks, although the coefficient estimate is positive as expected.

In Columns (4)-(6) of Table 2 we report OLS estimates describing the relationship between the number of close friends claimed and the two beauty indicators, with the dependent variable taking the midpoints of each classification as its values, and with the top-coded classification set equal to 12.[7] Physically attractive/very attractive adults have about 0.4 more close friends (on a mean of 4.9) than those who are of average attractiveness. Conversely, the small fraction of those whose looks are rated unattractive/very unattractive claims about 0.7 fewer close friends than those with average attractiveness. The gap in the average number of close friends between the good- and the bad-looking is thus 22% of the overall mean. Taken together, these findings imply that individuals perceived as physically attractive are more likely to have more close friends, which aligns with the documented beauty advantage in the social networking literature and provides the basis for our economic hypothesis on the impact of looks on gaming time.[8]

To test our central hypothesis, we consider the time spent video gaming based on the interviewees' responses to the following question:[9]

In the past seven days, how many hours did you spend playing video or computer games, or using a computer? Do not count internet use for work or school.

As the descriptive statistics in Table 1 show, slightly more than half of teens engaged in gaming

---

7 The appropriate ordered probit yields qualitatively similar results to those shown in Table 2. Indeed, the ordered probits yield implicit movements between the cut points that match very well the linear estimates.

8 If we replace the indicators of attractiveness as an adult with those as teenagers, then the results of these regressions are similar. The results are available upon request from the corresponding author.

9 Data from the American Time Use Survey (ATUS) show that the average daily hours spent on playing games and leisure computer use by individuals aged 25-34 is 0.4 hours, equivalent to 2.8 hours per week in 2008 (U.S. Bureau of Labor Statistics, n.d.). This figure aligns with our sample average of 3.02 hours per week (0.393 x 7.689).

in 1994/5, with teen gamers spending on average 5 hours per week in the activity. The incidence of gaming was lower in adulthood in 2008; however, among the 40% of adults who did game a higher fraction of time was spent doing this, 7.5 hours per week (nearly 7 percent of their normal waking hours). Figures 3a and 3b show histograms of time spent gaming by gender among the Add Health study teenagers, while Figures 4a and 4b show similar distributions among adults. The means and variances are lower among girls and women than among boys and men. Figure 3a and, especially, Figure 4a show that there are small minorities of extreme male gamers.

Because of the large concentrations at zero in all four distributions of the time spent gaming in Figures 3 and 4, we examine the determinants of the extensive and intensive margins of gaming time separately. In models describing the extensive margin, we estimate the relationship between physical attractiveness and whether the teen (adult) games at all; in those describing the intensive margin, we estimate the relationship between looks and gaming time among gamers. All the estimates in the next two sections are based on variants of the following linear regression model:

$$G_i = \alpha + \beta_1 A_i + \beta_2 U_i + \boldsymbol{\theta} \boldsymbol{X}_i + \gamma_{v(i)} + \varepsilon_i \qquad (1)$$

where G_i measures gaming activity (either whether any gaming is done, or the number of hours per week if any, as a teenager or an adult). A_i and U_i are the beauty indicators, "attractive or very attractive" and "unattractive or very unattractive". $\boldsymbol{X}_i$ is a set of control variables, including biological sex, born in the U.S., age, birth weight, racial/ethnic category, and (among adults) indicators of educational attainment, with the row vector of coefficients $\boldsymbol{\theta}$. Descriptive statistics (not presented in the Table) indicate that our estimation sample is generally representative of the Add Health dataset and thus of the U.S. population in their age cohorts. In any case, we use the Add Health cross-sectional sampling weights in all the within wave calculations and model estimations, as well as the longitudinal weights later when looking at individuals across the teenage and adult waves.

The parameters of interest in (1), β_1 and β_2, represent either the average effects on the probability of gaming or the conditional number of hours spent gaming compared to people whose looks are "about average." Similar to other studies (e.g., Hamermesh & Biddle, 1994; Green et al., 2023; Sheehan & Hamermesh, 2024), tests of our hypothesis do not impose symmetric effects of being good- or bad-looking. Broadly speaking, our hypothesis implies testing that $\beta_1 < 0$, and/or $\beta_2 > 0$. We also test for the symmetry of the estimated effects by examining the restriction $\beta_1 + \beta_2 = 0$.

In all our model estimates, we adjust for interviewer-specific fixed effects, $\gamma_{v(i)}$, to account for the possibility that some interviewers are more generous than others in their ratings of the Add Health respondents' looks. To the extent that their relative leniency/harshness is correlated with the incidence or extent of gaming time, adding these fixed effects obviates this potential source of bias in the estimates of β_1 and β_2. We also estimate standard errors that are robust to interviewer-level clusters, which for the teenage model is approximately equivalent to school-level clustering, given the design of the Add Health study.

3. Beauty and teen gaming

Table 3 presents the linear probability model estimates of Equation (1) for the determinants of the incidence of teen gaming. In Column (1), we regress the indicator of whether a teen games on the two indicators of looks and the gender indicator. Consistent with our hypothesis, the estimated coefficient for being "attractive or very attractive as a teen" is negative and statistically significant at the 10% level, while the coefficient for "unattractive or very unattractive as a teen" is negative but essentially zero statistically. The estimated coefficient for female is negative and significant at the 1% level. The effects of looks are not negligible; for example, the difference in the incidence of gaming between attractive and unattractive teens is 2.9 percentage points, compared to a mean incidence of 54 percent.

In Column (2) of Table 3 we introduce additional controls, including whether the respondent was born in the U.S., age, and birth weight. Despite the inclusion of these variables, the results for the looks coefficients remain largely unchanged compared to the estimates without this set of covariates. Moving to Column (3), we add even more covariates, such as race/ethnicity. We also add indicators of a teen having difficulties in school, since a bad-looking teenager may be more likely to have been expelled, suspended or for some other reason not in school as much. Since a teenager who is present in school has less free time for gaming, the estimated effect of bad looks may be driven solely by absence from school rather than the hypothesized social network mechanism.[10] With these additional controls, the estimated effect of bad looks remains essentially zero, while the effect of good looks becomes slightly

[10] Of course, given the construction of the Add Health survey, essentially all the respondents in Wave I must be enrolled in school.

larger and more significant statistically. Despite the expanded set of controls, the coefficients on the beauty indicators and female change little from the previous estimates. In Column (3), which presents our best estimates, the difference in gaming incidence between the attractive and unattractive teens is 3.5 percentage points, a substantial fraction of the mean incidence. The null hypothesis of symmetric beauty effects cannot be rejected. Table 3 also shows that having troubles in school hardly affects the likelihood of being a teen gamer.

These results are exactly what we would expect from the motivating estimates presented in Table 2 (although those estimates are available only for adults). The latter show that being good-looking implies a substantial reduction in the probability of having no close friends and a significant increase in the number of close friends, compared to average- or bad-looking people. Arguably the differences demonstrated in Table 3 arise because the good-looking teens have more friends with whom to engage in other leisure activities.

Do the results on the relationship between beauty and the incidence of teen gaming carry over to the intensity of gaming among those teens who do game? Table 4 answers this question by regressing gamers' time spent gaming sequentially on the same variables included in Columns (1)-(3) of Table 3. None of the effects of beauty on gamers' time spent gaming is statistically significant. The point estimates, however, suggest that good-looking gamers, on average, spend about 0.5 fewer hours gaming per week compared to bad-looking gamers (on a mean conditional amount of time of 5.3 hours). While this difference is not statistically significant, the point estimates show that it is by no means small.

The controls for possible extra time available because a teen is one of the few who is not in school (due to behavioral problems) do not affect the intensity of gaming. Similarly, we cannot reject the hypothesis that the effects of being attractive or unattractive on conditional gaming time are symmetric. Finally, adding in the large vectors of controls does not greatly alter the point estimates of the effects of looks on gaming time among teen gamers.

Taken together, the estimates in Tables 3 and 4 show that beauty matters for gaming among teenagers. Indeed, when combining the estimates and ignoring the differences in the impacts of looks on the extensive and intensive margins (i.e., the unconditional hours spent gaming), the effect of bad looks on gaming time is positive and statistically significant compared to the reference group—average-looking teens. The breakdown into the two margins shows that this significant result arises mostly because good-looking teens appear to avoid gaming.

4. Beauty and adult gaming

We estimate Equation (1) for adults using similar specifications to those shown for teens in Tables 3 and 4. As Table 1 and Figures 3-4 showed, gaming is more concentrated among adults than it is among teenagers. We first estimate the effect of looks at the extensive margin (Table 5), then at the intensive margin (Table 6). The control variables are the same as for teens, except that for the Add Health respondents in Wave IV, whose age is 26-32, we also include measures of their educational attainment in the most comprehensive specifications. Since additional education is a good indicator of a greater value of time, including this vector provides a further dimension to testing for the importance of the opportunity cost of engaging in gaming.

Table 5 strongly supports our central hypothesis. As with teens, good-looking adults are less likely than others to game, while the few adults rated as bad-looking are more likely to engage in gaming (although not significantly more so than average-looking adults). The results are almost invariant to the inclusion of either of the expanded vectors of covariates. The effects of good- and bad-looks are approximately symmetric around those of the middle group. Moving from the bad-looking 8 percent of adults to the good-looking 44 percent reduces the likelihood of gaming by over 10 percentage points, which is about 26 percent of the average incidence. Educational attainment appears to make little difference in the likelihood of an adult gaming. Finally, women are much less likely than otherwise identical men to engage in gaming.

Table 6 shows that good-looking adults who do game spend significantly less time doing it than average-looking adults, whose gaming time is, albeit insignificantly, less than that of the small group of bad-looking adults. The effect of good looks is somewhat reduced when we include a vector of indicators of educational attainment, which is expected since the latter also proxy the value of the gamers' time. Nonetheless, the impact of good looks remains significantly negative. It is noteworthy that, while education had no effect on the incidence of gaming, the intensity of gaming generally decreases with education. This suggests that gaming among adults is a preference largely independent of the value of time that might be spent working, while gamers do consider the implicit value of the time they spend gaming.

As at the intensive margin, the impact of differences in looks on gaming hours is substantial. Compared to bad-looking adults, good-looking adults who game spend, on average, 2.05 hours fewer doing so per week, which represents 27 percent of the mean conditional gaming time. Also as at the extensive margin, those few women who do game spend significantly and substantially less time in the activity than do men.[11]

One might be concerned that those who spend more time gaming do so because they have fewer other opportunities, which themselves may be affected by their looks. Of course, all uses of time beyond gaming will be affected by the same variables, including beauty, that influence gaming time. Therefore, gaming time should be thought of as part of a complete system of demand equations, which includes those describing other uses of time, both market and non-market.

Despite this consideration, we re-estimated the models in Tables 5 and 6, adding measures of time spent in market work and the presence of children (to reflect the incentive to engage in additional household production). When we added these measures, the estimated effects of looks become slightly smaller in absolute value on the extensive margin but are essentially unchanged along the intensive margin. At both margins, work time has the expected negative effect, although these impacts are not

[11] Tobit estimation of the determinants of gaming at both margins yield the same inferences as do the LPM and OLS estimates reported in Tables 5 and 6. This is unsurprising, since the crucial variables—the measures of attractiveness, have effects in similar directions on both margins. The same inferences are drawn when we estimate teen gaming behavior using a tobit specification.

statistically significant. The presence of children, however, has strongly significant negative effects on gaming along both margins.

5. Robustness tests and reverse causality

a. Model specification

Our main results could be sensitive to the specification of physical attractiveness—specifically, dividing it into only three categories from the five available to the Add Health study interviewers. While there are too few respondents rated very unattractive, either as teens or adults, to allow a useful fivefold classification (see Figures 1 & 2), there are large numbers among the top group who are considered very attractive. To address this, we estimate models with different specifications of the indicators of physical attractiveness. All the estimates are comparable to our preferred specifications, which include all the covariates used in Columns (3) of Tables 3-6.

Appendix Table A1 presents the results of decomposing the indicator A into those who are very attractive and those who are rated as "only" attractive. Among both teens and adults, and along both the extensive and intensive margins, the Table A1 shows that the results in Tables 5 and 6 arise equally from the behavior of both the attractive and the very attractive. The distinction is greatest when we examine the intensive margin among teen gamers.

b. Gender heterogeneity

Another challenge is the possibility that the sizes and even the directions of the effects of physical attractiveness may depend on gender. While our hypothesis does not predict any gender difference in the effect of physical attractiveness on gaming, Tables 3-6 show that females are much less likely to game and, if they do, they spend much less time video-gaming. This is true among both teens and adults.

To examine whether the impacts of physical attractiveness differ by gender, we estimate the models based on the preferred specifications in Tables 3 and 4 separately for boys and girls. Appendix Table A2 shows the results for teens. It indicates that the effects of looks at the extensive margin exist mainly among boys, while the effects shown in Table 4 at the intensive margin also arise mainly from the behavior of teenage boys (not surprising, given the much greater incidence of gaming among boys). The stereotype of the nerdy male teenager holed away in his basement playing video games appears to be supported in the Add Health data, at least for the mid-1990s.

We can specify a similar disaggregation by gender among adults, re-estimating the models using the preferred specification (3) in Tables 5 and 6 separately for women and men. The results are shown in Appendix Table A3. At the extensive margin, the estimates for both men and women look similar to those based on the full sample. At the intensive margin, however, for both genders, while attractive gamers spend nearly significantly less time at it than average-looking gamers, the small samples of unattractive female gamers also do.

c. Reverse Causality

With the effect of looks at both margins being greater in adulthood, one might be concerned that what we have documented is explained by reverse causality—i.e., adult looks have been at least partly determined by the incidence and amount of gaming as a teenager. Specifically, excessive gamers, often labeled as "gaming nerds," might appear unattractive due to limited social interactions and the possible effects that the time spent gaming has had on their appearance. This argument hinges on the potential endogeneity of beauty. While we cannot simply dismiss the notion that gaming can affect physical attractiveness, we can use the longitudinal aspect of the Add Health study to explore its validity. If our results in the previous two sections were largely driven by the effect of time spent gaming on looks, rather than vice-versa, then we would anticipate that teenage gaming will predict lower adult physical attractiveness, conditional on teenage physical attractiveness. This could be especially the case if teenage gaming, conditional on teenage looks, also predicts persistent gaming into adulthood.

To explore the potential reverse causality of gaming on looks, we estimate variants of the following linear regression models:

$$G_{i,4} = \alpha + \rho G_{i,1} + \beta_1 A_{i,1} + \beta_2 U_{i,1} + \boldsymbol{\theta X}_{i,1} + \gamma_{v(i,1)} + \varepsilon_{i,4} \qquad (2)$$

$$B_{i,4} = \pi + \sigma G_{i,1} + \delta_1 A_{i,1} + \delta_2 U_{i,1} + \widetilde{\boldsymbol{\theta}}\boldsymbol{X}_{i,1} + \xi_{r(i,4)} + \varphi_{v(i,1)} + \nu_{i,4} \qquad (3)$$

where the subscript $\{i, 4\}$ indicates information about an Add Health respondent in Wave IV, as an adult, and $\{i, 1\}$ indicates information for that same respondent from Wave I, as a teenager. Equation (2) is similar to our main regression model, except that it specifically regresses the measure of gaming in adulthood at Wave IV of Add Health, $G_{i,4}$, on the equivalent measure when the individual was a teenager at Wave I, $G_{i,1}$, with ρ thus estimating the persistence of gaming conditional on the looks of the person recorded at Wave I, $A_{i,1}$ and $U_{i,1}$. Equation (3) instead regresses a measure of physical attractiveness as an adult at Wave IV on a measure of gaming as a teen at Wave I, as well as the attractiveness indicators from Wave I and interviewer-specific fixed effects at both Waves I and IV. Thus, σ indicates whether teenage gaming, which may or may not be persistent according to Equation (2), predicts the physical attractiveness of adults conditional on how their looks were judged as teens.

Table 7 presents the estimates of Equation (2), where we consider three different measures of gaming with only gender included in the vector of controls, $\boldsymbol{X}_{i,1}$. First, in Column (1), we consider all gaming, including zeroes. In Column (2), we consider the extensive margin of adult gaming, depending on whether the person gamed as a teenager or not. In Column (3), we consider the intensive margin of adult gaming conditional on doing any gaming, depending on positive gaming time as a teenager. The results on adult beauty are generally similar to those shown in Tables 5 and 6. The better-looking adults spend much less time gaming than other adults, if they do any gaming. As the results in Column (1) demonstrate, the net effect is that a good-looking adult spends much less time in this activity than other adults, even conditional on time spent gaming as a teenager, while the small number of bad-looking adults do less gaming than the average-looking adult, but not significantly so.

A person's gaming behavior as a teen is positively related to their incidence of gaming as an adult and the time spent in this activity. We cannot infer from these estimates whether this dynamic relationship results from an underlying preference for gaming, or instead from addictive behavior that began in a person's teen years—or earlier. Suffice it to say that there is substantial persistence of gaming from adolescence onward.

Table 8 shows OLS estimates of Equation (3), testing directly for the reverse causality of teen gaming and gaming time on beauty assessed during adulthood.[12] Beauty being very similar over a lifetime from adolescence onward, it is unsurprising that, as the estimated coefficients δ_1 and δ_2 show, those who are rated (un)attractive as teens are more likely to be rated as (un)attractive as adults. The crucial finding in Column (2) of the table is the absence of any indication that adults' beauty ratings are related to whether or not they gamed as a teenager: The incidence of teen gaming has a tiny and statistically insignificant negative relation to the likelihood of adult gaming, conditional on looks as a teenager. Similarly, Column (3) shows that the impact of time spent gaming on adult beauty among those teens who do so is also essentially zero. The estimates in Column (1) summarize these two effects, showing that the unconditional amount of time gaming as a teen has a negative but statistically insignificant impact on adult looks.

We have analogized testing for causality here to panel VAR models. Overall, the estimates of Equations (2) and (3) suggest that, while looks affect the incidence and amount of adult gaming, even accounting for teen gaming, prior gaming has essentially no effect on adult's looks. One might summarize this exploration by concluding that adult gaming nerds are born, not made (by earlier gaming).

6. Conclusion

[12] Relaxing the linear or symmetric response assumption, Appendix Table A4 presents the equivalent regression model assuming a Poisson process for the beauty rating dependent variable, which yields qualitatively very similar results.

Video-gaming accounts for roughly 3 percent of the non-sleeping time of the average American young adult. It has become an integral aspect of many people's lives worldwide, prompting significant interest in understanding its effects. Equally important is investigating the factors influencing gaming behavior, particularly the time spent on gaming. We shed light on one determinant: physical attractiveness. The results provide compelling evidence, both among teenagers and adults, but especially among the latter, that more physically attractive individuals spend less time on video-gaming; and we offer suggestive evidence that this is because they have more friends with whom to socialize.

The relationship between looks and gaming does not arise because gaming makes people bad-looking: the causation appears to go from looks to gaming, not vice-versa. Our findings thus indicate that personal attributes are significant determinants of gaming behavior, a topic previously undocumented in the economics literature.

No doubt one could concoct non-economic "stories" to explain our results, linking the "why"—the greater number of close friends among the good-looking—to the "who"—the finding of less gaming among the better-looking. Nonetheless, taken together, these results suggests that a simple economic explanation is quite consistent with what we observe—the better-looking have a higher opportunity cost of gaming as they have a comparative advantage in social interactions as an alternative leisure activity that is evidenced by more close friends.

The evidence of a negative effect of looks on gaming among both adults and teenagers underscores the potential importance of physical attractiveness in shaping leisure activities and lifestyle choices.

Understanding how beauty influences gaming behavior can provide valuable insights into the broader economic and social mechanisms underlying the consumption of leisure in the digital age. The finding that the activity is more likely to be undertaken by the bad-looking suggests the need to be particularly concerned for those who are otherwise least advantaged by their looks.

References

Aguiar, Mark, Mark Bils, Kerwin Kofi Charles, and Erik Hurst. 2021. "Leisure Luxuries and the Labor Supply of Young Men." *Journal of Political Economy* 129, no. 2 (February): 337-382.

Babin, J. Jobu, Andrew Hussey, Alex Nikolsko-Rzhevskyy, and David A. Taylor. 2020. "Beauty Premiums Among Academics." *Economics of Education Review* 78 (October): 102019.

BBC News. 2023. "The Video Game That's Selling a Better World." *BBC News*, January 13. Accessed June 8, 2023. https://www.bbc.co.uk/news/technology-65609932.

Becker, Gary S., Michael Grossman, and Kevin M. Murphy. 1994. "An Empirical Analysis of Cigarette Addiction." *American Economic Review* 84, no. 3 (June): 396-418.

Becker, Gary S., and Kevin M. Murphy. 1988. "A Theory of Rational Addiction." *Journal of Political Economy* 96, no. 4 (August): 675-700.

Chung, Andy, and Junsen Zhang. 2024. “Physical attractiveness, drug taking, and gender differences.” Working paper, University of Reading.

Clement, Jessica. 2022-23. “Age of U.S. Video Game Players.” *Statista*. Accessed June 8, 2023. https://www.statista.com/statistics/189582/age-of-us-video-game-players/. “Gender Split of U.S. Computer and Video Gamers.” *Statista*. Accessed June 8, 2023. https://www.statista.com/statistics/232383/gender-split-of-us-computer-and-video-gamers/. “Gaming by Demographic Group (UK).” *Statista*. Accessed June 8, 2023. https://www.statista.com/statistics/300513/gaming-by-demographic-group-uk/. “Physical or Digital Core Gamers in the U.S.” *Statista*. Accessed June 8, 2023. https://www.statista.com/forecasts/1277728/physical-or-digital-core-gamers-in-the-us/.

Cunningham, Scott, Benjamin Engelstätter, and Michael R. Ward. 2016. "Violent Video Games and Violent Crime." *Southern Economic Journal* 82, no. 4 (April): 1247–1265.

Deryugina, Tatyana, and Olga Shurchkov. 2015. "Now you see it, now you don’t: The vanishing beauty premium." *Journal of Economic Behavior & Organization* 116 (August): 331-345.

The Economist. 2023. "Ready Player: Four Billion—The Rise of Video Games." *The Economist*, March 20. Accessed June 8, 2023. https://www.economist.com/special-report/2023/03/20/ready-player-four-billion-the-rise-of-video-games.

Green, Colin P., Luke B. Wilson, and Anwen Zhang. 2023. "Beauty, underage drinking, and adolescent risky behaviours." *Journal of Economic Behavior & Organization* 215 (November): 153-166.

Hamermesh, Daniel S., and Jeff E. Biddle. 1994. "Beauty and the Labor Market." *American Economic Review* 84, no. 5 (December): 1174-1194.

Hamermesh, Daniel S., and Amy Parker. 2005. "Beauty in the classroom: Instructors’ pulchritude and putative pedagogical productivity." *Economics of Education Review* 24, no. 4 (August): 369-376.

Hamermesh, Daniel S., and Joel B. Slemrod. 2008. "The Economics of Workaholism: We Should Not Have Worked on This Paper." *The B.E. Journal of Economic Analysis & Policy* 8, no. 1.

Hamermesh, Daniel S., and Jason Abrevaya. 2013. "Beauty is the Promise of Happiness?" *European Economic Review*, 64 (November): 351-68.

Khang, Hyoungkoo, Jung Kyu Kim, and Yeojin Kim. 2013. "Self-traits and motivations as antecedents of digital media flow and addiction: The Internet, mobile phones, and video games." *Computers in Human Behavior* 29, no. 6 (November 1): 2416-2424.

Kowert, Rachel, Mark D. Griffiths, and Julian A. Oldmeadow. 2012. "Geek or chic? Emerging stereotypes of online gamers." *Bulletin of Science, Technology & Society* 32, no. 6: 471-479.

Mackenzie, Steven. 2022. "How Free-to-Play and In-Game Purchases Took Over Video Games." CNBC, October 6, 2022. Accessed July 5, 2024. https://www.cnbc.com/2022/10/06/how-free-to-play-and-in-game-purchases-took-over-video-games.html.

Mehic, Adrian. 2022. "Student beauty and grades under in-person and remote teaching." *Economics Letters* 219 (October): 110782.

Mocan, Naci, and Erdal Tekin. 2010. "Ugly criminals." *Review of Economics and Statistics* 92, no. 1 (February): 15–30.

O'Connor, Kathleen M., and Eric Gladstone. 2018. "Beauty and social capital: Being attractive shapes social networks." *Social Networks* 52 (January): 42-47.

Plante, Courtney N., Douglas A. Gentile, Christopher L. Groves, Adam Modlin, and Jorge Blanco-Herrera. 2019. "Video games as coping mechanisms in the etiology of video game addiction." *Psychology of Popular Media Culture* 8, no. 4: 385-394.

Scholz, John Karl, and Kamil Sicinski. 2015. "Facial Attractiveness and Lifetime Earnings: Evidence from a Cohort Study." *Review of Economics and Statistics* 97, no. 1 (March): 14-28.

Sheehan, Connor M. and Daniel S. Hamermesh. 2024. "Looks and Longevity: Do Pretty People Last Longer?" *Social Science and Medicine*, forthcoming.

Skoric, Marko M., Linda Lay Ching Teo, and Rachel Lijie Neo. 2009. "Children and Video Games: Addiction, Engagement, and Scholastic Achievement." *CyberPsychology & Behavior* 12, no. 5 (October): 567-572.

Stone, Jeffrey A. 2019. "Self-identification as a "gamer" among college students: Influencing factors and perceived characteristics." *New Media & Society* 21, no. 11-12: 2607-2627.

Stinebrickner, Ralph, Todd Stinebrickner, and Paul Sullivan. 2019. "Beauty, Job Tasks, and Wages: A New Conclusion about Employer Taste-Based Discrimination." *Review of Economics and Statistics* 101, no. 4 (October): 602–615.

Tassi, Paul. 2023. "The Legend of Zelda: Tears of the Kingdom Sells 10 Million Copies in 3 Days, a Stunning Record." *Forbes*, May 17. Accessed June 8, 2023. https://www.forbes.com/sites/paultassi/2023/05/17/the-legend-of-zelda-tears-of-the-kingdom-sells-10-million-copies-in-3-days-a-stunning-record/.

UNC Carolina Population Center. n.d. "Publications." Access June 27, 2023. https://addhealth.cpc.unc.edu/.

U.S. Bureau of Labor Statistics. "Table 11A. Time spent in detailed primary activities and percent of the civilian population engaging in each activity, averages per day by sex, 2019 annual averages." Accessed March 4, 2024. https://www.bls.gov/webapps/legacy/tustab11a.htm.

Ward, Michael R. 2010. "Video Games and Adolescent Fighting." *The Journal of Law & Economics* 53, no. 3 (August): 611-62

Ward, Michael R. 2011."Video Games and Crime." *Contemporary Economic Policy* 29, no. 2 (April): 261–273.

Zhai, Shengying, Qihui Chen, and Qiran Zhao. 2022. "Beauty and popularity in friendship networks—Evidence from migrant schools in China." *Economics Letters* 215: 110468.

Table 1: Weighted estimation sample means for key variables—Add Health Waves 1 and 4

	Obs	Mean	Std. dev.	Min.	Max.
Video-gaming last week? teen	3,228	0.544			
Hours gaming last week: teen	1,726	5.283	8.779	1	99
Video-gaming last week? adult	3,147	0.405			
Hours gaming last week: adult	1,236	7.481	10.385	1	105
Attractive or very attractive teen	3,229	0.521			
Unattractive or very unattractive teen	3,229	0.069			
Attractive or very attractive adult	3,228	0.440			
Unattractive or very unattractive adult	3,228	0.084			
Close friends as adult: 0	3,202	0.029			
Close friends as adult: 1-2	3,202	0.213			
Close friends as adult: 3-5	3,202	0.463			
Close friends as adult: 6-9	3,202	0.170			
Close friends as adult: 10 or more	3,202	0.125			

Notes: author calculations from Add Health. All calculations use the cross-sectional sampling weights provided by the public-use version of the dataset. The calculations here and in all tables are based on sampling weights.

Table 2. The effects of physical attractiveness on having "no close friends" and the number of close friends in adulthood

Dep. variable:	No close friends, {Yes,No}={1,0}			Number of close friends		
	All	Male	Female	All	Male	Female
Ind. variable:	(1)	(2)	(3)	(4)	(5)	(6)
Attractive/very	-0.023	-0.025	-0.019	0.433	0.639	0.298
attractive	(0.007)	(0.011)	(0.009)	(0.144)	(0.227)	(0.181)
Unattractive/very	0.011	-0.012	0.034	-0.654	-0.364	-0.920
unattractive	(0.015)	(0.018)	(0.024)	(0.232)	(0.365)	(0.281)
Adj. R^2	0.005	0.003	0.008	0.008	0.009	0.010
N	3,199	1,416	1,783	3,199	1,416	1,783

Notes: A constant is contained in all specifications. The excluded category is "about average" attractiveness. Robust standard errors in parentheses.

Table 3: Estimated effects for teenagers of physical attractiveness on the extensive margin of hours playing video/computer games, $N = 3{,}060$

	Dep. variable: Gaming, {Yes,No}={1,0}		
Ind. variable:	(1)	(2)	(3)
Attractive/very attractive (β_1)	-0.044	-0.046	-0.046
	(0.024)	(0.023)	(0.023)
Unattractive/very unattractive (β_2)	-0.015	-0.011	-0.011
	(0.054)	(0.053)	(0.054)
Female	-0.309	-0.306	-0.307
	(0.023)	(0.023)	(0.024)
Suspended from school			-0.018
			(0.027)
Expelled from school			0.059
			(0.063)
Interviewer fixed effects	Yes	Yes	Yes
p-value on H_0: $\beta_1 + \beta_2 = 0$	0.348	0.358	0.361
Adj. R^2	0.153	0.156	0.156

Notes: A constant is contained in all specifications. In specification (1), other control variables include teenage ln(household income), born in the U.S., age, age squared, birth weight, birth weight squared. In specifications (2) and (3), African American, Native American/Aleut/Pacific Islander, Asian American, other races, Hispanic origin, college graduate mother/father are also controlled for. Clustered standard errors at the interviewer level (390 interviewers) are in parentheses.

Table 4: Estimated effects for teenagers of physical attractiveness on the intensive margin of playing video/computer games, $N = 1{,}643$

	Dep. variable: Hours non-zero gaming		
Ind. variable:	(1)	(2)	(3)
Attractive/very attractive (β_1)	0.554	0.552	0.561
	(0.647)	(0.618)	(0.597)
Unattractive/very unattractive (β_2)	1.029	1.156	1.153
	(1.389)	(1.384)	(1.386)
Female	-2.986	-3.074	-3.026
	(0.669)	(0.680)	(0.725)
Suspended from school			0.372
			(0.954)
Expelled from school			-0.555
			(1.811)
Interviewer fixed effects	Yes	Yes	Yes
p-value on H_0: $\beta_1 + \beta_2 = 0$	0.332	0.285	0.283
Adj. R^2	0.161	0.167	0.166

Notes: A constant is contained in all specifications. In specification (1), other control variables include teenage ln(household income), born in the U.S., age, age squared, birth weight, birth weight squared. In specifications (2) and (3), African American, Native American/Aleut/Pacific Islander, Asian American, other races, Hispanic origin, college graduate mother/father are also controlled for. Clustered standard errors at the interviewer level (328 interviewers) are in parentheses.

Table 5: Estimated effects for adults of physical attractiveness on the extensive margin of playing video/computer games on, $N = 3{,}116$

	Dep. variable: Gaming, {Yes,No}={1,0}		
Ind. variable:	(1)	(2)	(3)
Attractive/very attractive (β_1)	-0.061	-0.061	-0.061
	(0.023)	(0.023)	(0.023)
Unattractive/very unattractive (β_2)	0.035	0.038	0.043
	(0.040)	(0.040)	(0.040)
Female	-0.187	-0.187	-0.189
	(0.022)	(0.022)	(0.022)
Completed high school or voc/tech			-0.010
training			(0.052)
Some college			0.071
			(0.048)
Completed college			0.035
			(0.050)
Completed a master's degree			-0.003
			(0.063)
Completed a doctoral degree			-0.138
			(0.092)
Post-baccalaureate education			0.010
			(0.081)
Interviewer fixed effects	Yes	Yes	Yes
p-value on H_0: $\beta_1 + \beta_2 = 0$	0.618	0.660	0.721
Adj. R^2	0.100	0.101	0.105

Notes: A constant is contained in all specifications. In specification (2), other control variables include born in the U.S., age, age squared, birth weight, birth weight squared. In specification (3), African American, Native American/Aleut/Pacific Islander, Asian American, other races, Hispanic origin, high school, some college, college, masters, doctorate, and professional qualifications are also controlled for. Clustered standard errors at the interviewer level (263 interviewers) are in parentheses.

Table 6: Estimated effects for adults of physical attractiveness on the intensive margin of playing video/computer games, $N = 1{,}191$

	Dep. variable: Hours non-zero gaming		
Ind. variable:	(1)	(2)	(3)
Attractive/very attractive (β_1)	-1.849	-1.829	-1.590
	(0.716)	(0.712)	(0.677)
Unattractive/very unattractive (β_2)	0.915	0.844	0.461
	(1.578)	(1.611)	(1.555)
Female	-2.843	-2.918	-2.632
	(0.691)	(0.711)	(0.710)
Completed high school or voc/tech training			2.524
			(1.666)
Some college			0.103
			(1.580)
Completed college			0.046
			(1.579)
Completed a master's degree			-1.649
			(2.149)
Completed a doctoral degree			0.739
			(3.758)
Post-baccalaureate education			-1.462
			(1.783)
Interviewer fixed effects	Yes	Yes	Yes
p-value on H_0: $\beta_1 + \beta_2 = 0$	0.621	0.610	0.547
Adj. R^2	0.088	0.089	0.097

Notes: A constant is contained in all specifications. In specification (2), other control variables include born in the U.S., age, age squared, birth weight, birth weight squared. In specification (3), African American, Native American/Aleut/Pacific Islander, Asian American, other races, Hispanic origin, high school, some college, college, masters, doctorate, and professional qualifications are also controlled for. Clustered standard errors at the interviewer level (218 interviewers) are in parentheses.

Table 7: Estimated effects of gaming time and physical attractiveness as teens on the gaming time of adults

Ind. variables from Wave I:	Hours of gaming (1)	Gaming, {Yes,No}={1,0} (2)	Hours non-zero gaming (3)
Gaming hours (ρ)	0.137		0.393
	(0.059)		(0.130)
Gaming, {Yes,No}={1,0} (ρ)		0.092	
		(0.028)	
Attractive/very attractive (β_1)	-0.675	-0.061	0.103
	(0.466)	(0.026)	(1.144)
Unattractive/very unattractive (β_2)	0.815	0.055	1.489
	(0.902)	(0.057)	(1.379)
Female	-2.351	-0.159	-1.234
	(0.410)	(0.030)	(1.063)
Interviewer fixed effects, Wave I	Yes	Yes	Yes
p-value on H_0: $\beta_1 + \beta_2 = 0$	0.899	0.920	0.449
Adj. R^2	0.114	0.126	0.114
N	2,059	2,059	426

Notes: see Equation (2). A constant is contained in all specifications. Clustered standard errors at the Wave I interviewer level are in parentheses.

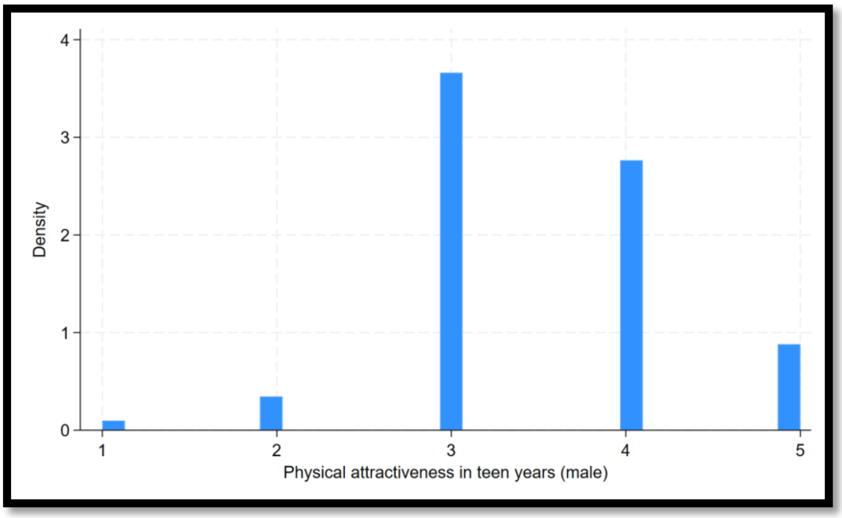
Table 8: Estimated effects of gaming time and physical attractiveness as teens on the physical attractiveness of adults

	Physical attractiveness in Wave IV, {unattractive/very unattractive, average, attractive/very attractive}={0,1,2}		
Ind. variables from Wave I:	(1)	(2)	(3)
Gaming hours (σ)	-0.002		-0.002
	(0.002)		(0.008)
Gaming, {Yes,No}={1,0} (σ)		-0.011	
		(0.036)	
Attractive/very attractive (δ_1)	0.200	0.200	0.151
as teen	(0.037)	(0.037)	(0.113)
Unattractive/very unattractive (δ_2)	-0.256	-0.255	-0.537
as teen	(0.077)	(0.078)	(0.272)
Female	0.051	0.054	-0.010
	(0.038)	(0.039)	(0.103)
Interviewer fixed effects: Waves I & IV	Yes	Yes	Yes
p-value on H_0: $\delta_1 + \delta_2 = 0$	0.535	0.537	0.185
Adj. R^2	0.216	0.216	0.237
N	2,076	2,076	333

Notes: see Equation (3). A constant is contained in all specifications. Clustered standard errors at the Wave I and IV interviewer levels are in parentheses.

Figure 1: Distributions of physical attractiveness ratings in teen years

a. Male (Mean: 3.514 Standard deviation: 0.801)



b. Female (Mean: 3.732; Standard deviation: 0.926)

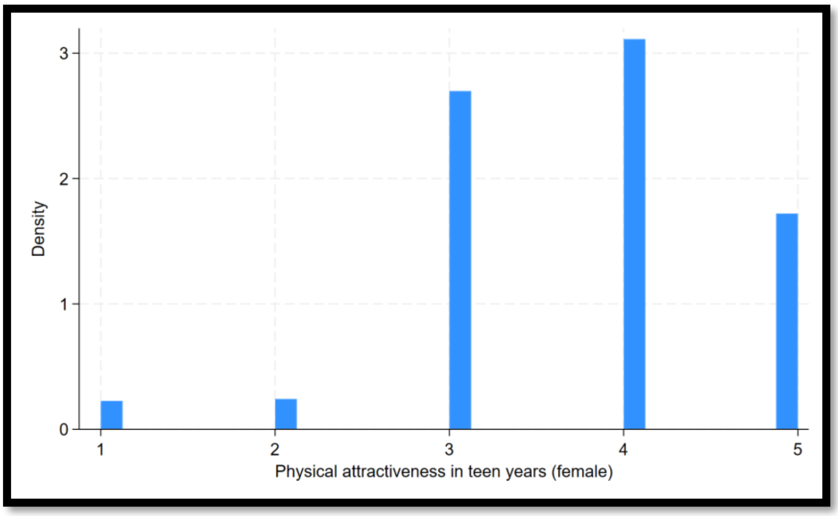
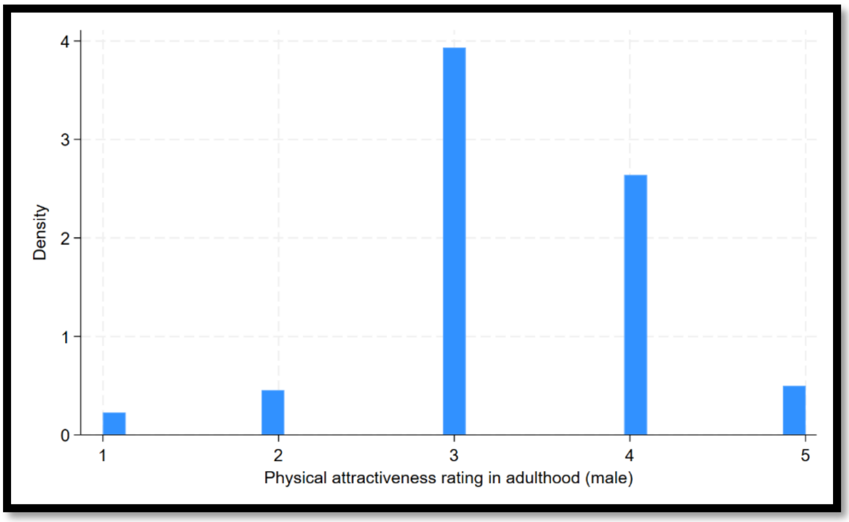


Figure 2: Distributions of physical attractiveness ratings in adulthood

a. Male (Mean: 3.352; Standard deviation: 0.806)



b. Female (Mean: 3.456; Standard deviation: 0.895)

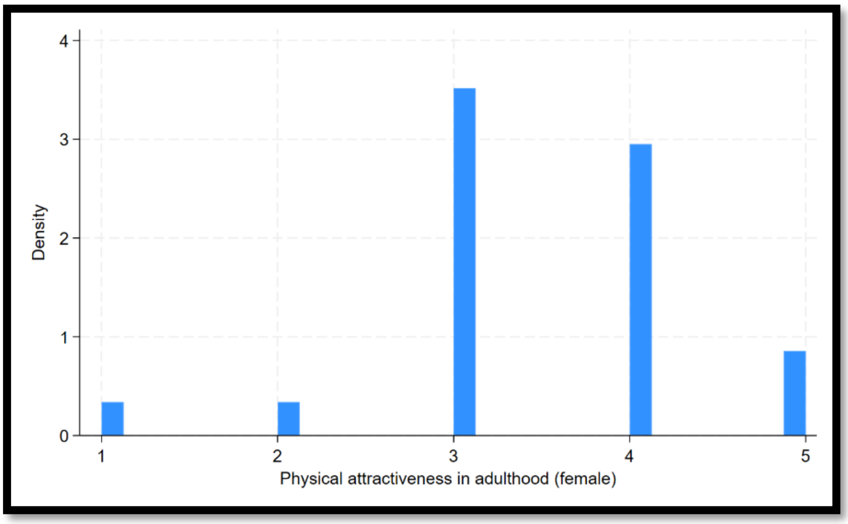
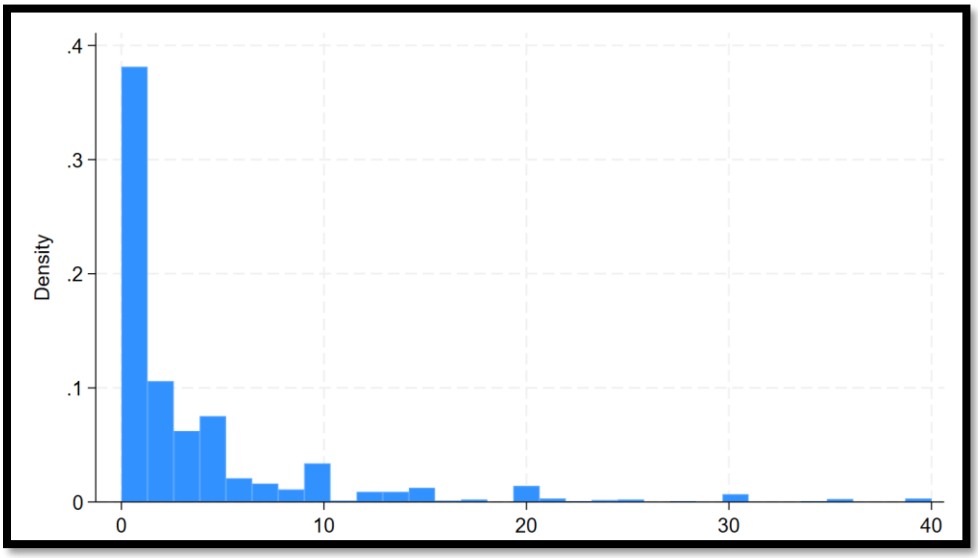


Figure 3: Distributions of gaming hours in the previous week among teenagers

a. Male (Mean: 4.206; Standard deviation: 7.937)



b. Female (Mean: 1.378; Standard deviation: 3.607)

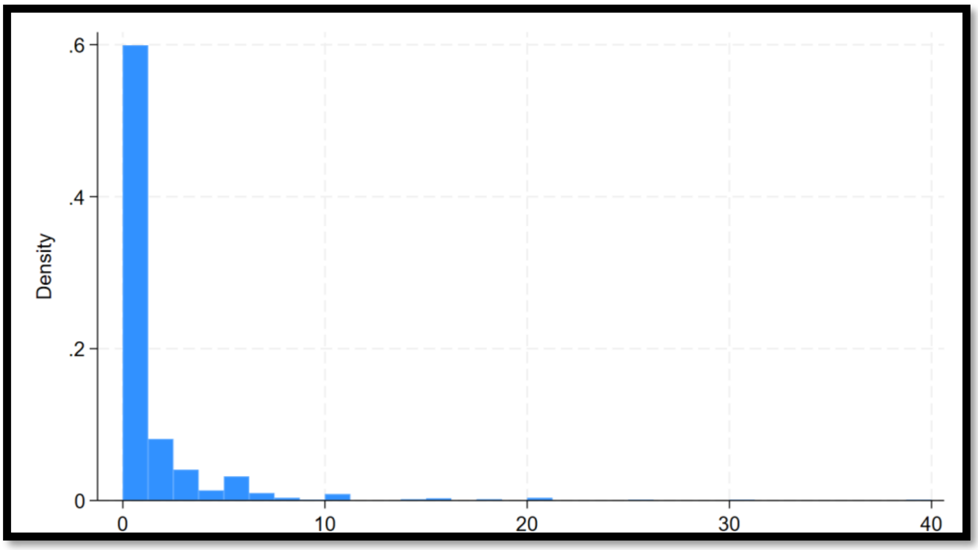
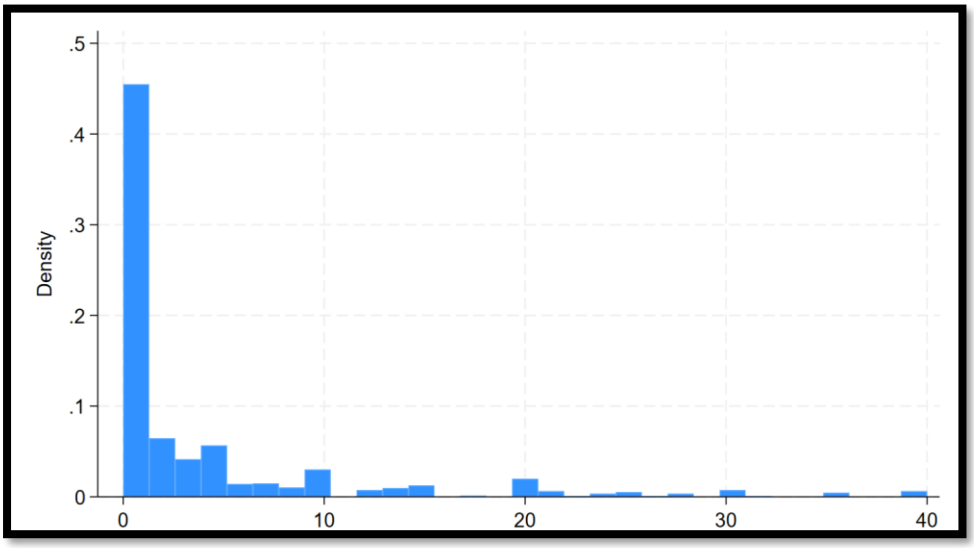
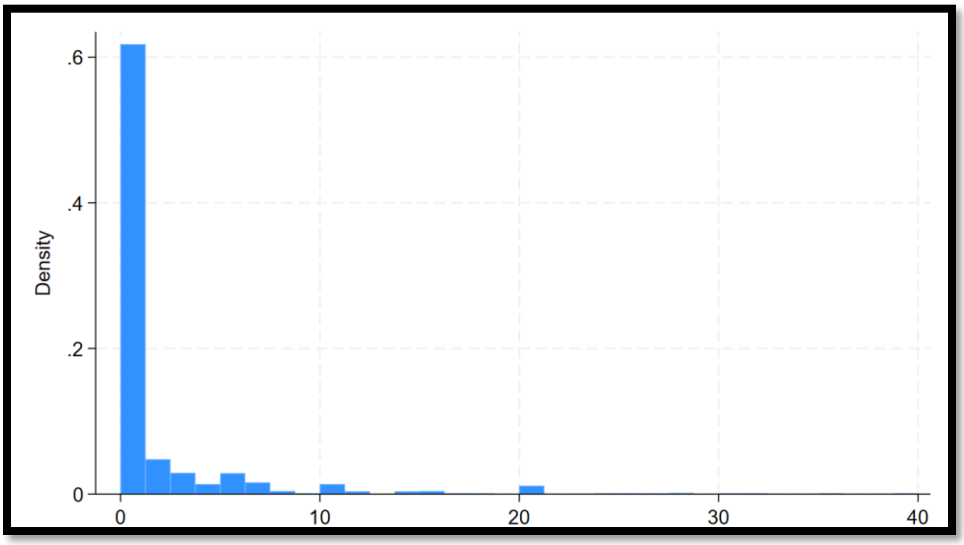


Figure 4: Distributions of gaming hours in the previous week among adults

a. Male (Mean: 4.589; Standard deviation: 9.935)



b. Female (Mean: 1.793l Standard deviation: 5.584)



Appendix: Additonal tables

Table A1: Estimated effects of physical attractiveness on the extensive and intensive margin of playing video/computer games: disaggregating good looks

	Teen years		Adulthood	
Dep. variables:	Gaming, Yes	Hours non-zero gaming	Gaming, Yes	Hours non-zero gaming
Ind. variables:	(1)	(2)	(3)	(4)
Very attractive	-0.041	-0.827	-0.084	-1.873
	(0.035)	(0.617)	(0.043)	(1.106)
Attractive	-0.048	0.946	-0.057	-1.537
	(0.026)	(0.656)	(0.023)	(0.689)
Unattractive/very unattractive	-0.011	1.114	0.042	0.447
	(0.053)	(1.382)	(0.040)	(1.566)
Female	-0.308	-2.902	-0.188	-2.619
	(0.024)	(0.720)	(0.022)	(0.718)
Interviewer fixed effects: Waves I or IV	Yes	Yes	Yes	Yes
Adj. R^2	0.156	0.169	0.104	0.096
N	3,060	1,643	3,116	1,191

Notes: A constant is contained in all specifications. In specifications (1) and (2), other control variables include teenage ln(household income), born in the U.S., age, age squared, birth weight, birth weight squared, African American, Native American/Aleut/Pacific Islander, Asian American, other races, Hispanic origin, college graduate mother/father, suspended from school and expelled from school. In specifications (3) and (4), other control variables include born in the U.S., age, age squared, birth weight, birth weight squared, African American, Native American/Aleut/Pacific Islander, Asian American, other races, Hispanic origin, high school, some college, college, masters, doctorate, and professional qualifications. Clustered standard errors at the interviewer level are in parentheses.

Table A2: Estimated effects for teenagers of physical attractiveness on the extensive and intensive margin of playing video/computer games: gender-specific models

	Boys		Girls	
Dep. variables:	Gaming, Yes	Hours non-zero gaming	Gaming, Yes	Hours non-zero gaming
Ind. variables:	(1)	(2)	(3)	(4)
Attractive/very attractive (β_1)	-0.034	0.927	-0.034	0.410
	(0.033)	(1.052)	(0.036)	(0.453)
Unattractive/very unattractive (β_2)	0.028	4.304	-0.041	0.821
	(0.082)	(1.907)	(0.075)	(0.899)
Interviewer fixed effects	Yes	Yes	Yes	Yes
p-value on H_0: $\beta_1 + \beta_2 = 0$	0.949	0.036	0.416	0.250
Adj. R^2	1,414	959	1,538	552
N	0.078	0.139	0.094	0.385

Notes: A constant is contained in all specifications. In all specifications, other control variables include teenage ln(household income), born in the U.S., age, age squared, birth weight, birth weight squared, African American, Native American/Aleut/Pacific Islander, Asian American, other races, Hispanic origin, college graduate mother/father, suspended from school and expelled from school. Clustered standard errors at the interviewer level are in parentheses.

Table A3: Estimated effects for adults of physical attractiveness on the extensive and intensive margin of playing video/computer games: gender-specific models

	Men		Women	
Dep. variables:	Gaming, Yes	Hours non-zero gaming	Gaming, Yes	Hours non-zero gaming
Ind. variables:	(1)	(2)	(3)	(4)
Attractive/very attractive (β_1)	-0.048	-1.159	-0.068	-2.495
	(0.038)	(1.132)	(0.028)	(0.994)
Unattractive/very unattractive (β_2)	0.118	0.021	-0.019	-3.065
	(0.062)	(2.230)	(0.058)	(1.450)
Interviewer fixed effects	Yes	Yes	Yes	Yes
p-value on H_0: $\beta_1 + \beta_2 = 0$	0.391	0.684	0.207	0.007
Adj. R^2	1,332	618	1,737	471
N	0.070	0.045	0.103	0.107

Notes: A constant is contained in all specifications. In all specifications, other control variables include born in the U.S., age, age squared, birth weight, birth weight squared, African American, Native American/Aleut/Pacific Islander, Asian American, other races, Hispanic origin, high school, some college, college, masters, doctorate, and professional qualifications. Clustered standard errors at the interviewer level are in parentheses.

Table A4: Estimated effects of gaming time and physical attractiveness as teens on the physical attractiveness of adults: Poisson regression

	Physical attractiveness in Wave IV, {unattractive/very unattractive, average, attractive/very attractive}={0,1,2}		
Ind. variables from Wave I:	(1)	(2)	(3)
Gaming hours	-0003		-0.003
	(0.003)		(0.012)
Gaming, {Yes,No}={1,0}		-0.016	
		(0.037)	
Attractive/very attractive as teen	0.199	0.199	0.158
	(0.039)	(0.039)	(0.135)
Unattractive/very unattractive as teen	-0.288	-0.285	-0.668
	(0.090)	(0.091)	(0.335)
Female	0.049	0.051	-0.019
	(0.041)	(0.042)	(0.138)
Interviewer fixed effects: Waves I & IV	Yes	Yes	Yes
Pseudo R^2	0.055	0.055	0.104
N	2,069	2,069	331

Notes: Average marginal effects are reported above. A constant is contained in all specifications. Clustered standard errors at the Wave I and IV interviewer levels are in parentheses.