

# Age, Criminal Punishment, and Accountability: What the Public Recommends for Guilty Defendants

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## Abstract

**Objectives:** The purpose of this paper is to assess the effect of a defendant's age on public perceptions of recommended punishment, accountability, and the likelihood of re-offending.

**Methods:** We use an experimental vignette design which provides a depiction of a violent robbery and vary the robber's age from 15-25. Survey respondents were asked to recommend a prison sentence, a restitution amount, how accountable they believe the robber to be, and how likely he is to reoffend.

**Results:** Overall, there was no significant effect of age on recommended prison sentence but a significant effect \$389 ( $p = 0.022$ ) on recommended restitution. Female respondents recommended an additional 0.270 ( $p = 0.002$ ) years of prison for each year of defendant age and no significant difference for restitution. Male respondents had no significant difference in recommended prison time but recommended an additional \$500 ( $p = 0.017$ ) in restitution for each year of defendant age. There was no effect of defendant age on accountability or reoffending.

**Conclusion:** These findings have implications on policies that differentiate punishment by offender age, and for restorative justice practices given differences in preferred punishment by gender.

*Keywords:* Age-Crime Curve, Juvenile Justice, Restorative Justice

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# 1 Introduction

Since the turn of the century there have been several prominent changes in the criminal justice system that reduced the severity of penalties for youth offenders. In 2005, the United States Supreme Court ruled that the death penalty given to people who committed a crime when they were under 18 years of age was unconstitutional (Greenhouse, 2005; Bravin, 2005; Lane, 2005).<sup>1</sup> In the ensuing 15 years, a number of state and federal laws, and Supreme Court decisions have loosened the penalties for criminal offending for those who were juveniles at the time they committed a crime (Institute, 2017; Cohen and Casey, 2014; Chabria, 2020). In 2010, life in prison without the possibility of parole was deemed an unconstitutional punishment for juveniles found guilty of all crimes except for homicide and in 2012, homicide was included in an additional court decision.<sup>2</sup> Along with these judicial changes, several states, have raised the age of criminal majority to age 18 (Institute, 2017; Loeffler and Grunwald, 2015; Loeffler and Chalfin, 2017). Before these new policies were enacted, 16- and 17-year-old defendants in those states were automatically tried as adults but now they are typically tried as juveniles and are only transferred to adult court when a serious offense has occurred or have been processed in adult court previously (Teigen, 2020).<sup>3</sup>

These judicial decisions as well as legislative changes have primarily occurred as a response to research on adolescent brain development (Harty, 2017; Smith, 2017; Chabria, 2020). Because the prefrontal cortex - the part of the brain responsible for planning and decision-making - does not fully mature until the mid-20s years (Ortiz, 2003; Cohen and Casey, 2014; Cohen et al., 2016; Steinberg, 2017), the Supreme Court ruled that the death penalty and life in prison without the possibility of parole for minors serves as a violation of the Eighth Amendment of the Constitution, which outlaws the use of cruel and unusual punishment (Rovner, 2016).<sup>4</sup> Legislative changes, such as raising the age of criminal majority, have also been enacted because of the financial costs and negative consequences of sending juveniles to correctional facilities (Harty, 2017; Institute, 2017).

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<sup>1</sup>This decision was reached in the ruling of *Roper v. Simmons* (2005).

<sup>2</sup>These decisions were reached in the rulings of *Graham v. Florida* (2010) and *Miller v. Alabama* (2012), respectively.

<sup>3</sup>While the United States has trended towards lighter sentences for juveniles, this change is not consistent internationally. Scotland raised the minimum age of arrest and prosecution from eight to 12 in 2019 (News, 2019). The English government is being pressured by youth advocates to raise their age of criminal majority (Pidd et al., 2019). Brazil, however, is considering lowering its age of criminal responsibility from age 18 to age 16 (Alves, 2019).

<sup>4</sup>The Eighth Amendment reads: Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

Juvenile incarceration could contribute to negative downstream effects that result in a cumulative continuity of disadvantage. For example, juveniles sentenced to a correctional facility are less likely to graduate high school or to enroll in college than similarly situated juveniles who were never incarcerated (Aizer and Doyle Jr, 2015; Kirk and Sampson, 2013; Hjalmarsson, 2008). Moreover, juvenile incarceration is costly, yet its effectiveness in reducing the likelihood of recidivism and re-arrest is unclear (Loughran et al., 2009; Aizer and Doyle Jr, 2015; Hjalmarsson, 2009). Empirical research suggests that juvenile incarceration is not more effective in reducing recidivism rates than alternative, community-based approaches (Wooldredge, 1988; Austin et al., 2005; Mendal, 2011). In particular, community-based programs that focus on therapeutic techniques are at least as effective as detention in correctional facilities in reducing juvenile recidivism (Austin et al., 2005; Wooldredge, 1988; Mallett and Julian, 2008). Unlike community-based approaches, detention facilities often do not address the needs of individuals, which some advocates believe is crucial for proper rehabilitation (Mallett and Julian, 2008; Herbig and Hesselink, 2012). Furthermore, American adults are just as willing to pay for juvenile rehabilitation and childhood prevention programs as they are to pay for juvenile incarceration facilities (Nagin et al., 2006). Thus, the high social and economic costs of juvenile incarceration as well as the unclear associated benefits have prompted policy-makers to consider juvenile justice reforms. While the effectiveness of incarceration for reducing juvenile recidivism rates is uncertain, it is clear that delinquent behavior in youth can be in part, attributed to their developing brain.

Although juveniles know right from wrong in a basic sense, they might not fully understand the reasoning behind it (Steinberg and Scott, 2003). Research has suggested that the prefrontal cortex does not fully mature until the mid-20s (Ortiz, 2003; Cohen and Casey, 2014; Cohen et al., 2016; Steinberg, 2017). This makes it more difficult for young people to plan ahead and control their impulses especially when they are emotionally aroused (Steinberg and Scott, 2003; Bala and Hyden, 2020). Adolescents also exhibit an increased susceptibility to peer pressure, increased sensitivity to social evaluation, and increased sensitivity to rewards (e.g., peer approval, monetary rewards, etc.) compared to adults (Scott and Steinberg, 2008; Albert et al., 2013; Brown and Larson, 2009; Brown, 2011; Somerville, 2013). In situations that involve the presence of peers - even being observed from a separate room by an anonymous peer (Smith et al., 2018; Chein et al., 2011) - and/or strong emotions, adolescents seem to display compromised cognitive abilities that

contribute to risky decision-making and inappropriate behaviors ([Gardner and Steinberg, 2005](#); [Albert et al., 2013](#)). After the prefrontal cortex reaches maturity in early adulthood, the urge to partake in risk taking and stimulating behavior typically subsides and the capacity for emotional and cognitive control increases ([Ritter, 2007](#)). These recent neurodevelopmental findings, primarily studied by psychologists and neuroscientists, support the well-replicated finding in criminology that crime peaks in late adolescence and sharply declines as offenders grow older.

Criminologists have known about a relationship between offender age and crime since the 1800s ([Quetelet, 1831](#)). Although precise estimates differ, this relationship - formally known as the age-crime curve - shows that the number of crimes people commit begins to spike in early adolescence, peaks in the late teenage years, and then declines sharply shortly thereafter ([Hirschi and Gottfredson, 1983](#); [Farrington, 1986](#); [Moffitt, 1993](#)). The age-crime curve is a core pillar of the field and has been studied extensively across time periods ([Steffensmeier et al., 1989](#); [Steffensmeier and Streifel, 1991](#); [Greenberg, 1994](#)), crime categories ([Klausen et al., 2016](#); [Zhong, 2005](#)), offender characteristics ([Stolzenberg and D'Alessio, 2008](#); [Shulman et al., 2013](#)), and in a number of countries outside of the United States ([Matthews and Minton, 2018](#); [Steffensmeier et al., 2017](#); [Wikström, 1990](#); [McVie et al., 2005](#)). While brain development might increase youth proclivity to offend, it cannot explain the shape of the age-crime curve by itself, or why certain youth chose to offend and others do not. Researchers have found that there are social, psychological, and environmental changes that occur as individuals mature from children to adolescents, which can help explain why young teenagers commit more crime than children and adults ([Moffitt, 1993](#); [Steinberg and Monahan, 2007](#); [Thornberry and Krohn, 2001](#)). One such change is that teenagers have more freedom than ever before and form closer bonds with their peers than younger children do which allows them to have more time to commit crimes as well as be peer-pressured into engaging in risky behavior. When individuals get older, graduate high school, or move away from home, they establish new peer networks, learn from previous mistakes, and focus more on future goals which contributes to their desist from criminal behaviors ([Sampson and Laub, 1992](#); [Laub and Sampson, 2001](#); [Sweeten et al., 2013](#)).

While research on this topic is important for understanding juvenile offending, policy changes in response to this research is limited by public opinion. Policy-makers are restricted in what laws they can pass by the opinions of voters, who may vote in favor of a certain law - or a politician

who supports a law - regardless of the empirical research. It is, therefore, important to understand how offender age affects public perceptions of criminal responsibility and what punishments the public would like offenders to receive.

Past research has found that the age of young offenders plays an important role in public perceptions of criminal responsibility with younger offenders deemed less responsible – and deserving of more lenient penalties - than older offenders for the same crime (Scott et al., 2006; Steinberg and Piquero, 2010; Gongola et al., 2017). Scott et al. (2006) asked respondents to make recommendations for criminal punishments for offenders whose age was randomized as 12, 15, or 20. They found that participants endorsed the view that juvenile defendants should be treated differently than adult defendants and that the younger a defendant’s age, the less likely he should be tried in adult court because younger people are more developmentally immature than those that are older. Similarly, Steinberg and Piquero (2010) found that their sample of 2,282 American adults supported juveniles being tried as adults significantly more if the juveniles were older, committed a more serious offense, and were repeat offenders compared to a similarly-situated comparison group. Gongola et al. (2017) assessed the degree of support for a sentence of life in prison without the possibility of parole (LWOP) for 12- and 16 year-old offenders who were found guilty of homicide. They found that a greater percentage of participants endorsed LWOP for the 16-year-old than for the 12-year-old but overall did not approve of this sentence for juveniles.<sup>5</sup>

## 1.1 Current Study

The current study adds to the literature regarding public perceptions on the effect of defendant age on sentencing decisions. Specifically, this paper uses an experimental vignette survey to evaluate public perceptions of the accountability and desired punishment of offenders – randomly assigned to an age from 15 through 25 – who were found guilty of committing a robbery. Respondents were asked to recommend a prison sentence (in years) and restitution amount (in dollars) for the defendant. They were also asked how accountable they believe the defendant to be and if they think the defendant will commit a similar crime in the future. Based on previous research which finds that young offenders are seen as less culpable and less deserving of harsh penalties and because current legislation that largely defines adults as those over 18 years of age, we have four

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<sup>5</sup>Respondents were 599 United States residents who completed a survey via Amazon’s Mechanical Turk platform.

hypotheses:

1. Participants will recommend stricter penalties for older offenders.
2. Participants will deem younger offenders less accountable than older offenders.
3. There will be significant differences in recommendations for penalties between 17- year-olds and 18-year-olds, with the latter receiving harsher penalties than the former.
4. Participants will think younger offenders are more likely to recidivate than older offenders.

## 2 Method

This study uses an experimental vignette design which provides each respondent with a depiction of a violent robbery, varying only the age of the robber. We chose robbery as it is a serious violent crime that leads to a prison sentence in most cases.([Reaves, 2013](#)) The vignette is a modified version of a vignette designed by [Mendelsohn and Sewell \(2004\)](#). In the modified vignette, a man named Bob is walking to his car when he is approached by a young man who begins insulting him.<sup>6</sup> The young man takes out a knife, drags Bob into an empty alley, and threatens to kill Bob unless he gives up his phone and wallet. The robber then flees the alley but is quickly arrested and convicted of robbery. The age of the robber is provided in the vignette and is randomly assigned to an age between 15 and 25 (inclusive). No other text is changed among the different vignettes, which allows for an analysis of the effect of defendant age, keeping all else constant. For the complete text of the vignette used, please see Appendix A.

Following the vignette, respondents are told that they are members of the jury which convicted the robber and must make a recommendation to the judge for the appropriate punishment. There are two questions relating to punishment. First, they are asked how many years they recommend the defendant be sentenced to prison for, with a limit of between 0 and 99 (inclusive) years. The second question states that “in addition to time in prison, the defendant can also be forced to pay restitution, which is money paid to the victim of the crime to ‘right the wrong’ of the crime.” To avoid the potential of extreme outliers, answers are restricted to between \$0 and \$99,999

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<sup>6</sup>The young man’s name, ”Matt,” is nearly always held by a Causasian person, meaning that this study may not be generalizable to perceptions of other races ([Tzioumis, 2018](#)). Future research should examine if this study’s effects are consistent across different offender races.

(inclusive). For each question we use OLS regression to examine the effect of defendant age on the outcome. While our experimental methods reduce the impact of any variable other than the randomized defendant age from affecting results, we include a vector of respondent demographics as control variables to increase precision.(Angrist and Pischke, 2008; Imbens, 2010).

While the questions on punishment evaluate what effect - if any - defendant age has on the recommended penalty for the crime, they do not provide insight into why a defendant’s age affects respondent’s desired punishment. To examine two potential mechanisms, we ask two questions on how accountable the defendant is and how likely they are to reoffend. Specifically, we ask how “accountable do you think the defendant is for the crime?” with the options: Very accountable, Somewhat accountable, Somewhat unaccountable, and Very unaccountable. To examine whether respondents believe that likelihood of reoffending differs by defendant age, we ask how likely it is that the defendant will “commit a similar crime in the future?” The possible choices are: Extremely likely, Somewhat likely, Neither likely nor unlikely, Somewhat unlikely, and Extremely unlikely. We use multinomial logistic regression to analyze how defendant age affects the likelihood of choosing each answer.<sup>7</sup>

## 2.1 Participants

Respondents for this study come from Amazon’s Mechanical Turk, a website where people can take surveys in exchange for small amounts of money. The survey used in this study was approved by our university’s Institutional Review Board and all respondents read a description of the study and consented to participate. All responses were collected between May 31st and June 19th. On average, respondents took approximately five minutes to complete the survey. We limit our sample to people who live in the United States.

2,189 people completed the survey. To ensure that respondents were reading the questions before responding, we used two attention checks and excluded anyone who failed either check. First, respondents were informed of the purpose of the study on the first page after the consented to be part of the study, and then were asked what that purpose was.<sup>8</sup> If a respondent chose any answer

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<sup>7</sup>These analyses also use respondent demographics as control variables.

<sup>8</sup>In full, the purpose of the study read “During this study, you will be asked to imagine that a crime has taken place and that the suspect has been apprehended and found guilty. You will be presented with facts about this case and then asked to recommend a punishment.”

other than "Punishment for a crime" they were considered to have failed the attention check.<sup>9</sup> 153 respondents failed this attention check. After this question they were shown the vignette which depicts a robbery and states explicitly that the defendant in the scenario was convicted of robbery. They are then asked which crime the defendant was charged with and fail the attention check if they choose an answer other than "Robbery."<sup>10</sup> 118 respondents failed this second attention check. In total, 271 respondents - or about 12.4% of the original sample - failed attention checks and are removed from the study, leaving 1918 respondents in the sample.

Respondents demographics are relatively similar to that of the United States at-large. Respondents are, on average, 36.74 years old (median = 34). Respondents are more likely to be female (59.49%) than male (40.41%) and our sample has more female respondents than in the general population (50.8%). Respondents are primarily non-Hispanic White (64.65%) with 12.46% of respondents identifying as Hispanic, 9.49% identifying as non-Hispanic Asian or Pacific Islander, and 9.07% identifying as non-Hispanic Black. The remaining respondents identified as two or more races (2.71%), American Indian or Alaska Native (0.83%), or as "Other" race (0.78%). Relative to the U.S. population at large, respondents in this sample are more likely to be non-Hispanic White (60.22% in U.S.), less likely to be Hispanic (18.27% in U.S.), more likely to be non-Hispanic Asian or Pacific Islander (5.73% in U.S.), and less likely to be non-Hispanic Black (12.32%)<sup>11</sup> Our sample has slightly more high school graduates than the U.S. population with 90.62% of respondents having a high school education or higher (87.7% of the U.S. as a whole)<sup>12</sup> The present sample has a much larger percent of college graduates than the U.S. as a whole with 59.21% of the sample having a four-year college degree or higher compared to 31.5% of the U.S. population.

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<sup>9</sup>The full set of choices are: Veterinary practices, Punishment for a crime, Mental health, Drunk drinking, and Child protective services. These answers were presented to respondents in a random order.

<sup>10</sup>The choices for this question are: Robbery, Rape, Murder, and Cybercrime. All answers are presented in random order.

<sup>11</sup>Census race and ethnicity data come from the 'Hispanic or Latino Origin by Race' table available on the United States Census Bureau website (<https://data.census.gov/cedsci/table?q=hispanic%20race&tid=ACSDT1Y2018.B03002&vintage=2010&hidePreview=true&moe=false>). The data is from the 2018 American Community Survey (ACS).

<sup>12</sup>Census data are from the U.S. Census Bureau QuickFacts website which estimates U.S. population for 2019. The Census data provides education data only for respondents over the age of 25. The link to that site is here: <https://www.census.gov/quickfacts/fact/table/US/PST045219>



### 3 Results

Table 1 shows the results of an OLS regression that estimates the effect of defendant age on recommended prison sentence (Panel A) and restitution fees (Panel B). For each panel, column one shows results for all respondents, column two shows results for female respondents, and column three shows results for male respondents. Row one in Panel A, the coefficient  $\hat{\beta}$ , shows the recommended increase in years in prison for each additional year of defendant age. Similarly, row one in Panel B, the coefficient  $\hat{\beta}$ , shows the recommended increase in restitution dollars for each additional year of defendant age. Row two of each panel gives the robust standard errors of  $\hat{\beta}$  while row three shows the 95% confidence intervals. Rows four and five show the p-value and number of respondents, respectively. The final row indicates the average number of recommended years in prison (Panel A) and dollars of restitution fees (Panel B).

The coefficient in row 1, column 1 of Panel A has a value of 0.164, indicating that for each additional year of defendant age respondents recommend an additional 0.164 years (95% CI = [0.008, 0.335] in years) of prison sentence. This result was not statistically significant for the overall sample ( $p = 0.062$ ). Given the mean prison years of 7.510, each additional year of defendant age is related to a 2.18% increase in time in prison. When considering the 11 year difference between our youngest age (15) and our oldest age (25), the effect is relatively large, an additional 1.804 years of prison or 24.02% more time incarcerated.

Columns 2 and 3 show the results broken down by female and male respondents, respectively. There are substantial differences in recommended sentences by gender with female respondents recommending a statistically significant ( $p = 0.001$ ) additional 0.270 years (95% CI [0.099, 0.441]) in prison for each additional year of defendant age, while males recommend a non-significant 0.023 years (0.28 months) of prison.

Figure 1A shows the average prison sentence for each year of respondent age. The youngest age in our sample - age 15 - has the lowest recommended years of prison at less than six years. As seen in the regression presented in Table 1, as the defendant gets older, respondents recommend increasingly longer prison sentences until about eight years of prison time are recommended in the early 20s. While there is a sharp decline in recommended sentence from age 17 to age 18, this

difference is not statistically significant.<sup>13</sup>

The coefficient in row 1, column 1 of Panel B has a value of 389.706, indicating that for each additional year of defendant age respondents recommend an additional \$389.706 dollars (95% CI = [55.730, 723.682] in years) of restitution. This result is statistically significant ( $p = 0.022$ ). Given the mean restitution fee of \$11,410.57, each additional year of defendant age is related to a 3.42% increase in restitution. When considering the 11 year difference between our youngest age (11) and our oldest age (25), the effect is relatively large, an additional \$4,286.77 of restitution or 37.57% of additional fees.

Similar to Panel A, Columns 2 and 3 of Panel B show the results broken down by female and male respondents, respectively. There are considerable differences in recommended restitution by gender with male respondents recommending a statistically significant ( $p = 0.017$ ) additional \$499.860 (95% CI [89.968, 909.752]) in restitution for each additional year of defendant age. Females recommend a non-significant \$367.912 of restitution. These results suggest that the findings from the complete sample were driven by male respondents.

Figure 1B shows the average amount of restitution respondents recommend for each defendant age. As with recommended prison sentence, the youngest respondent age - age 15 - has the lowest recommended restitution at about \$8,000 with the overall trend being an increase in recommended restitution as defendant age increases. There is an increase of over \$1,000 in recommended restitution from age 17 to age 18 though this difference is not statistically significant.<sup>14</sup>

Table 2 shows the results of a multinomial logistic regression used to estimate the effect of defendant age on perceptions of accountability. Each column in the table shows how likely respondents are to choose that possible answer relative to choosing “Very unaccountable,” which is the reference category. Row three shows the shows the exponentiated  $\hat{\beta}$  coefficient, or the relative risk ratio (RRR) which is the likelihood of choosing each accountability option relative to “Very accountable.” Relative to choosing “Very accountable,” each additional year of defendant age slightly decreases the likelihood of a respondent choosing “Somewhat accountable” (RRR = 0.974,  $p$ -value = .251) and slightly increases the likelihood of choosing “Somewhat unaccount-

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<sup>13</sup>For this analysis we ran the same regression as in Table 1 but using a subset of the data for just respondents aged 17 and 18.

<sup>14</sup>As with the recommended prison sentence, for this analysis we ran the same regression as in Table 1 but using a subset of the data for just respondents aged 17 and 18.

able” (RRR = 1.009, p-value = .787) and “Very accountable” (RRR = 1.046, p-value = .096). However, none of these values are statistically significant. These findings suggest that defendant age is unrelated to perceptions of accountability. The bottom row of the table shows how many respondents chose each answer. 75% of respondents, or 1,431 out of 1,918 respondents believed that the defendant is “Very accountable” for his crime. 251 or 13% of respondents believe the defendant to be “Somewhat accountable,” whereas 78 or 4% of respondents believe the defendant to be “Somewhat unaccountable,” and 158 or 8% respondents contend that the defendant is “Very unaccountable” for his actions. In other words, respondents are at least 7.64 times more likely to choose “Very accountable” compared to any other one of the accountability options.

Table 3, which is set up identically to Table 2, shows the results of a multinomial logistic regression used to estimate the effect of defendant age on perceptions of likelihood of committing a similar offense in the future where “Extremely likely” is the reference group. Relative to choosing “Extremely likely,” respondents are significantly less likely to choose “Somewhat likely” (RRR = 0.960, p-value = .027) but are not significantly more or less likely to choose “Neither likely nor unlikely” (RRR = 0.993, p-value = 0.752), “Somewhat unlikely” (RRR = 1.015, p-value = .612), or “Extremely unlikely” (RRR = 0.967, p-value = .482). These estimates suggest that perceptions regarding the probability of reoffending is not strongly related to defendant age. Out of the 1,918 respondents, 73% believe that the offender is likely to reoffend as 495, or 26%, choose “Extremely unlikely” and 911, or 47%, choose “Somewhat likely.” 18% or 336 respondents were neutral and selected “Neither likely nor unlikely.” Just 9% of respondents thought it is unlikely that the defendant will reoffend with 7%, or 138, choosing “Somewhat unlikely” and 2%, or 38, choosing “Extremely unlikely.”

## 4 Discussion

The findings of the current study reveal that age is not significantly related to perceptions of defendants accountability or likelihood of reoffending. Additionally, respondents’ gender influenced the extent to which defendant age was associated with punishment decisions. When examining punishment recommendations for 17-year-olds versus 18-year-olds, there was no significant difference. Overall, our findings provide mixed support for our hypotheses as well as the broader literature.

In contrast to prior studies, we do not find support that younger offenders are perceived as less accountable than older offenders (Ghetti and Redlich, 2001; Scott et al., 2006). This suggests that the respondents believe that 15- to 25-year-olds are generally able to understand right from wrong and can recognize wrongful behavior, and thus should be held responsible for their actions. However, this finding may also be due to characteristics of the vignette itself, as the offender was described as being proactive committing the crime (e.g., approaching the victim, pushing the victim into deserted alley, using a knife, etc.) and these characteristics did not vary by vignette. Thus, respondents may be attributing levels of accountability based on characteristics of the crime itself rather than the offender's age. Given the nature of the crime depicted - a violent robbery - it is unclear if respondents would judge defendant accountability differently in the case of a less serious offense. Future studies should examine this question using less serious crimes and difference case circumstances.

Using the total sample, the relationship between defendant age and punishment severity was somewhat inconsistent, with non-significant effects for recommended prison time and a significant increase in recommended restitution; nevertheless, the overall trend was that older offenders typically received harsher penalties – a finding that is consistent with past research (Ghetti and Redlich, 2001; Tufts and Roberts, 2002). This could suggest that although respondents believe offenders should be held responsible for their actions, they still recognize that sanctions should be developmentally appropriate. The inconsistent finding may, in part, be due to the sex difference that emerged from the results on recommended punishment. Specifically, female respondents recommended a longer sentence for older offenders while there was no significant effect of defendant age on sentence length for male respondents.<sup>15</sup> On the other hand, male respondents recommended higher restitution amounts for older offenders while female respondents did not recommend a significantly different restitution amount based on offender age.<sup>16</sup> The differences between genders for recommended punishments might be related to sex-related perceptions of vulnerability. Specifically, studies have suggested that women are more likely to feel vulnerable, which could lead them to be more punitive (Hurwitz and Smithey, 1998; Mills, 1980; Pierce and Harris, 1993). These

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<sup>15</sup>For female respondents only: for every 1 year increase in the defendant's age, the recommended prison sentence increased by .27 years, which translates to approximately 3.25 months.

<sup>16</sup>For male respondents only: for every 1 year increase in the defendant's age, the recommended restitution increased by \$499.86.

findings could have important implications for restorative justice policies, as they indicate gender differences in people's desires for punishment. These findings could suggest that female victims may want a more punitive - and thus less restorative - penalty for violent offending while male victims would prefer financial compensation over time incarcerated. However, additional research on this topic should be done in order to further establish a relationship regarding differences in recommended punishments by sex.

It should be noted, however, that there were no differences in recommended sanctions between the 17-year-old offender and the 18-year-old offender which does not support raise the age policies that define 18 as the age of criminal majority. This finding may prompt policy-makers to reconsider making a legal distinction between these ages in cases of serious violent crimes. Given the currently ongoing efforts to change policy to increase the age of criminal majority - in some cases to over the age of 20 - more research is needed to determine public support to different types of offenses and defendants (Perker et al., 2019; Sawyer et al., 2018). Although there is not a statistically significant difference in recommended punishments between 17- and 18-year-olds, respondents recommended that older offenders overall should be punished more harshly than younger offenders, which provides support for the goals of raise the age policies.

Regarding recidivism, the current study found that for every year older that the defendant was, there was an associated 4% decreased odds in the respondents' perception that defendants were "somewhat likely" to reoffend compared to "extremely likely" to reoffend. There was no significant difference otherwise, suggesting that defendant age does not change the odds of perceiving that defendants were "neither likely nor unlikely", "somewhat unlikely", or "extremely unlikely" compared to "extremely likely" to reoffend. These results indicate while older defendants are considered less likely to offend than younger defendants, they are still "somewhat likely" to offend, suggesting that at all ages respondents believe people likely to reoffend. This finding suggests that the general public may not be aware of empirical evidence related to juvenile recidivism that finds that reoffending sharply decreases after peaking around age 18 (Hirschi and Gottfredson, 1983; Farrington, 1986; Moffitt, 1993). The current study's findings may in part be due to considerations of the offender's motives and intentions; indeed, there has been evidence that whether an offender is viewed as having impulsively committed a crime against a random individual is least likely to recidivate (Bradley et al., 2012). In our vignette, respondents may have differed on whether

the offender intentionally sought out the victim or if the victim was a random target that the offender had the opportunity to rob. Unfortunately, the current study did not assess respondents' perceptions of intentionality.

Although our results provide evidence on what current public opinion says and how it lines up with legislative policies, we do not know how these policies drive public opinion. Research has found that the environment can, in part, influence people's opinions ([Moussaïd et al., 2013](#); [Bickhard, 1992](#)). One possible explanation is that because there has been an established juvenile justice system since the 19th century, people may assume that younger offenders should be given less serious penalties than older offenders without providing a reason for their opinions ([Pratt, 1986](#); [Ferdinand, 1991](#)). Because age 18 has only recently been defined as the age of criminal majority in some states, people may not yet have the belief that 17- and 18-year-olds should be punished differently. It is unclear where people may begin to adapt the idea that 18-year-old defendants should be treated in a more punitive manner than younger defendants if age 18 is consistently regarded as the age of criminal majority. Future research should focus on less serious offenses than the robbery in this study, and on how juvenile justice policies shape public opinion over time. Research should also be conducted periodically over a long time period to determine how public perceptions change and what factors influence such changes.

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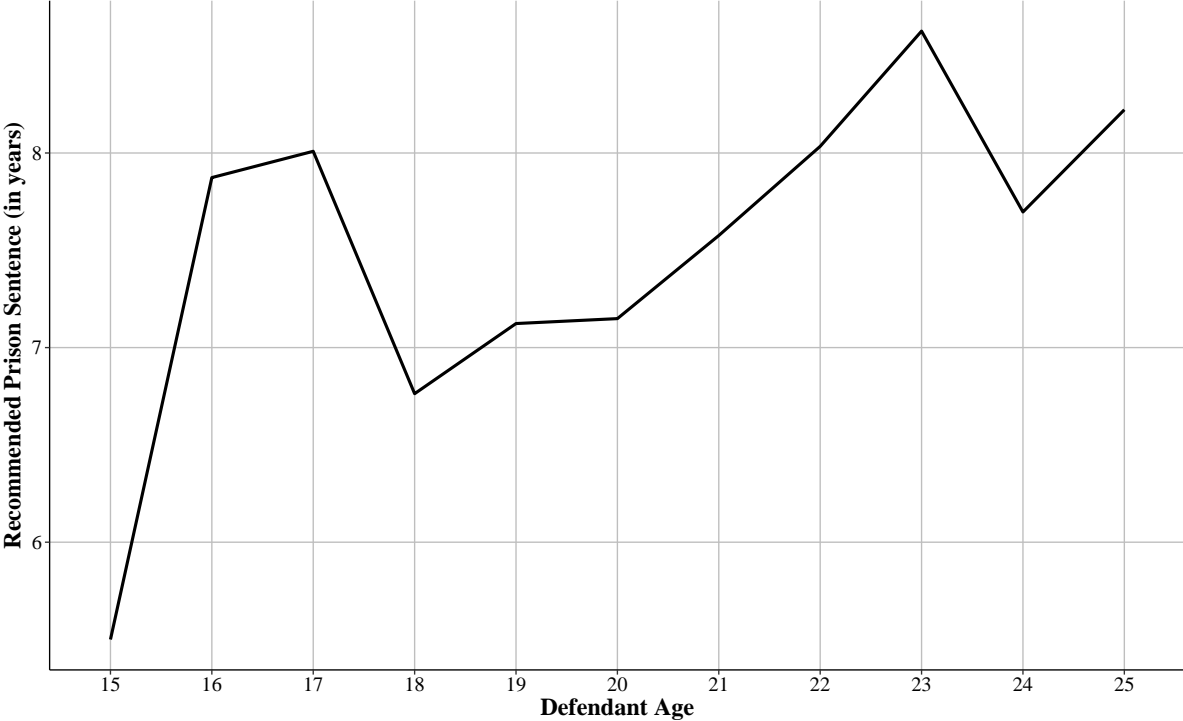
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Figure 1: Respondent Recommended Punishments for Each Defendant Age (Randomized from 15-25)

A: Average Recommended Prison Sentence (in Years) by Defendant Age



B: Average Restitution to the Victim (in Dollars) by Defendant Age

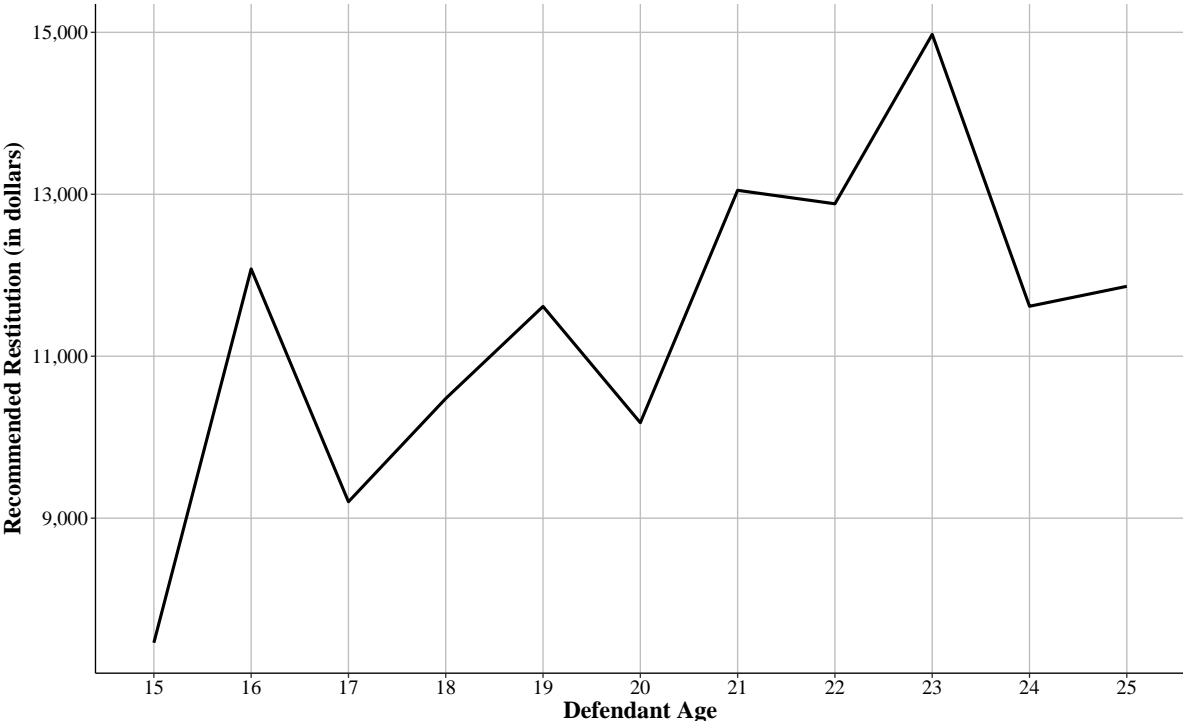


Table 1: OLS Regression Results for the Effect of Defendant Age on Recommended Punishment

	Complete Sample	Female Respondents	Male Respondents
$\hat{\beta}$	0.164	0.270**	0.0226
Se( $\hat{\beta}$ )	0.087	0.081	0.169
[CI]	[0.008, 0.335]	[0.099, 0.441]	[-0.309, 0.354]
P-value	0.062	0.002	0.893
N	1918	1,141	775
Mean(y)	7.510	6.56	8.92

(a) Panel A: Recommended Prison Sentence (in Years)

	Complete Sample	Female Respondents	Male Respondents
$\hat{\beta}$	389.706*	367.912	499.860*
Se( $\hat{\beta}$ )	170.290	252.127	208.797
[CI]	[55.730, 723.682]	[-126.781, 862.605]	[89.968, 909.752]
P-value	0.022	0.145	0.017
N	1,918	1,141	775
Mean(y)	11,410.57	11,154.23	11,814.83

(b) Panel B: Recommended Amount of Restitution (in Dollars)

Note: All models include the following respondent demographic control variables: age, gender, race, ethnicity, education status, and their household income. The N for female and male respondents does not add up to the complete sample N because two respondents identified as neither female nor male.

\*p<0.05 \*\*p<0.01

Table 2: Multinomial Logistic Regression Results for the Effect of Defendant Age on Perceptions of Accountability for the Offense

	Very accountable	Somewhat accountable	Somewhat unaccountable	Very unaccountable
$\hat{\beta}$	-	-0.027	0.009	0.045
Se( $\hat{\beta}$ )	-	0.023	0.034	0.027
exp( $\hat{\beta}$ )	-	0.974	1.009	1.046
[CI]	-	[0.931, 1.019]	[0.944, 1.080]	[0.992, 1.102]
P-value	-	0.251	0.787	0.096
# of Responses	1,431	251	78	158

Note: The regression includes the following respondent demographic control variables: age, gender, race, ethnicity, education status, and their household income. Respondents were asked ‘How accountable do you think the defendant is for the crime?’ with the above options as the possible answers. The ‘Very accountable’ answer is the reference group.

\*p<0.05 \*\*p<0.01

Table 3: Multinomial Logistic Regression Results for the Effect of Defendant Age on Perceptions of Likelihood of Reoffending for the Offense

	Extremely likely	Somewhat likely	Neither likely nor unlikely	Somewhat unlikely	Extremely unlikely
$\hat{\beta}$	-	-0.040*	-0.007	0.015	-0.034
Se( $\hat{\beta}$ )	-	0.018	0.024	0.030	0.048
exp( $\hat{\beta}$ )	-	0.960	0.993	1.015	0.967
[CI]	-	[0.927, 0.995]	[0.948, 1.039]	[0.958, 1.076]	[0.880, 1.062]
P-value	-	0.027	0.752	0.612	0.482
# of Responses	495	911	336	138	38

Note: The regression includes the following respondent demographic control variables: age, gender, race, ethnicity, education status, and their household income. Respondents were asked ‘How likely do you think it is that the defendant will commit a similar crime in the future?’ with the above options as the possible answers. The ‘Extremely likely’ answer is the reference group.

\*p<0.05 \*\*p<0.01

## Appendix A - Study Vignette

Bob is walking to his car after running some errands. He is approached by a [AGE]-year-old male, named Matt, who begins verbally insulting him. Bob walks quickly toward a busy intersection but Matt catches up with him. Matt suddenly pulls out a knife and roughly pushes Bob into a deserted alley. Matt shoves Bob up against a wall, holds the knife to Bob's throat, and threatens to kill him if he does not hand over his wallet and phone. Bob can feel the blade of the knife pressing against his skin as he reaches for his wallet and phone and gives them to Matt. After grabbing the possessions, Matt pushes Bob to the ground and runs off. Then Bob runs to a nearby convenience store and uses the phone to call the police. The police locate Matt a few blocks away from the alley, who is still holding Bob's possessions, and arrest him. A few months later, Matt is found guilty of robbery by a court of law.