

# Genetics, Violence, Race and the Partisan Processing of Responsibility

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## **Abstract**

Researchers across disciplines have studied the link between genes and violent behavior. Results from these studies have shaped laypeople's perceptions of violence, individuals who commit violent acts, and policymaking surrounding violence prevention. Lay perceptions of violent behavior are also shaped by race and ideology. Using a vignette experiment, we show that all three of these things interact when people form opinions about people who commit violent acts and the policies that affect them. In particular, we find that respondents who identify as liberal find individuals who commit violent acts less responsible for their actions. This is not true for moderate or conservative respondents. In addition, we find that liberals are much more enthusiastic about hiring non-white vignette subjects as teachers than conservatives or moderates - even when the subjects have genetic predispositions toward violence. We also find that respondents are broadly skeptical of expert opinion across ideology.

## **1 Introduction**

Researchers across disciplines study the relationship between genetics and violence, as well as perceived relationships between violent behavior and race. Bringing these two objects of study together, however, is empirically, politically, and morally perilous. That is what we do in this paper, by examining public views on the implications of linking genes, violence, and race. We do not follow the usual path of asking people if or how they think that genes,

race, and violence are linked. Instead, we present vignettes that enable us to see whether being told that a man of a given race has a genetic predisposition toward violent behavior affects how respondents view him and how they evaluate policies that might affect people like him. We further assess whether views vary in accord with respondents's ideology.

Results are complex, but fascinating. Learning about a genetic predisposition to violent behavior has some clear effects: it makes liberals significantly less likely to hold the vignette subject responsible for his behavior. Furthermore, learning that a black - but not a white - man has a genetic predisposition to violent behavior makes liberal but not conservative - respondents more willing to hire him as a teacher. Finally, respondents across all ideological categories express suspicion of expert opinions when experts state that the vignette subject is genetically predisposed to violent behavior.

Of equal importance is the fact that learning about a genetic predisposition toward violence does not have some predictable effects. We find surprisingly little link between respondents acquisition of this information and their opinions of how likely the vignette subject is to commit a violent act, how harsh the sentence for a first offense should be, or how they view a three-strikes law. That result holds across the race of the vignette subjects. Ideology is all that matters here; variation among respondents aligns with their political views, but not with characteristics of the vignette subject.

In short, our findings clearly support neither the expectation of disastrous societal implications of assertions that genetic inheritance may be linked to traits or behaviors, nor the hope that such assertions provide a clear path to appropriate policies. More analytically, neither genetics knowledge, nor race, nor partisanship consistently explains how the public evaluates claims linking genetics and behaviors. On balance, partisanship matters the most which even in this era of hyperpolarization is surprising given the immense emotional charge of linking genetics to race.

## 2 Genetics and Violence

Researchers have debated the link between genes and violent behavior for nearly a century. Numerous studies have posited a link between particular genetic mutations and criminal behavior (Wilson and Herrnstein 1985). Much of the scholarship surrounding the genetics and neurobiology of violence has focused on the monoamine oxidase A (MAOA) gene. Researchers have found that individuals with low levels of expression for this gene exhibit more signs of impulsive aggression and potentially higher propensities for violent behavior (Meyer-Lindberg, et. al. 2006; J. Tiihonen et. al. 2015). Some scholars have suggested that specific polymorphisms of the MAOA and DRD2 genes are highly predictive of “serious and violent delinquency” in young men (Guo, Roettger, and Cai 2008). Other scholars have cautioned against over-interpreting these findings. Some studies have suggested that the interaction between genetic risk factors and environmental factors matters, and that individuals with genetic risk factors for violence could either be moderated or triggered by exposure to violence (Barnes and Jacobs 2013). Other scholars have warned that the strongest links between heredity and crime had been established in older studies; methodological improvements in more recent studies have yielded much weaker evidence for the relationship between genes and crime (Walters 1992).

Nevertheless, these scientific discoveries have shaped the way laypeople understand the underlying causes of violent behavior and violent crime. In 1997, a U.S. News and World Report phone survey of 1,000 adults showed that 73% of respondents believed that violent behavior was determined at least somewhat by heredity and genes. 19% of respondents believed that violent behavior was due mostly or completely to genes and heredity. In the wake of the 1999 school shooting at Columbine High School, a PSRA/Newsweek poll of 753 adults showed that 40% of respondents believed that genetic or biological tendencies toward violence contributed at least some to mass shootings. 15% of respondents believed that ge-

netic predispositions contributed a lot.

### 3 Attribution Theory

The relevant question then becomes: *how* does information about the link between genes and violent behavior affect public perception of individuals with genetic predispositions and the people who might be predisposed to violent behavior as a group? Here, attribution theory provides helpful conceptual tools to map the way that laypeople use scientific information to explain behavior. Attribution theory proposes that individuals broadly look for causal explanations for the individual and group behavior they observe (Haider-Markel and Joslyn 2005). Individuals divide what they see as the causes of particular behaviors into environmental or situational causes and individual or personal causes; they then assess the extent to which they believe that behaviors and their causes can be controlled. More “controllable” behaviors, if they are stigmatized or controversial, are viewed more unfavorably than uncontrollable behaviors. If attribution theory holds, genetic and biological explanations for stigmatized traits like violence should lead individuals considering a person with such traits to believe that she was less responsible for her own actions. Genetic attribution should also reduce stigmatization of trait-holders as a group. Researchers have found support for this theory across a variety of traits. Some studies have found that the attribution of homosexuality to genetic and biological causes was associated with higher support for gay marriage (Haider-Markel and Joslyn 2005). Similarly, studies in psychology have found that attributing schizophrenia to genetic causes reduced punitive sentiments among survey respondents (Phelan 2005). Other researchers have demonstrated that presenting evidence about biological roots of psychopathy reduced sentences and increased the influence of mitigating factors (Aspinwall, Brown and Tabery 2012).

## 4 Race and Violence

Lay perceptions of violent behavior and the individuals who engage in it are also shaped by race. Numerous studies have found that white respondents tend to view black people in particular as more violent than whites (Hurwitz and Peffley 2002; Gilliam and Iyengar 2000; Duncan 1976; Sagar and Schofield 1980). These attitudes may also be rooted in whites' belief in fundamental genetic and biological differences between themselves and blacks (Hurwitz and Peffley 1997). Perhaps as a result of these views, white survey respondents are much more likely to endorse punitive measures. This is true both generally, with white survey respondents more likely to argue that crime can be reduced with harsher penalties and more spending on police (Thompson and Bobo 2011), and in the context of particular individuals, where white respondents are likely to endorse higher penalties for black people who commit violent acts. There is evidence to suggest perceptions of race and violence might also be influenced by ideology. Conservatives are more likely to adopt individualistic views of behavior and assign people, rather than their circumstances, more responsibility for their actions (Thompson and Bobo 2011; Hopkins 2009).

Our hypothesis in this work is that individuals process new information through the lens of their existing racial and partisan views. Accordingly, our primary question in this paper concerns how perceptions of race and genetic predisposition toward violence interact, how these perceptions interact with partisanship, and how they affect policy views. What we know about public views of race, genetics, and violence is that the former two should affect the latter in opposite directions. Assuming attribution theory holds, finding out that an individual's propensity toward violence should reduce stigmatization and punishment and perhaps even increase support for programs that help people with violent tendencies. Yet the belief that nonwhites are somehow inherently more violent than whites should push in the opposite direction. Finally, if the literature's proposition that conservatives are generally

more individualistic and less structuralist than moderates or liberals is true, then we expect conservatives to be less affected by information about genetic factors contributing to violence than their liberal or moderate counterparts. In this paper, we test the following hypotheses:

- Hypothesis 1: In general, the effect of discovering that an individual’s propensity toward violence or aggressive behavior has genetic causes should reduce laypeople’s sense of blame and willingness to punish them.
- Hypothesis 2: If the perception that nonwhites are more violent than whites is pervasive, then the effect of discovering that a nonwhite individual’s propensity toward violence or aggressive behavior has genetic causes should reduce laypeople’s sense of blame and willingness to punish them less than the same effect would be if the individual is white.
- Hypothesis 3: If conservatives are in fact more individualistic in their explanations of human behavior, their views should be affected less by information about the genetic causes of violent behavior than the views of their moderate or liberal counterparts.

## 5 Experimental Design and Data Collection

To test these questions, we conducted an online survey experiment (Phelan 2005) in which respondents were asked to read the following scenario about a hypothetical individual:

Connor is a 26-year-old man. He has a job, is not married, and currently lives alone. Back when Connor was in high school, he repeatedly got into physical fights with his classmates. Recently Connor had a fight with a friend in which he injured his friend badly enough that onlookers called the police. Connor was charged with assault and served time in jail. Connor was examined by medical experts while he was in jail.

The name “Connor” is a randomized race treatment meant to connote a putatively white vignette subject. Respondents were randomly assigned to a version of this vignette featuring

a putatively black subject (Jamal) or a putatively Hispanic subject (Miguel). In addition, respondents were randomly assigned to one of two genetic treatment conditions. The vignette above ended with one of the two following statements, either (1) a genetics expert said that Connor’s tendency to be aggressive has a very strong genetic component or (2) Connor’s tendency to be aggressive is not due to genetic factors.

We then asked survey respondents a series of questions about the vignette subject and their views on policies that might affect him.

Table 1: Outcome Questions

Question
On a scale of 1 (no responsibility) to 100 (full responsibility), how much personal responsibility does Connor have for his tendency to be aggressive?
In Connor’s state, criminal sentences for assault range from 1 month to 30 months in jail. In your opinion, how long should Connor’s sentence have been, given that this was his first conviction?
On a scale of 1 (extremely unlikely) to 100 (extremely likely), how likely do you think Connor is to act violently toward someone else after this incident?
On a scale of 1 (strongly oppose) to 100 (strongly support), how much do you support “three strikes laws” in your state? (Three strikes laws make life in prison the minimum sentence for someone who commits a violent felony and already has two prior convictions for violent felonies).
On a scale of 1 (strongly oppose) to 100 (strongly support), how much do you support publicly funded programs to help people like Connor? These programs might include things like job training, rehabilitation, talk therapy, or medication, but they are not limited to those options.
On a scale of 1 (strongly oppose) to 100 (strongly support), how much do you support publicly funded programs that prevent violent behavior? Examples of these programs include: youth counseling, after school sports or other activities, or anger management
Many years after this incident, Connor gets certified as a teacher and applies for a teaching position in his local school district. His earlier violent incident is the only crime in his record, but he still has to inform the school. Do you agree or disagree that his local school should hire Connor as a teacher if he is otherwise qualified?
To what extent do you agree with the genetics expert’s analysis that Connor’s behavior [is not due to genetic factors/is due to genetic factors]?

These outcome questions were presented to respondents in random order. Survey respondents were subsequently asked a series of demographic questions and questions about their baseline willingness to attribute behaviors to genetic causes. See Section 10 for the complete survey instrument. This survey was administered to a sample of 1,197 respondents across two online platforms: Amazon’s Mechanical Turk (816 respondents) and Harvard’s Digital Lab for the Social Sciences (381 respondents). Our sample skewed liberal. 509 respondents (45.5%) identified as liberal or very liberal; 310 respondents self-identified as moderate (27.7%), and 300 (26.8%) identified as conservative. The vast majority of participants in this survey experiment (80%) are white. 54.0% of respondents identified as female and 45.5% as male. Survey respondents reported an average age of 42 with a standard deviation of 15.1 years. Respondents reported a median annual income of \$50,000 - \$74,999 and the median respondent had an undergraduate degree. See Section 9 for complete information on sample demographics and balance across treatment conditions.

## 6 Results

### 6.1 Effects of Genetic Information and Race

Interaction effects between genetic information, race, and respondent’s ideology are both present in this study and central to our chief hypotheses. Because all of the treatments in this study are categorical these effects are also the most difficult to interpret. Additionally, the race and genetic treatments represent the only randomized manipulations in this study; respondent’s ideological leanings were established long before they participated in this experiment. Accordingly, we begin by examining the interactions between our two randomized interventions: race and genes. Table 2 summarizes OLS regression results for each of the outcome questions reported in Table 1 and the interaction of our race and genetic treatments. The main effect of finding out that the vignette subject has a genetic



predisposition toward violent behavior is significantly negative in two response categories: responsibility and expert agreement. As attribution theory would suggest, respondents assigned to the genetic treatment condition generally thought that the vignette subject had less responsibility for his actions. Surprisingly, respondents assigned to the genetic condition expressed significant skepticism of the expert’s assessment. The implication of this result is that respondents are affected by the genetic information treatment despite being consciously skeptical of the genetic information itself. We discuss mechanisms for this in Section 7. Similarly surprising is the fact that our race treatments did not appear to generate differences in survey respondents’ overall evaluations of vignette subjects or support for public programs that might benefit the vignette subject or people like him. Responses in the sentencing and perceptions of future violence outcomes, both areas where existing theories suggest that respondents might penalize black vignette subjects, did not show significant differences by race. The one exception to this is hiring the vignette subject as a teacher. Respondents in our study were more enthusiastic about hiring black vignette subjects as teachers than they were about white or Hispanic vignette subject. We will show in subsequent sections of this paper, however, that race begins to play a role once we allow the race and genetic treatments to interact with respondent ideology. These results are robust to extensive respondent-level controls, which are presented in Table 3.

## **6.2 Ideology, Genetic Information, and Race**

### **6.2.1 Responsibility**

We asked respondents to evaluate the extent to which the individual they read about in their vignette was responsible for his actions on a scale from 1 (no responsibility) to 100 (full responsibility). Our results suggest that finding out that the vignette subject is genetically predisposed to violent behavior has a negative effect on liberal survey respondents’ willing-

Table 2: Conditional Average Treatment Effects of the Genetic and Race Treatments

	<i>Dependent variable:</i>							
	Responsibility	Sentence	Violence	Three Strikes	Programs	Violence Prevention	Teaching	Expert Agreement
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Genetic	-6.954*** (2.231)	0.167 (0.855)	1.652 (2.772)	-3.032 (3.760)	-0.843 (2.769)	-1.692 (2.588)	4.007 (3.173)	-22.894*** (2.740)
Black	0.297 (2.175)	0.447 (0.833)	-2.891 (2.701)	-1.346 (3.665)	0.237 (2.699)	0.120 (2.523)	6.470** (3.093)	2.119 (2.671)
Hispanic	-1.241 (2.212)	1.177 (0.847)	0.897 (2.748)	1.893 (3.728)	-2.450 (2.746)	-3.096 (2.566)	4.081 (3.146)	2.925 (2.717)
Genetic:Black	3.004 (3.061)	-0.465 (1.172)	-0.107 (3.801)	2.207 (5.157)	-0.846 (3.798)	1.061 (3.550)	-4.139 (4.352)	-3.774 (3.758)
Genetic:Hispanic	2.091 (3.087)	1.028 (1.183)	1.308 (3.835)	-1.394 (5.202)	0.931 (3.831)	3.886 (3.581)	-5.191 (4.390)	-4.951 (3.791)
Constant	84.960*** (1.573)	8.385*** (0.603)	59.603*** (1.954)	55.770*** (2.651)	76.040*** (1.952)	80.006*** (1.825)	57.132*** (2.237)	70.603*** (1.932)
Observations	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119
R <sup>2</sup>	0.018	0.011	0.007	0.002	0.002	0.002	0.005	0.207

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

ness to assign him responsibility for his own actions. This is not true for moderates and conservatives. While the main effect of the genetic treatment is negative for all respondents, offsetting, positive interactions between the genetic treatment and being moderate or conservative do not translate into significant overall effects on these respondents' perceptions of responsibility.

These results are summarized graphically in Figures 1 and 2. Figure 1 summarizes the average amounts of personal responsibility liberal, moderate, and conservative respondents assigned the vignette subject within each unique ideology and race and genetic treatment condition. The average vertical difference between points represents the difference between average responsibility for subjects with and without a genetic predisposition toward violence within each other condition. This slope is steeper and more negative, on average, for liberal respondents (the leftmost column). Figure 2 summarizes the effects of each combination of ideology, genetic treatment, and race treatment categories. The reference category in this

depiction is liberal respondents evaluating a white vignette subject whose violent behavior is not due to genetic causes. Every point estimate in the figure represents the relative difference between the corresponding category and the reference category. Here, “W”, “B”, and “H” denote the white, black, and Hispanic race treatments, respectively. “G” denotes the genetic treatment condition and “NG” denotes the non-genetic treatment condition. Error bars represent 95% confidence intervals around each point estimate. Treatment conditions in which 95% confidence intervals do not cross zero can be interpreted as treatment conditions in which respondents indicate that the vignette subject has a significantly different level of responsibility for his actions than liberal respondents reading about a white subject in the non-genetic treatment condition. Underlying regression results for this model are presented in Table 4.

These results suggest that the genetic treatment condition significantly affects the assignment of personal responsibility for violent action among liberal respondents. This is not true of moderate or conservative respondents. These results are consistent with existing literature in the sense that this literature would predict that liberals are more apt to adopt structuralist rather than individualist explanations for behavior. Liberals may be interpreting the vignette subject’s genetic predisposition as an environmental factor out of his control, while moderates and conservatives discount that information in favor of the individualistic view that the vignette subject still chose to commit a violent act.

### **6.2.2 Teaching**

We asked our respondents to determine how much they supported a school district’s intention to hire the subject of their vignette, provided that the incident described in that vignette was the only one in the subject’s history. Surprisingly, the main effect of the genetic treatment in this scenario was positive. The main effects of the two non-white race treatments were also positive, but enthusiasm about hiring black or Hispanic vignette subjects as teachers in

Figure 1: Average Levels of Responsibility Assignment within Ideology and Treatment Group

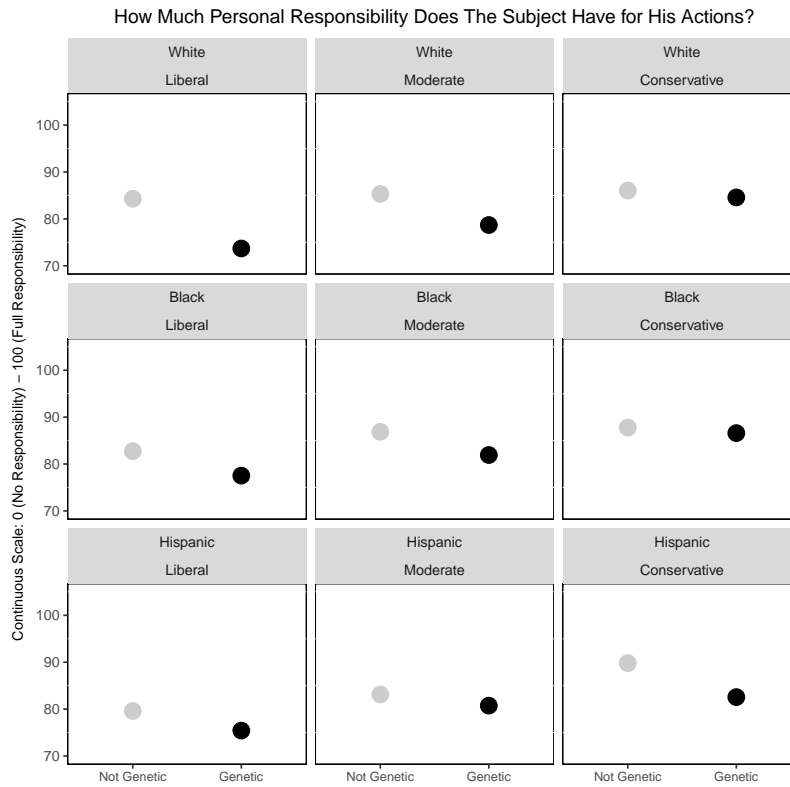
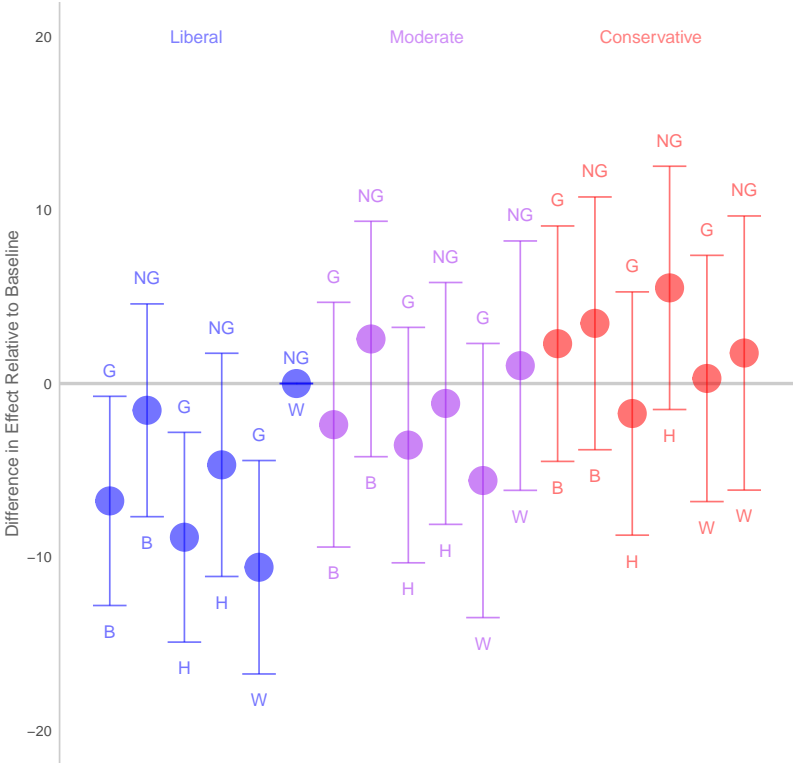


Figure 2: Effect of Race and Genes on Responsibility Assignment



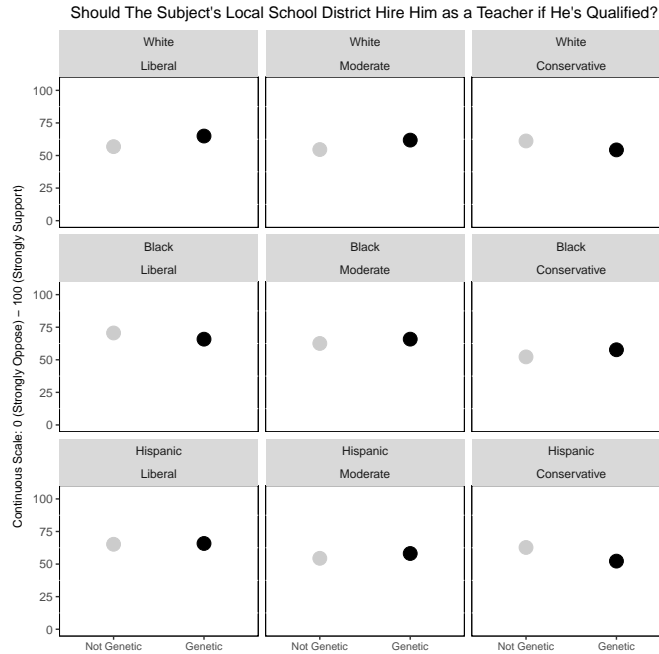
this study is limited to liberal respondents. For vignette subjects who did not have genetic predispositions to violence, interaction effects between moderate and conservative ideology for respondents and both black and Hispanic race treatments were negative. Conservative respondents were most opposed to hiring black vignette subjects without a genetic predisposition to violence. Perhaps even more interestingly, the triple interactions between the genetic treatment and non-white race treatments are positive for conservatives and moderates. These offset opposition to hiring non-white vignette subjects in cases where those subjects had a genetic predisposition to violence.

These results are displayed graphically in Figures 3 and 4. The underlying regression model for these results is presented in Table 4. These results present evidence for attribution theory in the context of support rather than punishment. Here, liberal respondents are even more motivated to recommend hiring vignette subjects as teachers when subjects have a genetic predisposition to violence. This may occur because respondents interpret the genetic treatment as a structural barrier the vignette subject has overcome. Respondents are told that the incident described in the vignette is the only crime the vignette subject has committed, and that the vignette subject is fully qualified for employment as a teacher. This runs contrary to predictions about race and violence in the literature, which suggest that white respondents are likely to view black subjects as more violent and dangerous than white subjects. The opposite is true for respondents who identify as liberal. Restricting our data to responses from white survey participants leaves trends by respondent ideology intact: white liberal respondents still support hiring non-white vignette subjects as teachers more than they support hiring white vignette subjects.

### **6.2.3 Agreement with Experts**

Participants in this survey experiment were told that medical experts examined Connor, Jamal, or Miguel while each was in jail. The medical experts in our vignette determined

Figure 3: Average Support for Hiring Vignette Subject as a Teacher



whether or not Connor, Jamal, or Miguel had a genetic predisposition to violence or aggressive behavior. One of the most surprising results in this study is that all of our survey respondents, regardless of ideology or race treatment assignment, expressed skepticism of the expert’s opinions when those experts cited a genetic cause for each vignette subject’s violent behavior. These findings are displayed graphically in Figures 5 and 6; the underlying model is summarized in Table 4.

Rising skepticism of expertise on the ideological right (Gauchat 2012) would have led us to predict this pattern for conservative respondents, but observing it among liberal and moderate respondents was unexpected - particularly because liberal respondents seemed most affected by the information in the genetic treatment. There are several possible explanations for this result. First, respondents may just be reporting inconsistent positions (Converse 1964). While this is certainly possible, respondents tend to give ideologically consistent re-

Figure 4: Effect of Race and Genes on Willingness to Hire Vignette Subjects as Teachers in the Future

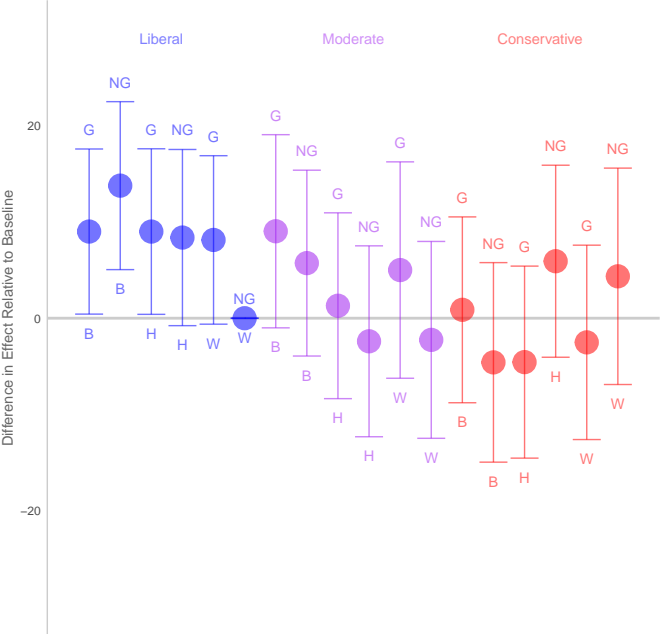
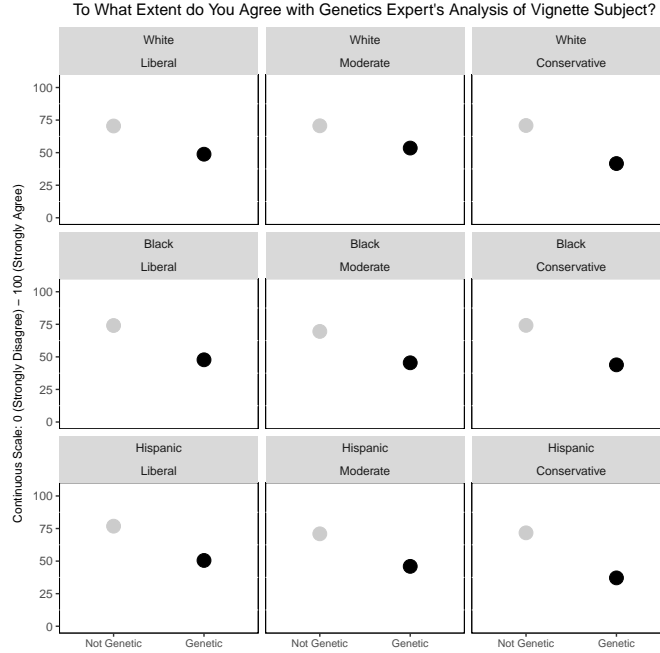


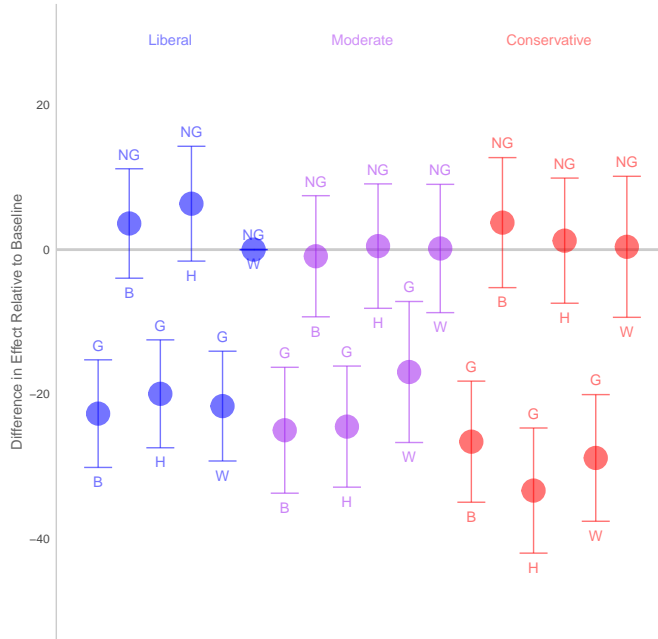


Figure 5: Average Level of Agreement with Medical Expert



sponses in other areas. In Section 6.2.7, our results show a strong negative relationship between conservative ideology and support for public programs, which is what we traditionally expect from conservative respondents. An additional possibility is that this question captures responses along different dimensions by ideology. Liberal respondents, for instance, may be using this question as an opportunity to express dissatisfaction with the prison system or medical treatment in prison. Conservative respondents, on the other hand, may be using it to express skepticism of expert diagnosis. Finally, respondents may be reporting conscious rejection of the expert’s diagnosis along with a simultaneous, genuine response to the genetic treatment. If this is true, then lay interpretations of genetics may form even in the presence of conscious skepticism over the underlying science. We hope to address the reasons for these responses and the mechanisms that drive them in future work.

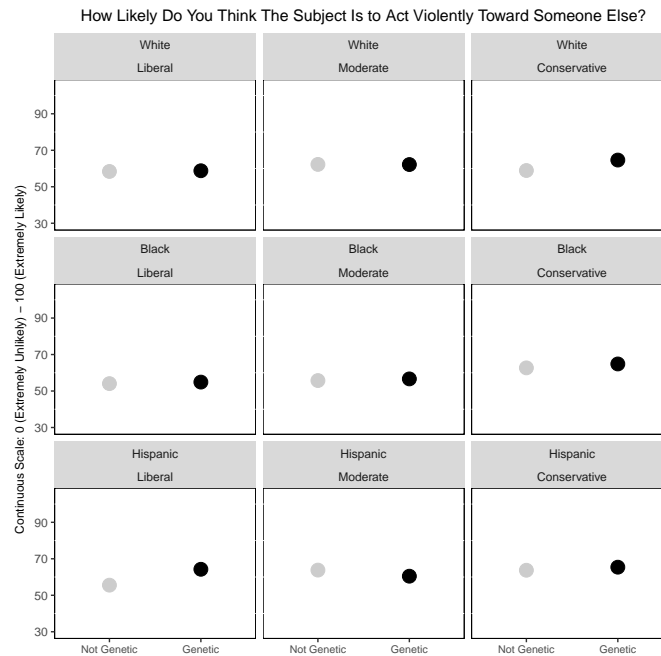
Figure 6: Effect of Race and Genes on Agreement with Medical Expert



#### 6.2.4 Future Violence

We asked respondents a series of questions focusing on punishment and mitigation. Our goal was to address both punishment and support at the individual level and policy level. We asked whether respondents believed that the vignette subject would commit violent acts in the future and what the vignette subject’s sentence should be for the crime described in the vignette. We then asked whether respondents supported three strikes laws in their state. We asked if respondents supported public programs to help individuals like the vignette subject and if respondents supported public programs aimed at violence prevention in general. We find no evidence that respondent’s ideology, the race treatment, or the genetic treatment predict views on whether or not vignette subjects would commit further acts of violence. Theoretical predictions from the literature, which would suggest that non-white vignette subjects might be viewed as more likely to commit violent acts in the future, are not borne

Figure 7: Average Level of Perceived Likelihood that Vignette Subject Will Commit Future Violent Acts



out in this study. These results also suggest that respondents do not express much genetic determinism; discovering that a vignette subject has a predisposition toward violence does not lead them to conclude that he is much more likely to commit violent acts as a result. These results are displayed graphically in Figures 7 and 8. Full results can be found in Table 4.

### 6.2.5 Sentence Length

We told respondents that criminal sentences for assault range from 1 to 30 months and asked them to recommend a length of sentence in that range for the vignette subject’s first offense. As expected, conservatives tend to endorse significantly higher sentences overall than liberal or moderate respondents. There is also some evidence that respondents across ideologies are more stringent about sentencing Hispanic vignette subjects, particularly when those sub-

Figure 8: Effect of Race and Genes on Perceived Likelihood that Vignette Subject Will Commit Future Violent Acts

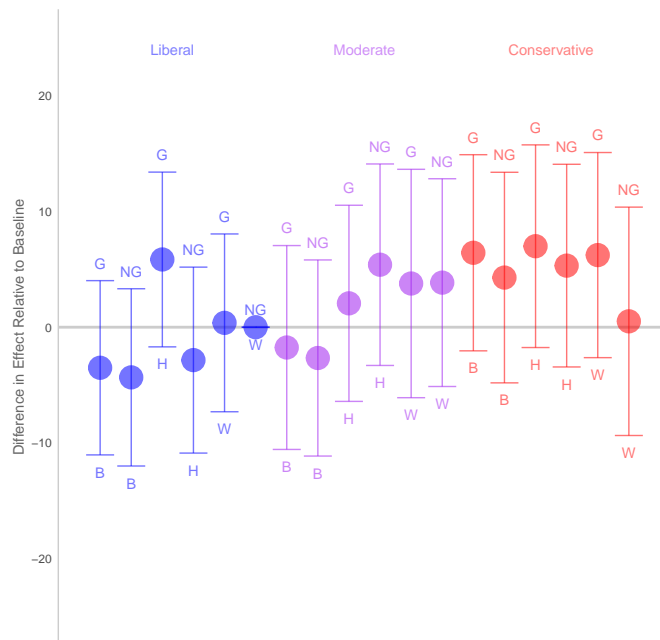
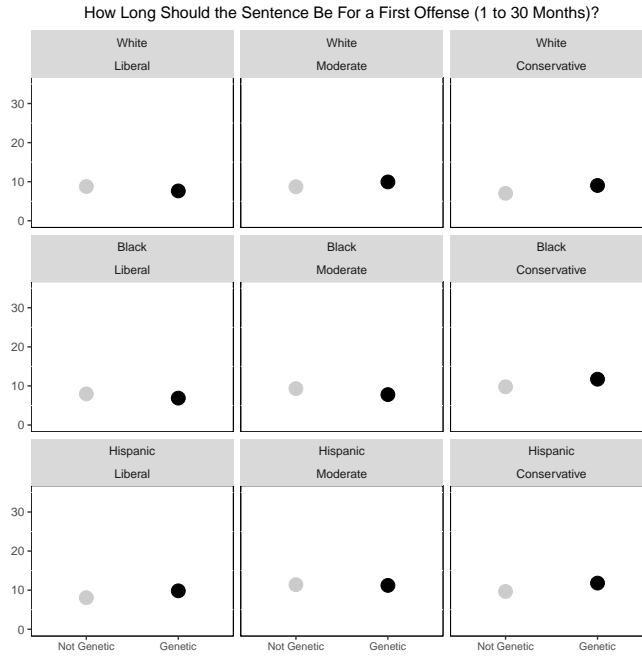


Figure 9: Average Recommended Sentence Length

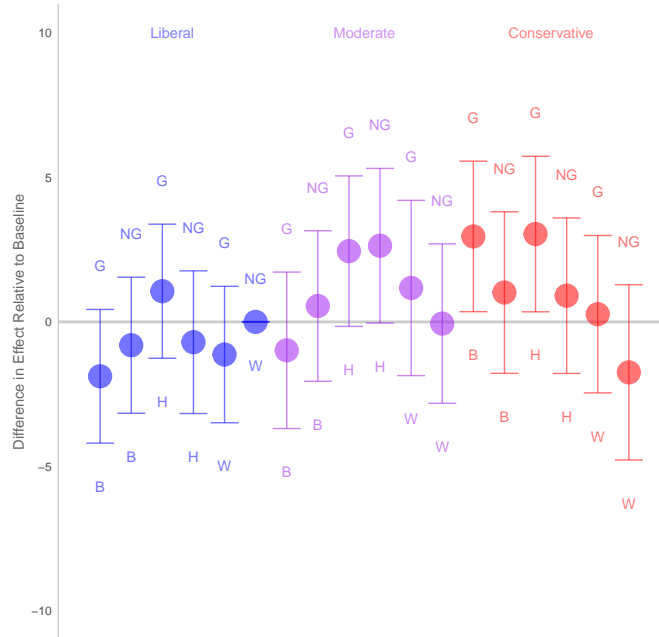


jects have a genetic predisposition toward violence. Additionally, the results summarized in Figures 9 and 10 and Table 4 suggest that conservative respondents are slightly more punitive with black vignette subjects. While existing literature across disciplines gives us reason to expect higher punishments for black vignette subjects in the eyes of survey respondents, there is far less work on perceptions of violence or willingness to punish Hispanics. These results provide some limited evidence for the idea that respondents are apt to sentence Hispanic vignette subjects harshly relative to white subjects. Figure 10 suggests this is also somewhat true for liberal respondents in our sample.

### 6.2.6 Support for Three Strikes Laws

We informed survey respondents that three strikes laws make life in prison the mandatory minimum sentence for individuals with prior violent felony convictions and asked them the

Figure 10: Effect of Race and Genes on Recommended Sentence Length



extent to which they supported these laws in their own state. As expected, conservative respondents showed significantly higher overall support for three strikes laws than liberal or moderate respondents. There is no evidence of significant differences in average responses across levels of the race or genetic treatments.

### 6.2.7 Support for Programs Benefitting Vignette Subject

We asked respondents whether they supported publicly funded programs that might help the vignette subject. These included things like job training, rehabilitation, talk therapy, medication, or other options aimed at reducing the likelihood of future violence, but we explicitly told respondents not to consider this list exhaustive. Here, support for public programs was predictably lowest among conservative respondents. We found little evidence that support for these programs differed by genes or race. Our results are displayed graphically in Figures

Figure 11: Average Support for Three Strikes Laws

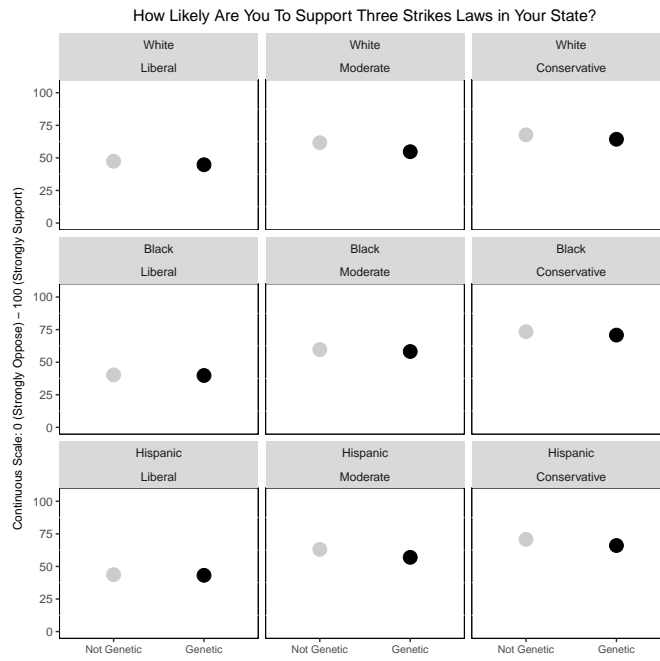


Figure 12: Effect of Race and Genes on Support for Three Strikes Laws

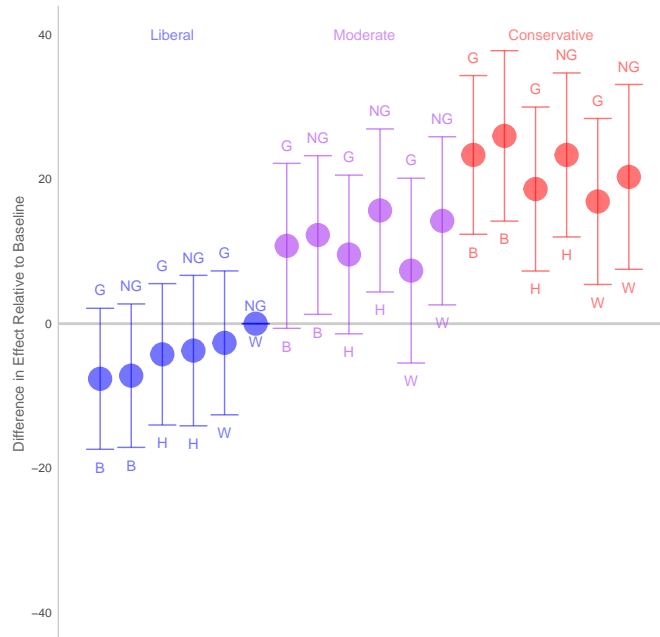
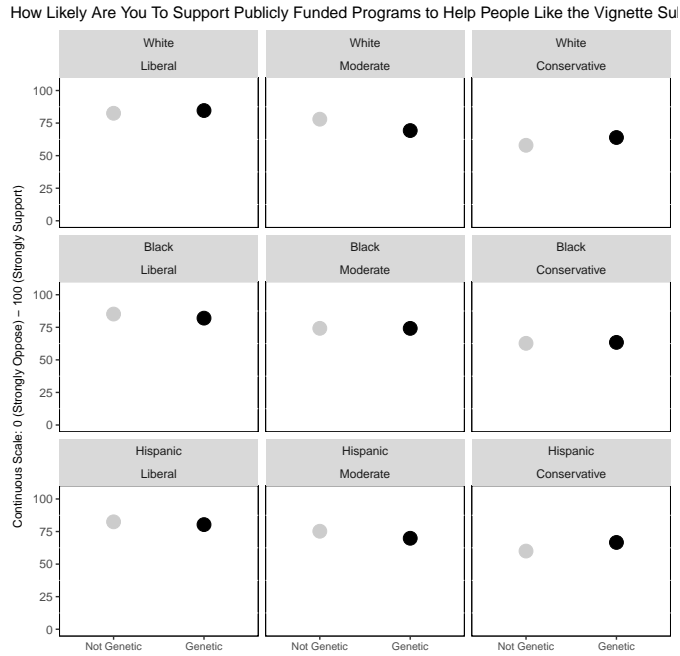


Figure 13: Average Support for Programs that May Assist Vignette Subject



13 and 14. See Table Table 4 for full results.

### 6.2.8 Support for Violence Prevention Programs

We asked respondents about the extent to which they supported public programs to address violence prevention broadly. We provided respondents with examples of such programs, including youth counseling and anger management, but we again explicitly told respondents that the list need not be limited to these. Support for these programs is also lowest among conservative respondents in our survey. There is some evidence that the genetic treatment increases support for these programs for conservative and moderate respondents evaluating nonwhite vignette subjects, but these differences are not large across treatments. These results are summarized graphically in Figures 15 and 16. See Table 4 for full results.



Figure 14: Effect of Race and Genes on Support for Programs that May Assist Vignette Subject

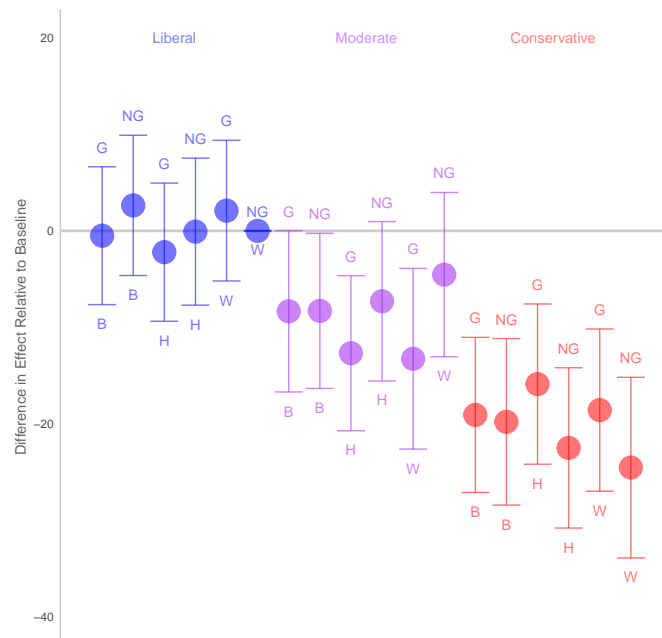


Figure 15: Average Support for Violence Prevention Programs

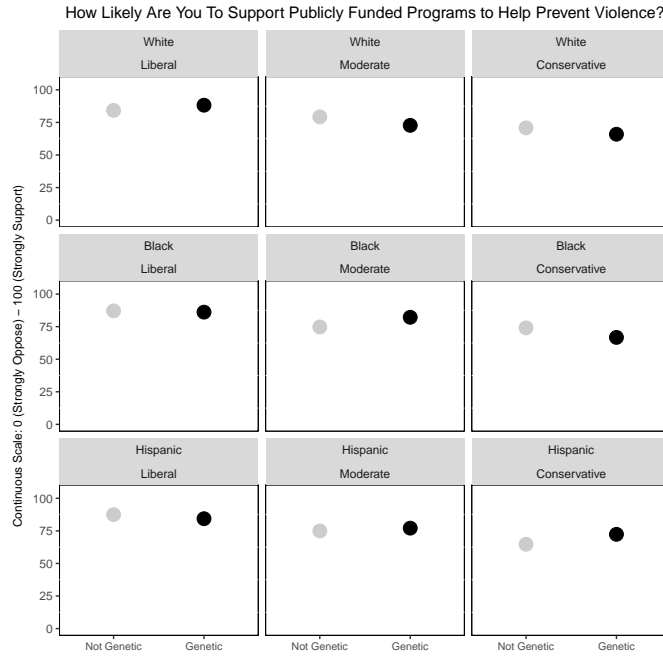
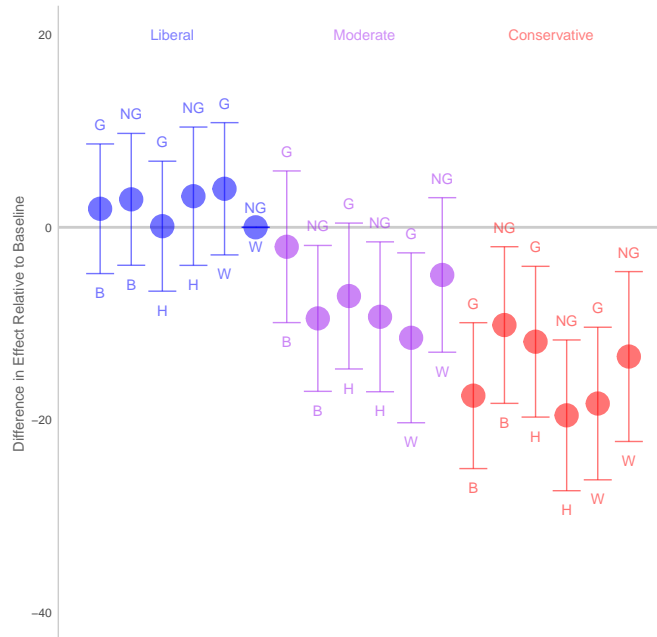


Figure 16: Effect of Race and Genes on Violence Prevention Programs

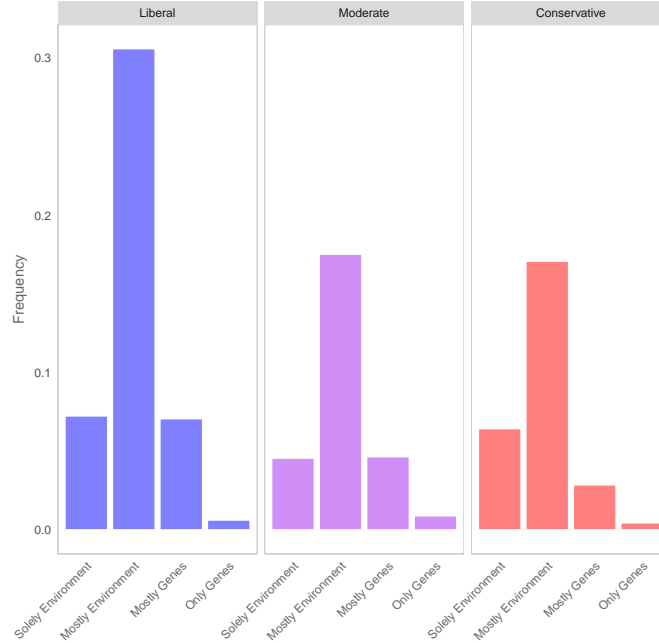


## 7 Discussion and Conclusion

Our findings provide support for attribution theory and the ideological divide between structuralist and individualist views in some contexts, but not in others. We find that discovery of a genetic predisposition toward violent behavior significantly affects perceptions of personal responsibility and willingness to hire vignette subjects as teachers. These effects take on the directions that attribution theory might predict: respondents generally view the genetic condition as a mitigating circumstance and hold individuals less responsible for their actions, or see it as a barrier that the vignette subject has overcome and support hiring them as a teacher. These effects also coincide with our theoretical predictions about ideology. Liberal respondents are most affected by genetic information in each case. This conforms to the view that liberals take a structuralist perspective on behavior, and are most apt to believe that individuals are substantially shaped by environmental (and, as our evidence also suggests, biological) factors. One curious feature of the structuralism vs. individualism debate is that it would imply that the distributions of genetic determinism looked quite different across ideologies. We asked our respondents about the extent to which they believed actions and behavior were determined by genes. Existing theories might predict that liberals would espouse environmental causes for behavior in higher proportions than conservatives or moderates. That's not the case in our data, which is summarized in Figure 17. Respondents across ideological positions in our data reported believing that actions and behavior have mostly environmental roots. In this case, genetic and environmental explanations are pinned to opposite ends of a single spectrum. In the process of evaluating vignette subjects, our data suggests that liberals may be grouping biological and environmental explanations into structural determinants of behavior.

The genetic treatment was also met with statistically and substantively significant skepticism from respondents across the ideological spectrum. Respondents were substantially

Figure 17: Distribution of Genetic Attribution Across Ideology



less likely to agree with experts in our vignette who suggested that the vignette subject's behavior had genetic causes. We discuss possible reasons for this in Section 6.2.3. Exploring both the possible drivers of these responses and their implications is a goal for future research. These findings have broad consequences for how individuals process and receive information from experts.

Finally, the genetic treatment played little to no role in determining respondent views of future violence, sentencing, three strikes, or support for individual and group programs. Variation in the responses across these categories is driven primarily by ideology and, in some cases, by the race treatment. This is consistent with the idea that policy perceptions and support for public programs are heavily influenced by the predicted races of beneficiaries (Gilens 1999). The fact that genes played little role here suggests that respondents generally did not view genetic predispositions toward violence as definitive predictors of future violence. That appears specifically in the responses to our question about future violent acts, and it

also may explain why respondents did not advocate higher sentences or endorse three strikes laws more enthusiastically under the genetic treatment condition.

Race played a more prominent role in our questions about sentencing and teaching. We show some evidence that conservative and moderate respondents recommended higher sentences for non-white subjects than liberal respondents did. We also show that liberal respondents supported the hiring of black and Hispanic teachers in a way that conservative and moderate respondents did not. We expected race to be a stronger predictor of responses in all categories. One reason we did not see this may have been that respondents were too cognizant of the race treatment. In pilot versions of this study, respondents contacted us and indicated that they were very aware of the subject's race and made an effort to respond in a non-discriminatory way. The pilot version of this study explicitly stated the vignette subject's race in addition to his name, and we removed any indications of race beyond first name in the version discussed here. Still, respondents may have been aware of the race treatment, and results across race may be somewhat reflective of demand effects. There are two ways to address this going forward. We may give respondents a battery of questions concerning racial animus and explicitly account for differences in racial sentiment among respondents. We may also consider even subtler cues for race in future versions.

The results of this study clearly demonstrate that genes, race, and ideology clearly interact in many cases when respondents are asked to evaluate individuals who commit violent acts. These may not be the cases we expect. The strongest evidence of interactions in our study comes in cases where respondents are making assessments about the individual: what is his level of responsibility? Should he be hired as a teacher? what should his sentence be? These results have important implications for how people judge and interact with individuals they know to have genetic predispositions toward violence. The impacts on group policy are less clear, and warrant future research about the linkages between assessments of individuals and recommendations for group-based policymaking.

## 8 Regression Results

### 8.1 Notes on Select Covariates

The complete list of respondent level covariates collected in this study appears in Section 10. To preserve power, we re-coded several of the covariates for modeling purposes. We use a binary version of respondent religious affiliation in our models. Respondents who answered agnostic, atheist, or no religious affiliation were coded as non-religious and other respondents were coded as religious. Respondent's race was operationalized as a binary factor as well. White respondents were coded as white and respondents listing any other race or multiple races were coded as non-white. The genetic attribution questions were coded numerically at 0, 1, 2, or 3. 0 corresponds to respondents who answered that a person's actions and behavior were a function of "almost exclusively their upbringing and environment." Respondents at the opposite end of the spectrum were coded as 3. Income is also coded numerically in our sample using \$35,000 and \$200,000 at the endpoints and the midpoints in all other categories. Education is similarly coded numerically using years.

Table 3: Effects of the Genetic and Race Treatments, Including Respondent-Level Controls

	<i>Dependent variable:</i>							
	Responsibility	Sentence	Violence	Three Strikes	Programs	Violence Prevention	Teaching	Expert Agreement
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Genetic	-6.761*** (2.155)	0.034 (0.838)	1.924 (2.802)	-3.969 (3.572)	-0.705 (2.564)	-1.441 (2.416)	5.571* (3.160)	-23.798*** (2.730)
Black	-1.201 (2.104)	0.445 (0.818)	-3.091 (2.736)	-2.519 (3.488)	-0.045 (2.504)	-0.378 (2.359)	6.830** (3.085)	1.962 (2.665)
Hispanic	-2.532 (2.134)	1.048 (0.830)	0.534 (2.774)	0.125 (3.537)	-0.905 (2.539)	-1.831 (2.392)	5.938* (3.129)	3.400 (2.703)
Family & Friends	0.435* (0.260)	-0.435*** (0.101)	0.084 (0.338)	-1.550*** (0.431)	1.276*** (0.309)	1.026*** (0.291)	1.568*** (0.381)	-0.070 (0.329)
Own Experience	-0.720** (0.299)	0.496*** (0.116)	-0.311 (0.388)	0.819* (0.495)	-0.441 (0.355)	-0.565* (0.335)	-0.570 (0.438)	0.465 (0.378)
Religious	-1.350 (1.343)	0.897* (0.522)	-1.037 (1.746)	4.203* (2.226)	4.583*** (1.598)	0.935 (1.505)	2.166 (1.969)	2.811* (1.701)
Male	-2.861** (1.249)	-0.647 (0.486)	-0.078 (1.623)	-6.493*** (2.070)	-8.456*** (1.486)	-8.890*** (1.400)	2.890 (1.831)	-1.881 (1.582)
Other Gender	-17.383** (8.218)	-2.908 (3.196)	-18.305* (10.685)	-20.252 (13.623)	5.255 (9.778)	3.324 (9.212)	20.645* (12.049)	9.775 (10.410)
Respondent: White	-0.679 (1.552)	-1.436** (0.604)	-2.747 (2.018)	-3.559 (2.573)	4.601** (1.847)	3.377* (1.740)	-0.340 (2.276)	1.803 (1.966)
Respondent: Hispanic	-0.237 (2.414)	0.709 (0.939)	3.669 (3.139)	-1.397 (4.002)	5.189* (2.872)	2.564 (2.706)	1.715 (3.539)	1.430 (3.058)
Age	0.092** (0.043)	-0.001 (0.017)	-0.021 (0.056)	0.188*** (0.072)	0.022 (0.051)	0.043 (0.048)	0.238*** (0.063)	-0.077 (0.055)
Married	0.780 (1.296)	0.585 (0.504)	0.270 (1.685)	0.284 (2.148)	-3.180** (1.542)	-0.982 (1.452)	-2.950 (1.900)	-1.903 (1.641)
Children	-0.379 (0.317)	0.399*** (0.123)	0.469 (0.413)	-0.200 (0.526)	-0.506 (0.378)	-0.485 (0.356)	-0.197 (0.465)	0.456 (0.402)
Genetic Determinism	-6.972*** (0.991)	0.885** (0.385)	-0.069 (1.288)	3.698** (1.642)	-0.269 (1.179)	-2.215** (1.110)	0.930 (1.452)	5.648*** (1.255)
Income	-0.00000 (0.00002)	-0.00000 (0.00001)	0.00003 (0.00002)	0.00003 (0.00003)	-0.00004** (0.00002)	-0.00004** (0.00002)	0.00001 (0.00002)	-0.00001 (0.00002)
Education (Years)	0.238 (0.250)	-0.113 (0.097)	-0.255 (0.324)	-0.905** (0.414)	0.265 (0.297)	0.744*** (0.280)	0.185 (0.366)	-0.113 (0.316)
Moderate	4.709*** (1.482)	0.907 (0.576)	1.884 (1.926)	13.406*** (2.456)	-9.236*** (1.763)	-8.318*** (1.661)	-5.434** (2.173)	-3.057 (1.877)
Conservative	6.682*** (1.637)	1.568** (0.637)	5.870*** (2.128)	22.973*** (2.713)	-20.106*** (1.947)	-16.454*** (1.835)	-10.381*** (2.400)	-4.649** (2.073)
Genetic:Black	3.633 (2.961)	-0.576 (1.152)	-0.507 (3.850)	2.641 (4.908)	0.042 (3.523)	1.675 (3.319)	-5.252 (4.341)	-3.133 (3.751)
Genetic:Hispanic	3.125 (2.977)	0.769 (1.158)	0.996 (3.870)	-0.600 (4.935)	-1.245 (3.542)	2.351 (3.337)	-8.136* (4.365)	-5.881 (3.771)
Constant	84.431*** (4.707)	9.911*** (1.831)	62.745*** (6.120)	55.223*** (7.802)	76.489*** (5.600)	76.641*** (5.276)	40.409*** (6.901)	70.865*** (5.963)
Observations	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099
R <sup>2</sup>	0.125	0.090	0.028	0.136	0.176	0.166	0.059	0.246

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Table 4: Interaction of Ideology, Race, and Genetic Treatment Conditions without Respondent-Level Controls

	<i>Dependent variable:</i>							
	Responsibility	Sentence	Violence	Three Strikes	Programs	Violence Prevention	Teaching	Expert Agreement
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Moderate	1.031 (3.669)	-0.058 (1.407)	3.856 (4.584)	14.230** (5.935)	-4.545 (4.351)	-4.944 (4.092)	-2.249 (5.212)	0.155 (4.529)
Conservative	1.759 (4.033)	-1.746 (1.547)	0.510 (5.039)	20.314*** (6.524)	-24.572*** (4.782)	-13.412*** (4.498)	4.348 (5.730)	0.388 (4.979)
Genetic	-10.593*** (3.140)	-1.130 (1.204)	0.377 (3.923)	-2.657 (5.079)	2.097 (3.723)	4.000 (3.502)	8.123* (4.461)	-21.656*** (3.876)
Black	-1.543 (3.130)	-0.808 (1.200)	-4.339 (3.911)	-7.196 (5.064)	2.643 (3.712)	2.903 (3.491)	13.759*** (4.447)	3.617 (3.864)
Hispanic	-4.690 (3.283)	-0.702 (1.259)	-2.846 (4.103)	-3.725 (5.312)	-0.081 (3.894)	3.229 (3.662)	8.370* (4.665)	6.354 (4.054)
Moderate:Genetic	3.969 (5.473)	2.362 (2.099)	-0.453 (6.839)	-4.232 (8.854)	-10.827* (6.490)	-10.522* (6.105)	-0.877 (7.776)	4.564 (6.757)
Conservative:Genetic	9.127* (5.442)	3.142 (2.087)	5.352 (6.800)	-0.746 (8.804)	3.871 (6.453)	-8.877 (6.070)	-14.979* (7.732)	-7.562 (6.718)
Moderate:Black	3.080 (5.062)	1.416 (1.941)	-2.181 (6.325)	5.235 (8.189)	-6.405 (6.003)	-7.412 (5.646)	-5.792 (7.192)	-4.690 (6.249)
Conservative:Black	3.254 (5.501)	3.568* (2.110)	8.122 (6.874)	12.865 (8.899)	2.108 (6.524)	0.366 (6.136)	-22.693*** (7.816)	-0.269 (6.791)
Moderate:Hispanic	2.511 (5.222)	3.395* (2.003)	4.395 (6.525)	5.163 (8.448)	-2.679 (6.193)	-7.572 (5.825)	-8.518 (7.419)	-6.023 (6.447)
Conservative:Hispanic	8.447 (5.497)	3.355 (2.108)	7.663 (6.869)	6.761 (8.894)	2.127 (6.520)	-9.331 (6.132)	-6.805 (7.811)	-5.502 (6.787)
Genetic:Black	5.368 (4.415)	0.055 (1.693)	0.454 (5.517)	2.224 (7.143)	-5.242 (5.236)	-4.977 (4.925)	-12.888** (6.273)	-4.658 (5.451)
Genetic:Hispanic	6.421 (4.531)	2.893* (1.738)	8.327 (5.662)	2.139 (7.330)	-4.229 (5.373)	-7.112 (5.054)	-7.501 (6.438)	-4.653 (5.594)
Moderate:Genetic:Black	-3.685 (7.410)	-2.821 (2.842)	0.530 (9.260)	3.166 (11.989)	13.926 (8.788)	18.934** (8.266)	8.948 (10.529)	-2.328 (9.149)
Conservative:Genetic:Black	-5.075 (7.446)	-0.126 (2.856)	-4.037 (9.304)	-1.449 (12.046)	-0.009 (8.830)	2.527 (8.306)	25.201** (10.579)	3.561 (9.193)
Moderate:Genetic:Hispanic	-2.199 (7.460)	-4.312 (2.861)	-11.591 (9.322)	-1.344 (12.069)	7.565 (8.847)	15.790* (8.321)	3.946 (10.599)	-3.235 (9.210)
Conservative:Genetic:Hispanic	-12.200 (7.501)	-2.773 (2.877)	-12.376 (9.373)	-3.452 (12.136)	4.883 (8.896)	19.631** (8.367)	3.885 (10.658)	-0.714 (9.261)
Constant	84.295*** (2.194)	8.773*** (0.841)	58.409*** (2.742)	47.443*** (3.550)	82.545*** (2.602)	84.250*** (2.447)	56.841*** (3.117)	70.477*** (2.709)
Observations	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119
R <sup>2</sup>	0.045	0.036	0.023	0.105	0.113	0.102	0.034	0.220

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01



Table 5: Effects of the Genetic and Race Treatments, Including Interactions with Ideology and Respondent-Level Controls

	<i>Dependent variable:</i>							
	Responsibility	Sentence	Violence	Three Strikes	Programs	Violence Prevention	Teaching	Expert Agreement
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Moderate	2.424 (3.607)	-1.043 (1.397)	3.692 (4.684)	9.830 (5.983)	-4.540 (4.289)	-3.821 (4.029)	-3.687 (5.259)	-0.072 (4.559)
Conservative	0.918 (4.026)	-2.177 (1.559)	-0.892 (5.228)	15.611** (6.677)	-22.328*** (4.787)	-10.457** (4.497)	2.154 (5.870)	1.955 (5.089)
Genetic	-10.634*** (3.046)	-1.358 (1.179)	0.770 (3.956)	-4.307 (5.052)	1.441 (3.621)	3.374 (3.402)	8.331* (4.441)	-22.052*** (3.850)
Black	-1.505 (3.042)	-1.200 (1.178)	-4.277 (3.951)	-8.194 (5.046)	2.191 (3.617)	2.770 (3.398)	13.392*** (4.436)	3.049 (3.845)
Hispanic	-5.574* (3.180)	-0.611 (1.231)	-3.198 (4.129)	-3.149 (5.274)	-0.108 (3.781)	2.875 (3.552)	8.334* (4.636)	6.818* (4.019)
Family & Friends	0.427 (0.261)	-0.452*** (0.101)	0.081 (0.339)	-1.550*** (0.433)	1.301*** (0.311)	1.058*** (0.292)	1.622*** (0.381)	-0.100 (0.330)
Own Experience	-0.712** (0.301)	0.497*** (0.116)	-0.354 (0.391)	0.821 (0.499)	-0.498 (0.358)	-0.631* (0.336)	-0.487 (0.439)	0.485 (0.380)
Religious	-1.351 (1.350)	0.884* (0.523)	-1.258 (1.754)	4.145* (2.240)	4.469*** (1.606)	0.778 (1.508)	2.347 (1.969)	2.868* (1.707)
Male	-2.919** (1.253)	-0.593 (0.485)	0.004 (1.627)	-6.256*** (2.078)	-8.434*** (1.490)	-8.880*** (1.400)	2.609 (1.827)	-1.940 (1.584)
Other Gender	-17.846*** (8.250)	-2.955 (3.195)	-18.742* (10.715)	-20.646 (13.685)	5.027 (9.810)	4.396 (9.216)	19.925* (12.029)	10.329 (10.428)
Respondent: White	-0.684 (1.564)	-1.535** (0.606)	-2.709 (2.031)	-3.642 (2.594)	4.727** (1.860)	3.286* (1.747)	0.094 (2.281)	1.756 (1.977)
Respondent: Hispanic	-0.221 (2.427)	0.690 (0.940)	3.646 (3.152)	-1.409 (4.025)	4.855* (2.885)	2.522 (2.711)	1.400 (3.538)	1.743 (3.067)
Age	0.099** (0.044)	0.002 (0.017)	-0.017 (0.057)	0.190*** (0.072)	0.019 (0.052)	0.037 (0.049)	0.227*** (0.064)	-0.083 (0.055)
Married	0.813 (1.303)	0.555 (0.505)	0.112 (1.692)	0.139 (2.161)	-3.098** (1.549)	-0.965 (1.456)	-2.947 (1.900)	-2.190 (1.647)
Children	-0.394 (0.319)	0.396*** (0.124)	0.492 (0.415)	-0.171 (0.530)	-0.486 (0.380)	-0.463 (0.357)	-0.251 (0.466)	0.462 (0.404)
Genetic Determinism	-6.987*** (0.998)	0.882* (0.387)	-0.120 (1.296)	3.778* (1.656)	-0.083 (1.187)	-2.121* (1.115)	0.615 (1.456)	5.334*** (1.262)
Income	-0.00000 (0.00002)	-0.00000 (0.00001)	0.00004* (0.00002)	0.00004 (0.00003)	-0.00003* (0.00002)	-0.00004** (0.00002)	0.00000 (0.00002)	-0.00002 (0.00002)
Education (Years)	0.246 (0.251)	-0.114 (0.097)	-0.261 (0.326)	-0.948** (0.416)	0.277 (0.298)	0.742*** (0.280)	0.180 (0.366)	-0.137 (0.317)
Moderate:Genetic	6.226 (5.364)	2.412 (2.077)	-1.908 (6.966)	-1.572 (8.897)	-10.943* (6.378)	-9.473 (5.992)	2.199 (7.821)	1.712 (6.780)
Conservative:Genetic	9.797* (5.308)	3.593* (2.055)	7.671 (6.894)	3.504 (8.805)	2.354 (6.312)	-10.215* (5.930)	-14.049* (7.740)	-8.444 (6.710)
Moderate:Black	0.660 (4.945)	2.450 (1.915)	-2.408 (6.422)	8.651 (8.202)	-6.263 (5.880)	-8.641 (5.524)	-3.898 (7.210)	-3.597 (6.251)
Conservative:Black	1.219 (5.438)	4.390** (2.106)	8.846 (7.063)	13.993 (9.020)	-1.431 (6.466)	-2.908 (6.075)	-24.637*** (7.929)	-0.998 (6.874)
Moderate:Hispanic	3.215 (5.076)	3.244* (1.965)	4.966 (6.592)	5.382 (8.419)	-2.689 (6.035)	-7.040 (5.670)	-6.613 (7.401)	-7.160 (6.416)
Conservative:Hispanic	8.785 (5.345)	3.478* (2.070)	9.266 (6.942)	7.900 (8.866)	0.398 (6.355)	-10.720* (5.971)	-4.996 (7.793)	-6.526 (6.756)
Genetic:Black	5.483 (4.291)	0.561 (1.662)	-0.354 (5.573)	4.090 (7.117)	-4.048 (5.102)	-4.172 (4.793)	-12.689** (6.256)	-3.986 (5.424)
Genetic:Hispanic	8.248* (4.387)	2.366 (1.699)	8.096 (5.697)	1.516 (7.276)	-4.415 (5.216)	-6.373 (4.900)	-8.314 (6.396)	-5.908 (5.545)
Moderate:Genetic:Black	-4.443 (7.234)	-3.804 (2.801)	2.454 (9.395)	-1.811 (11.999)	13.774 (8.602)	18.612** (8.081)	6.031 (10.548)	-1.138 (9.144)
Conservative:Genetic:Black	-3.782 (7.362)	-1.357 (2.851)	-5.166 (9.561)	-4.511 (12.211)	2.032 (8.754)	3.829 (8.224)	24.935** (10.734)	3.877 (9.306)
Moderate:Genetic:Hispanic	-7.513 (7.293)	-3.160 (2.824)	-11.546 (9.472)	-1.494 (12.097)	7.863 (8.672)	13.684* (8.147)	-0.514 (10.634)	0.881 (9.219)
Conservative:Genetic:Hispanic	-12.714* (7.294)	-3.496 (2.825)	-14.686 (9.473)	-6.775 (12.099)	4.869 (8.673)	19.770** (8.148)	3.123 (10.636)	-1.054 (9.220)
Constant	85.820*** (4.892)	11.231*** (1.894)	63.397*** (6.353)	58.040*** (8.114)	75.010*** (5.817)	74.513*** (5.465)	37.735*** (7.133)	70.042*** (6.184)
Observations	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099
R <sup>2</sup>	0.130	0.103	0.036	0.140	0.182	0.176	0.075	0.254

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## 9 Balance

Race and genetic treatments are fully randomized in this study. Accordingly, while controlling for various respondent-level covariates should yield slightly more precise estimates of the average treatment effects, it should not significantly change these estimates. Full regression tables in Section 8 demonstrate that this is the case in our study. Nevertheless, we may be concerned that estimated average treatment effects may have been influenced by imbalances across treatment conditions.

To the best of our knowledge, no formal test of covariate balance across multiple factor treatment conditions exists. In lieu of a formal test, we present the full distributions of covariates across our six unique treatment conditions.

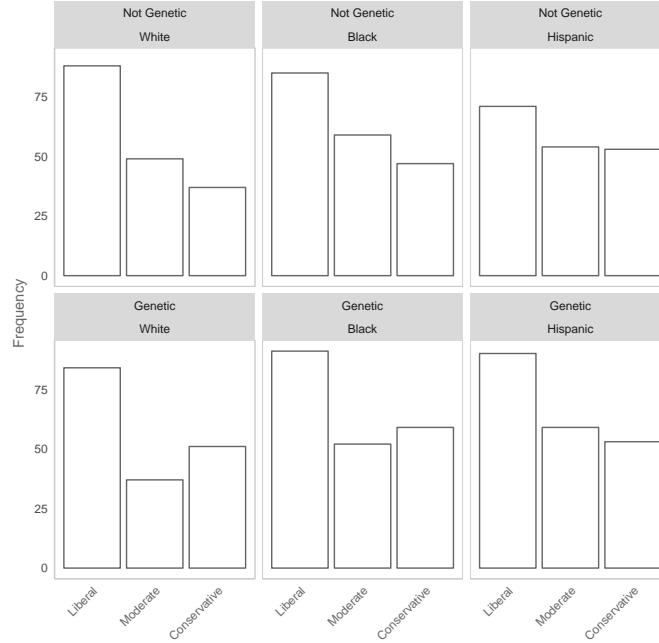
### 9.1 Ideology

Respondents in our sample skew liberal. The distribution of respondent ideology across treatment conditions looks similar to the overall distribution of our respondents, which allays concerns about ideological concentration within any treatment category. Figure 18 summarizes the distribution of respondent ideology across treatment conditions.

### 9.2 Friends and Family

The distributions of mitigating experiences respondents reported among friends and family are highly comparable across treatment conditions. The mean number of experiences on the list (see Section 10) reported across treatment conditions ranges from 3.7 to 4.1, the median in each treatment condition is 4.

Figure 18: Distributions of Respondent Ideology Across Treatment Conditions



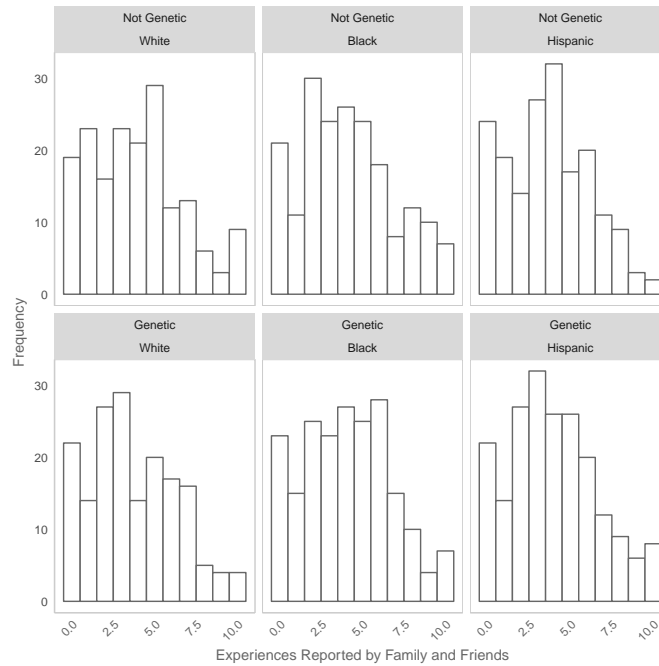
### 9.3 Own Experiences

The distributions of mitigating experiences respondents reported for themselves are also very similar across treatment conditions. The mean number of experiences on the list (see Section 10) reported across treatment conditions is 1.8 to 2.3, the median in each treatment condition is 1.

### 9.4 Religion

There is some variation in the distribution of respondent religious affiliations across treatment conditions. The mode in each category with the exception of the Hispanic subject and genetic treatment condition is agnostic or atheist. The modal respondent in the excepted category is Protestant. We use a binary form of our religion covariate in our regressions. The distribution of this form of the religion covariate is relatively constant across treatment categories. The

Figure 19: Distributions of Mitigating Experiences for Family & Friends Across Treatment Conditions



modal respondent across categories is religious. Balance is depicted in Figure 21.

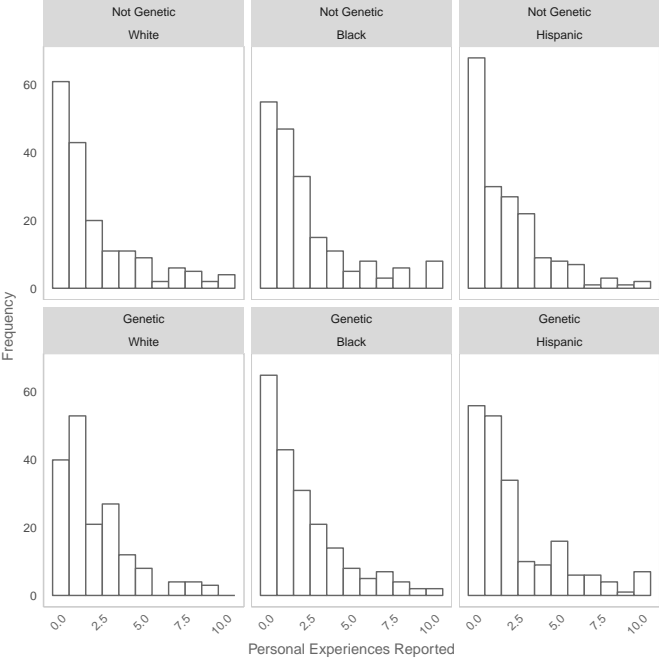
## 9.5 Gender

Gender balance across treatment conditions is summarized in Figure 22. The proportions of men and women who responded in each treatment condition are relatively close. Our sample skewed female; the proportion of female respondents is higher than the proportion of male respondents in all but one treatment category.

## 9.6 Race

The vast majority of respondents to this survey (80%) are white. This is true across treatment categories. The proportions of white respondents across treatment categories range from 78% to 83%. Figure 23 summarizes the distributions of respondent race across treat-

Figure 20: Distributions of Mitigating Experiences for Respondent Across Treatment Conditions



ment categories.

Approximately 7% of our respondents were Hispanic or Latino. This holds across treatment conditions, where the proportion of Hispanic or Latino respondents ranges from 6.2% to 8.4%. See Figure 24 for balance across treatment conditions.

### 9.7 Age

The average age of respondents to this survey experiment was 42, with a standard deviation of 15 years. This is true across treatment categories. Average age of respondents by treatment category ranges from 42.0 to 42.8 with standard deviations of 14.6 to 16.0. Figure 25 summarizes the distributions of respondent age by treatment category.

Figure 21: Distribution of Religious Affiliations Across Treatment Categories

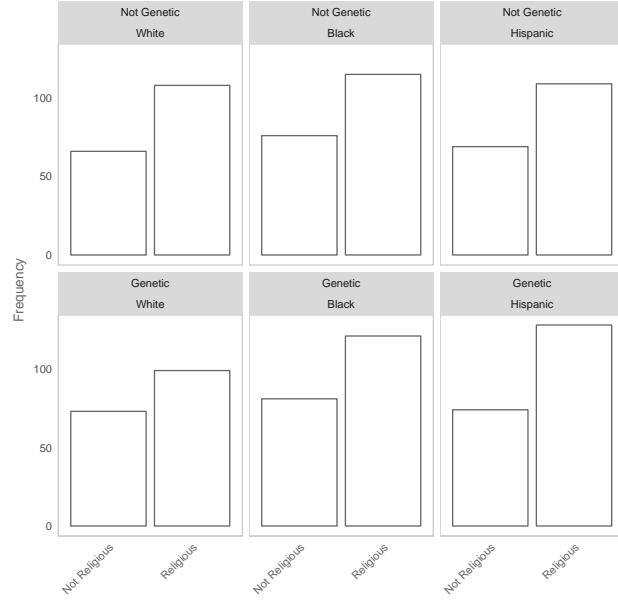
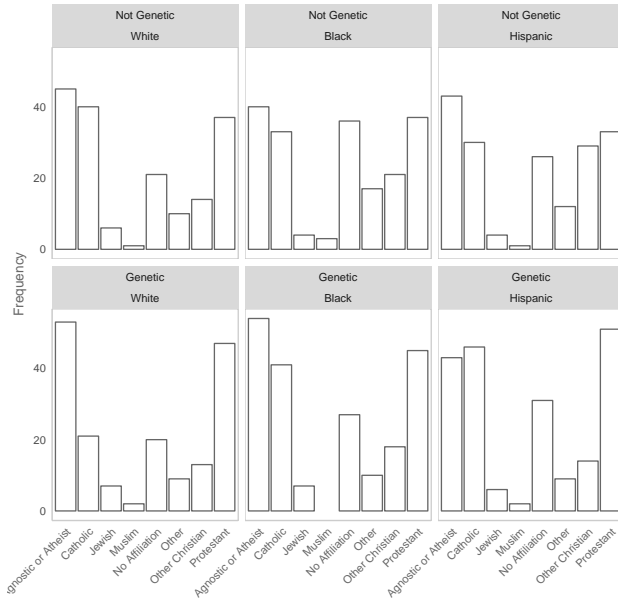


Figure 22: Distributions of Respondent Gender Treatment Conditions

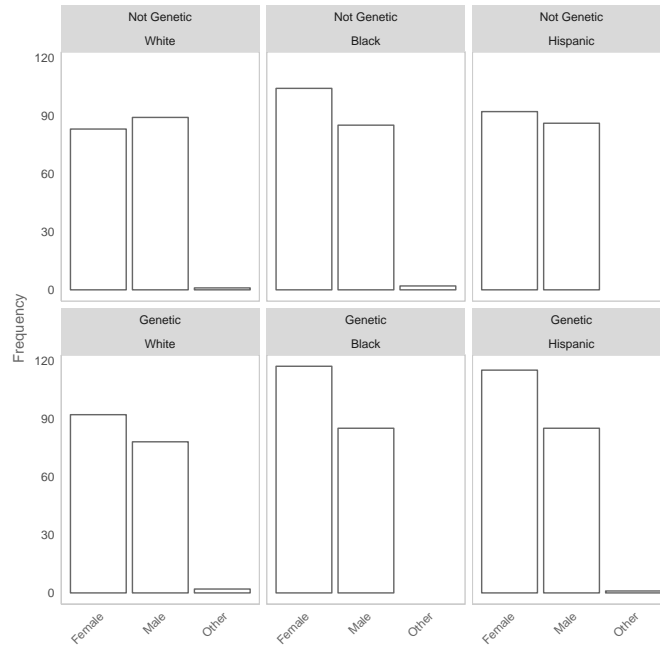


Figure 23: Distributions of Respondent Race Across Treatment Conditions

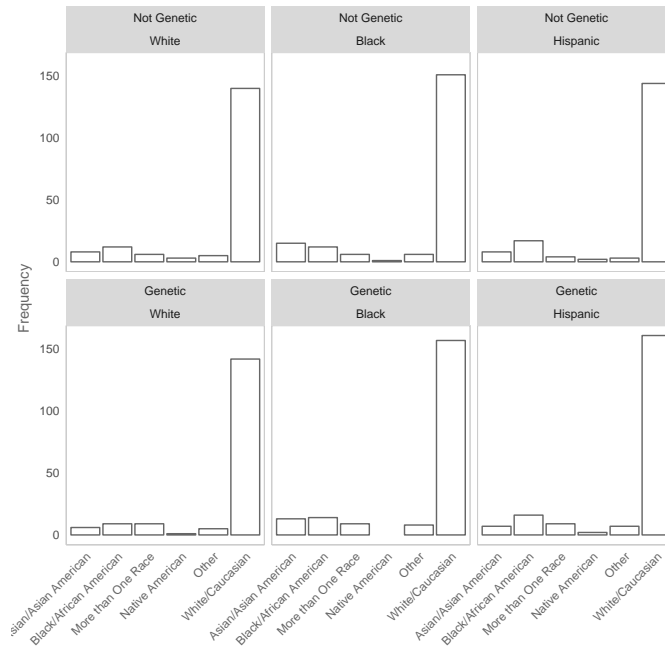


Figure 24: Distributions of Hispanic or Latino Respondents Across Treatment Conditions

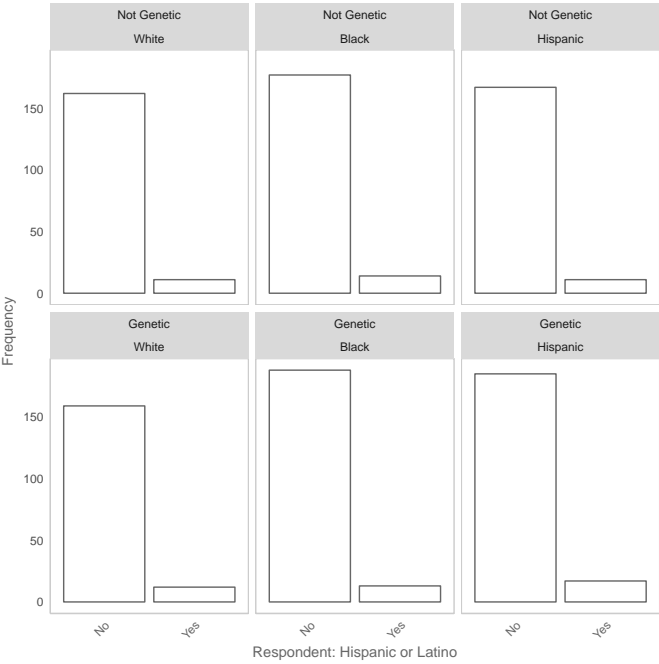
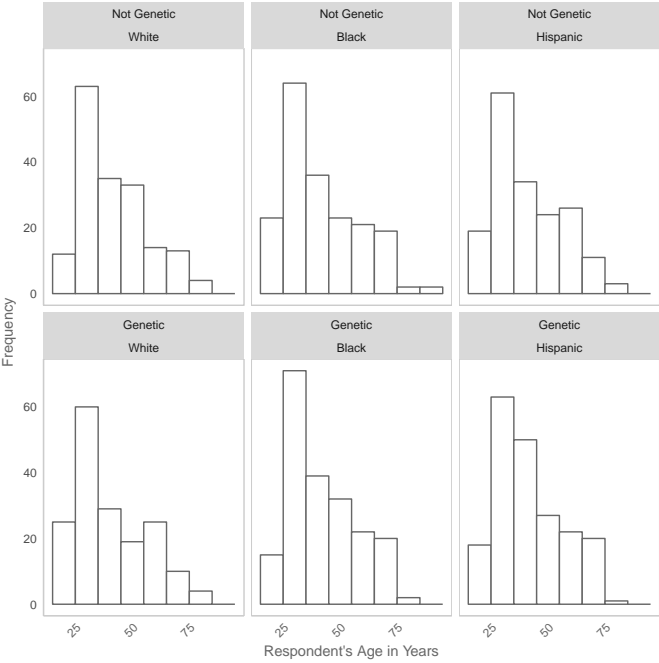


Figure 25: Distributions of Respondent Age Across Treatment Conditions

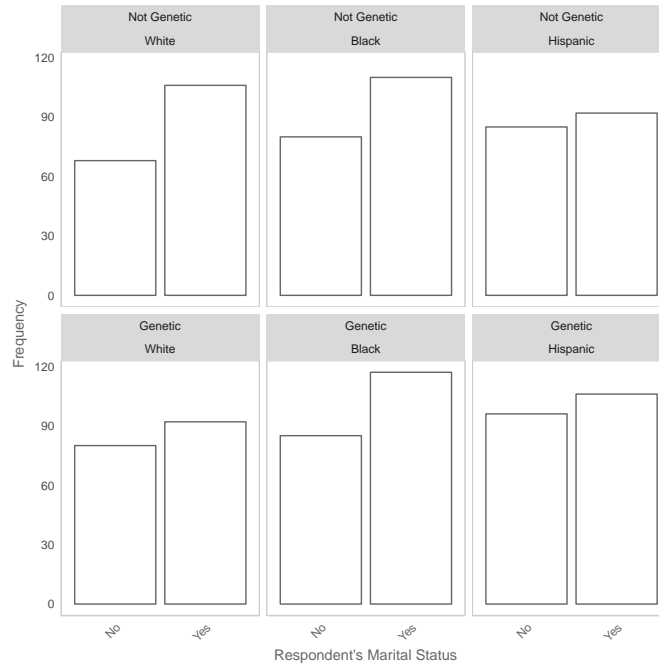




## 9.8 Marriage and Children

56% of the respondents to this survey are married or living with a domestic partner. This proportion ranges from 52% - 61% across treatment categories. Figure 26 summarizes the distribution of marital status across treatment categories. The average number of children

Figure 26: Distributions of Marital Status Across Treatment Conditions

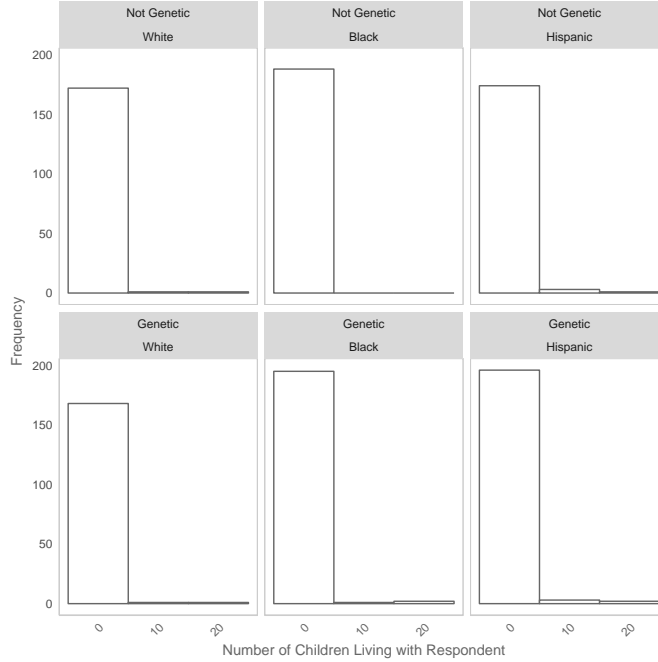


respondents reported living with in this survey is 0.82, with a median of 0. This varies little across treatment assignments. The median number of children across treatment categories remains 0, with averages ranging from 0.55 to 1.1. Figure 27 summarizes the distributions of respondents' children by treatment category.

## 9.9 Genetic Attribution

To gauge respondents' baseline levels of genetic attribution, we asked them the extent to which people's actions and behavior were determined by genes. The distribution of re-

Figure 27: Distributions of Children Across Treatment Conditions



responses across treatment categories appears in Figure 28 summarizes distributions of responses across treatment category. The modal respondent believed that actions and behavior were due to “some genetic factors or traits inherited from their parents, but mostly from their upbringing and environment.” That is overwhelmingly true across individual treatment combinations as well.

## 9.10 Income

The median respondent in our study had a household income of \$50,000-\$74,99. The modal respondent had an annual household income of under \$35,000. The latter is true across treatment categories with the exception of respondents evaluating the white vignette subject without a genetic predisposition toward violence. Average values in the numeric coding of this variable fell in the \$50,000-\$74,99 for all treatment categories. The distributions of respondent income by treatment assignment are summarized in Figure 29.

Figure 28: Distributions of Baseline Genetic Determinism Across Treatment Conditions

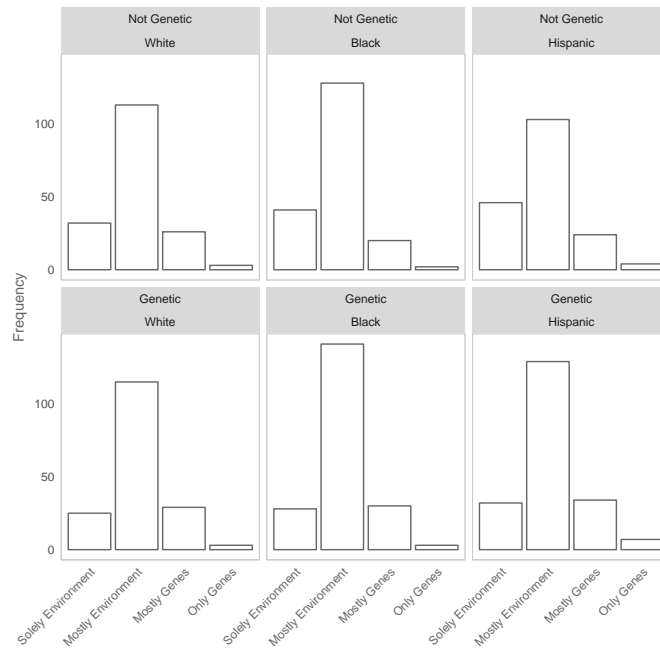
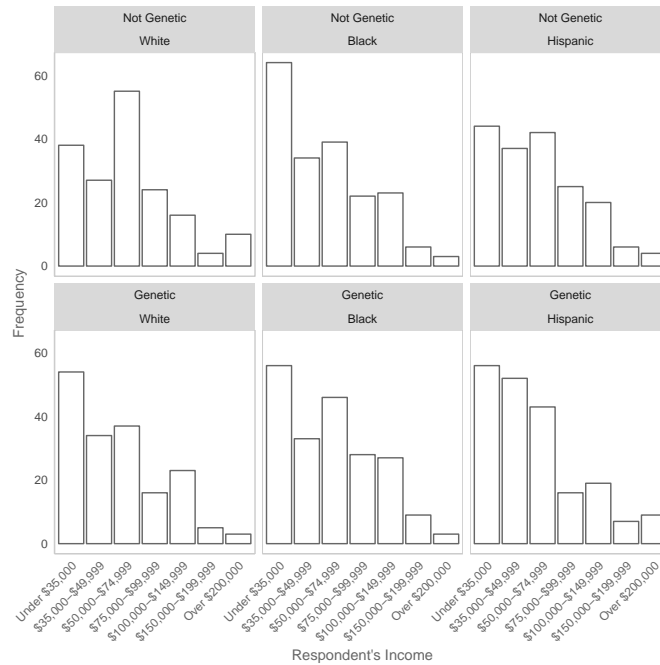


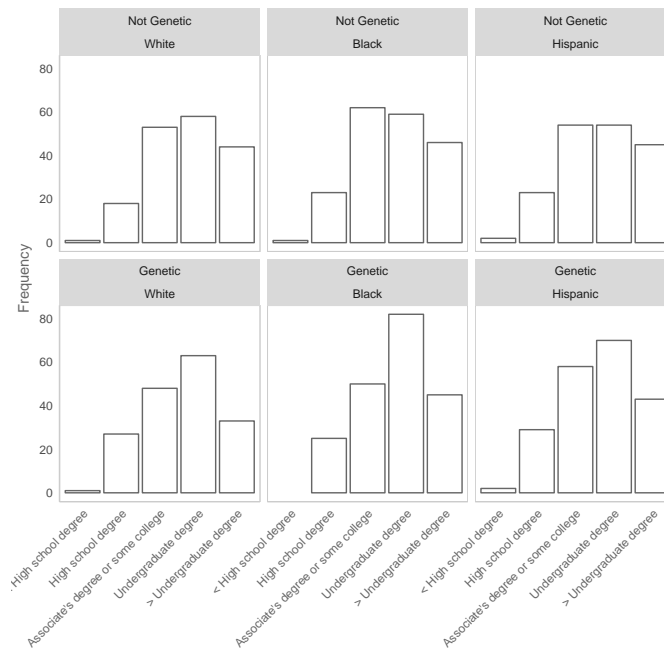
Figure 29: Distributions of Respondent Income Across Treatment Conditions



## 9.11 Education

The median survey respondent in this study has an undergraduate degree. This is also the modal level of education across respondents in our study. This is true across treatment assignments with the exception of respondents evaluating black or Hispanic vignette subjects without genetic predispositions toward violence. The mode in these treatment conditions is an associate's degree or some college. Figure 30 summarizes the distribution of respondent education levels across treatment assignments.

Figure 30: Distributions of Respondent Education Level Across Treatment Conditions



## 10 Survey Instrument

### Politicized Genetics: Revised Instrument for Crime and Violence

#### Preamble

The first few questions in this survey focus on a particular person and situation. Please read the description of the situation below, and answer the questions according to your views. There are no correct or incorrect answers. Please choose the answers that are closest to what you think.

#### Intervention Text

[Connor/Jamal/Miguel] is a 26-year-old man. He has a job, is not married, and currently lives alone. Back when [Connor/Jamal/Miguel] was in high school, he repeatedly got into physical fights with his classmates. Recently [Connor/Jamal/Miguel] had a fight with a friend in which he injured his friend badly enough that onlookers called the police. [Connor/Jamal/Miguel] was charged with assault and served time in jail. [Connor/Jamal/Miguel] was examined by medical experts while he was in jail. A genetics expert said that [Connor/Jamal/Miguel]'s tendency to be aggressive has a very strong genetic component/ [Connor/Jamal/Miguel]'s tendency to be aggressive is not due to genetic factors].

#### Outcome Questions

- On a scale of 1 (no responsibility) to 100 (full responsibility), how much personal responsibility does [Connor/Jamal/Miguel] have for his tendency to be aggressive?

- In [Connor/Jamal/Miguel]’s state, criminal sentences for assault range from 1 month to 30 months in jail. In your opinion, how long should [Connor/Jamal/Miguel]’s sentence have been, given that this was his first conviction?
- On a scale of 1 (extremely unlikely) to 100 (extremely likely), how likely do you think [Connor/Jamal/Miguel] is to act violently toward someone else after this incident?
- On a scale of 0 (strongly oppose) to 100 (strongly support), how much would you support “three strikes laws” in your state? (Three strikes laws make life in prison the minimum sentence for someone who commits a violent felony and already has two prior convictions for violent felonies)
- On a scale of 1 (strongly oppose) to 100 (strongly support), how much do you support publicly funded programs to help people like [Connor/Jamal/Miguel]? These programs might include things like job training, rehabilitation, talk therapy, or medication, but they are not limited to those options.
- On a scale of 1 (strongly oppose) to 100 (strongly support), how much do you support publicly funded programs that prevent violent behavior? Examples of these programs include: youth counseling, after school sports or other activities, or anger management therapy, but they are not limited to those options.
- Many years after this incident, [Connor/Jamal/Miguel] gets certified as a teacher and applies for a teaching position in his local school district. His earlier violent incident is the only crime in his record, but he still has to inform the school. Do you agree or disagree that his local school should hire [Connor/Jamal/Miguel] as a teacher if he is otherwise qualified?
- To what extent do you agree with the genetics expert’s analysis that [Connor/Jamal/Miguel]’s behavior [is not due to genetic factors/is due to genetic factors]

## Transition Text

Now we would like to ask you some questions about your background and your views on human traits. Again, there are no right or wrong answers. Please choose the answer categories that best represent you and your beliefs.

## Politics

- When thinking about politics and government, do you consider yourself to be:
  - Very Liberal
  - Liberal
  - Moderate
  - Conservative
  - Very Conservative
  
- Do you think of yourself as a Republican, Democrat, Independent, or something else
  - Republican
  - Democrat
  - Independent
  - Something Else
  
- If Independent, next screen says: Do you think of yourself as closer to the Republican Party, closer to the Democratic Party, or strictly Independent?
  - Republican
  - Democrat

- Strictly Independent

### **Genetic Attribution**

- A persons actions and behavior are products of:
  - Almost exclusively genetic factors inherited from their parents
  - Mostly genetic factors or traits inherited from their parents, but some from their upbringing and environment
  - Some genetic factors or traits inherited from their parents, but mostly from their upbringing and environment
  - Almost exclusively their upbringing and environment

### **Mitigating Contact and Experience**

- How many of the following statements apply to your friends and family (dropdown number entry no selection of specific items)?
  - Been diagnosed with a genetic condition that affects his or her daily life
  - Been diagnosed with a learning disability or had some other difficulty in learning
  - Been convicted of a crime
  - Developed an addiction to drugs or alcohol
  - Become dangerously overweight
  - Identified as gay, lesbian, bisexual, or transgender
  - Been diagnosed with a mental illness
  - Been identified as exceptionally gifted or talented in school
  - Been identified as exceptionally gifted or talented at a sport or other athletic activity



- Been identified as exceptionally gifted or talented at art or music
- How many of the following statements apply to you yourself (dropdown number entry no selection of specific items)?
  - Been diagnosed with a genetic condition that affects his or her daily life
  - Been diagnosed with a learning disability or had some other difficulty in learning
  - Been convicted of a crime
  - Developed an addiction to drugs or alcohol
  - Become dangerously overweight
  - Identified as gay, lesbian, bisexual, or transgender
  - Been diagnosed with a mental illness
  - Been identified as exceptionally gifted or talented in school
  - Been identified as exceptionally gifted or talented at a sport or other athletic activity

### **Demographics**

- Which of the following best describes your religious affiliation?
  - Protestant
  - Catholic
  - Other Christian denomination
  - Jewish
  - Muslim
  - Other Affiliation Please Describe

- No affiliation
  - Agnostic or atheist
- If answer above is Protestant: Are you Evangelical, or born again?
  - Yes
  - No
- If answer above is any religion except for No affiliation or Agnostic/Atheist: How important is religion in your daily life?
  - Extremely important
  - Very Important
  - Somewhat important
  - Not at all important
- What is your gender?
  - Male
  - Female
  - Other
- What is your race (you may select more than one category)?
  - White/Caucasian
  - Black/African American
  - Asian/Asian American
  - Native American
  - Pacific Islander

- Other
- Are you Hispanic or Latino?
  - Yes
  - No
- What is your age in years?
- What is your annual household income?
  - Under \$35,000
  - \$35,000-\$49,999
  - \$50,000-\$74,999
  - \$75,000-\$99,999
  - \$100,000-\$149,999
  - \$150,000-\$199,999
  - Over \$200,000
- Are you currently married or living with a domestic partner?
  - Yes
  - No
- How many children currently live with you (including stepchildren)?
- What is your highest level of education?
  - Less than high school degree
  - High school degree

- Associates degree or some college
- B.A. or B.S., or equivalent
- More than college

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