

## Honesty, Intelligence and Race

### Abstract

Research shows that honesty correlates positively with intelligence. Similarly, there are race differences in honesty, with Europeans being more honest than various other ethnic groups. It is currently unknown to which degree race differences in intelligence can explain the differences in honesty. We investigated this question using data from the National Longitudinal Study of Youth 1997 (NLSY97), a large American longitudinal dataset. We replicate prior findings that honesty correlated with measures of intelligence ( $r = .363$ , 95% CI  $\{.289, .436\}$ ) and that Blacks and Hispanics are less honest than Whites, and this holds true whether honesty is measured by self-report or by parent reports. In addition, race differences in honesty remained between Blacks and Whites but not Whites and Hispanics after controlling for intelligence. Implications and theories concerning these findings are discussed.

### Introduction

Some of the earliest research on intelligence and honesty was done by T. H. Howells (1938), who studied the relationship between intelligence and cheating in two different types of exams: exams where cheating was assessed using wax paper and exams where cheating was assessed using chemical impression. Chemical impression was much harder for the students to detect than the wax paper method. Accordingly, cheating was more negatively correlated with intelligence when cheating was assessed with the wax paper method than with the chemical impression method. In fact, the correlation with intelligence was not significant ( $r = -.08$ ,  $n = 74$ ) when the test was made much harder and the chemical impression method was used. However, given the sample size is small, the power to detect this correlation is small. Other early research suggests that children with higher IQs cheat less on academic tests (Tuttle, 1931), though that could be simply because smarter children don't need to cheat to do well on tests.

Experimental evidence from soldiers and civilians in Israel also suggests that increased intelligence is associated with more honesty ( $p < .01$ ) (Ruffle & Tobol, 2016). This study instructed Israeli soldiers and civilians to roll a die in private, and were told that each point on the die would lead to an increase of 30 minutes of early release on Thursday. More intelligent people reported a lower average roll than unintelligent people. However, differences in intelligence past the above-average level were not associated with increased honesty in civilians or soldiers, though this could potentially be a power failure ( $n = 427$ ). A similar relationship has been found for some other measures, for instance, the relationship intelligence has with measures of personal failure (e.g. being on welfare or being unemployed) decreases in strength as intelligence increases (Hegelund et al., 2018).

Besides the research on intelligence, there is also evidence that there are racial differences in honesty. One study that distributed 17,303 wallets in 40 different countries to various institutions who were asked to return the wallets to the hypothetical owners (Cohn et al., 2019). There were large differences in honesty between countries, which are displayed in Figure 1. The percent of wallets that were returned between countries

strongly correlated with national IQ estimates taken from David Becker (2019) regardless of whether the wallet had money ( $r = .64$  without money,  $r = .66$  with money,  $p < .001$ ).

Another experiment involved an incident where diplomatic immunity prevented UN diplomats from parking violations until 2002. There were clear national differences in the amount of parking violations that diplomats from each nation accrued, with the most honest nations having under 1 violation per diplomat while the least honest nations had over 100 violations per diplomat (Fisman & Miguel, 2007). In general, countries with people of northern European ancestry had less parking violations than other countries. These parking violations also correlated with national IQ, but less so than the figures from the study that used wallets ( $r = -.249$ ,  $p < 0.01$ ).

In addition, various studies of scientific misconduct by country suggest that, compared to European countries, East Asian and Arab countries engage in much more scientific misconduct than European countries (Carlisle, 2020; Ataie-Ashtiani, 2017; Fanelli et al., 2019). There are national differences in corruption, where countries with people of northwestern European descent tend to be less corrupt than others (*2021 Corruption Perceptions Index*, 2022). Lastly, there is evidence that within the USA, Blacks and Hispanics are more likely to lie about drug use than Whites (Fendrich, 2005), (Hughes, Heller & Marsden, n.d).

It is worth mentioning that there are differences in honesty between genetically similar nations, for instance, China is less honest than Korea and Japan. In most different sources of data on scientific misconduct (Carlisle, 2020; Ataie-Ashtiani, 2017; Fanelli et al., 2019) China is the worst performing of the 3 major East Asian nations, while Korea and Japan tend to do better. When comparing foreign diplomats in NYC, Chinese diplomats had more parking violations per diplomat (9.6) than Japan (0) and South Korea (0.4) (Fisman & Miguel, 2007). Lastly, China performed worse than Japan and South Korea on measures of international corruption (*2021 Corruption Perceptions Index*, 2022).

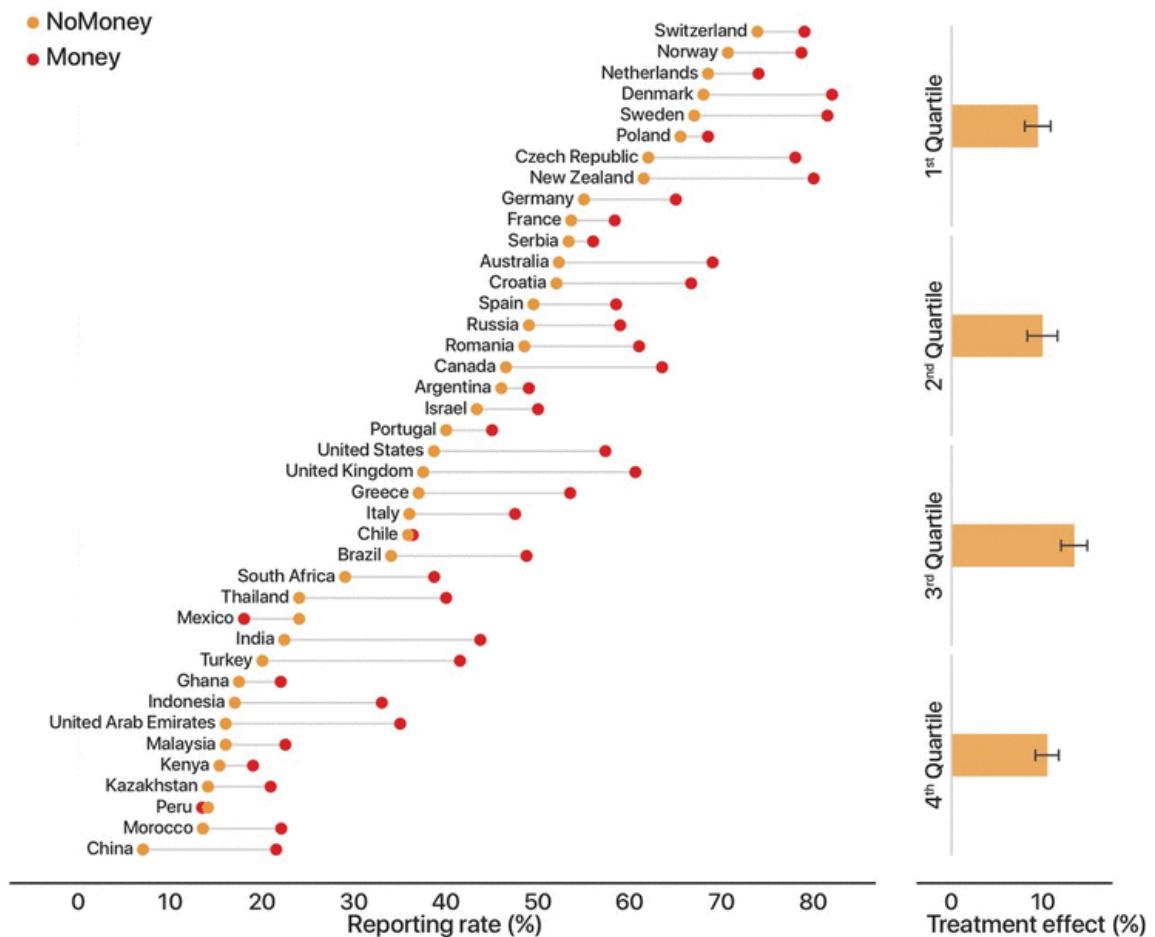
There are various reasons why some races may be less honest than others. Intelligence (henceforth just IQ) is likely to be a driving factor, as IQ is negatively correlated with corruption ( $r = -.632$ ) (Gaygısız & Lajunen, 2021) and honesty as measured by rate of return of lost wallets ( $r = .65$ ) between countries. However, countries outside of Northwestern Europe are not as honest as what you would predict based only on IQ. It has been speculated that the unique psychological profile of Europeans can be traced back to social norms such as the prohibition of incest and polygamy (Henrich, 2020). This psychological profile involves emphasizing the importance of individuals over kin and engaging in more honest behaviour.

Some scholars have criticized this theory, pointing out that monogamy was prominent in Europe among early Christians and Roman Stoics (Duchesne, 2022) as well as among ancient Spartans, Romans, and Athenians (MacDonald, 2021), making the notion that Christian norms were the cause of monogamy tenuous. Lastly, Henrich does not consider that the social structures that are present in the society can act as a selection pressure (Hanania, 2022). In this instance, it is possible that societies that prevent incest

and monogamy also select for individuals who are willing to interact positively with humans outside their kin group.

It is important to have an operational definition of honesty, as the term can be easily confused with other concepts such as criminality and integrity. In this article, honesty is defined as the ability to communicate things that are congruent with what the subject believes to be true. Sending intentionally faulty signals for self-gain (e.g. cheating on a test, welfare fraud) would also qualify as dishonesty. Criminal behaviour itself doesn't qualify as dishonest, as it doesn't necessitate communicating false information, although it frequently does in practice (e.g. lying to police or friends about crimes).

Figure 1. Civic Honesty by Country (reproduced from Cohn et al., 2019)



### Data

We used data from the National Longitudinal Study of Youth 1997 (NLSY97). This is a large American longitudinal study of 8,984 subjects that have been followed since ages 13-17, at semi-regular intervals. There are 19 waves of data. The dataset is broadly representative of Americans of these ages (U.S. Bureau of the Census, 1997). The

dataset is publicly available, and the subset used is also available in the study's supplementary materials, along with the analysis code. <https://osf.io/vw4sa/>, <https://rpubs.com/sebjenseb/979249>

For intelligence, the 1st principal component was extracted from the 12 ASVAB subtests that were administered by the NLSY. All subtests were corrected for their relationship with age at testing. This exam mostly tests mathematical ability, verbal ability, and knowledge, meaning that it is mostly a test of crystallized intelligence; the exceptions to this are a coding speed test and an assembling objects test. Crystallized intelligence has a g-loading that ranges from about 0.82-0.95 (Johnson et al., 2004 ; Weiss et al., 2010; Fenollar-Cortés & Watkins, 2018) depending on the test, so it is a good measurement of general intelligence.

General intelligence is responsible for the vast majority of the predictive validity of tests of mental ability (Jensen, 1998). However, there is some evidence that specific abilities can be responsible for some differences in outcomes. For instance, verbal ability tilt predicts a preference towards social sciences (Coyle, 2018) and mental illness (Rajagopal et al., 2020). However, these should not be substantial sources of bias when evaluating the relationship with honesty, especially given that some other abilities were tested.

For race, there were 3 methods that were used to classify individuals by race. The first is to categorize them using a variable provided by the NLSY staff that was based on household information and the race of the biological parents. If this information was not available, self-reports of racial ancestry taken from the Round 6 questionnaire. If participants were still unclassified, interviewer responses from the Round 5 questionnaire were used to classify race. The individuals were then grouped into 3 main categories: White, Hispanic or Black. Due to concerns about sample size and the grouping of different races into one variable, Asians, Pacific Islanders, mixed race individuals, American Indians, Eskimos, and Aleuts were excluded from this analysis.

For honesty, there were two variables available: self-reported and parent-reported honesty. For self-reported honesty, youth were prompted with the phrase "you lie or cheat.", and were instructed to respond that this statement was "not true", "somewhat/sometimes true", or "often true". For parent-reported honesty, Parents were prompted with the question "[their child] lies or cheats.", and were instructed to respond that this statement was "not true", "somewhat/sometimes true", or "often true". The correlation between self-reported and parent-reported honesty was very low, only .23. This indicates that either one or both of the variables are of low validity. To increase the quality of the honesty measurement, the variables were standardized and added to create a general honesty metric.

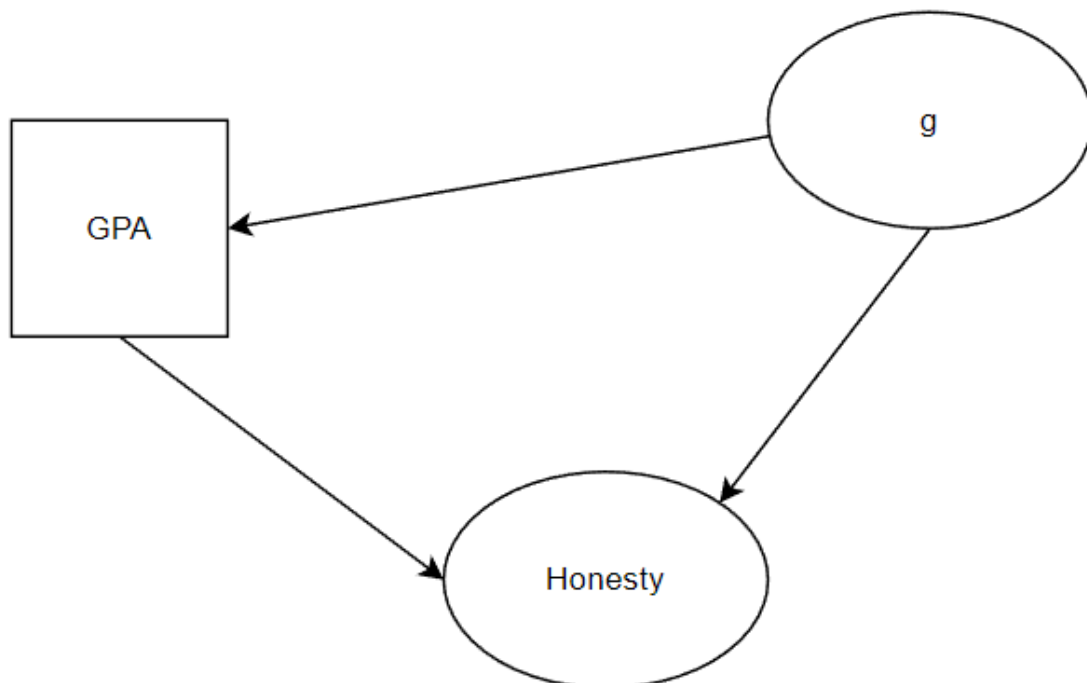
For parental social status, we used the first principal component of income, assets, paternal education, and maternal education. Filling missing values did not substantially decrease the validity of the measurement, as the correlation with child IQ with no filled values (.467) was almost identical to that with filled values (.453).

Grade point average (GPA) was initially considered as a potential mediator, where intelligence could impact school grades, which could impact the desire to cheat, as modeled in Figure 2. Alternatively, it could also be possible that honesty is causally related to GPA because honesty causes students to cheat less, which causes them to fail less.

All of the quantitative metrics were standardized with a mean of 0 and a standard deviation of 1, Besides IQ which was normed relative to the White mean.

The term IQ will be used to refer to the factor scores derived from the first principal component of the ASVAB, while  $g$  will be used to describe the latent variable that is underlying the 12 subtests.

Figure 2. Proposed model involving  $g$ , GPA, and Honesty



## Results

Race differences in general honesty were replicated in the study, shown in Figure 3. The same held true for the relationship between honesty and intelligence, which is displayed in Figure 4. There were race differences in honesty for both parent-reports and self-reports, as shown in Table 1 and Table 2.

Figure 3. Race differences in general honesty. 95% confidence intervals displayed.

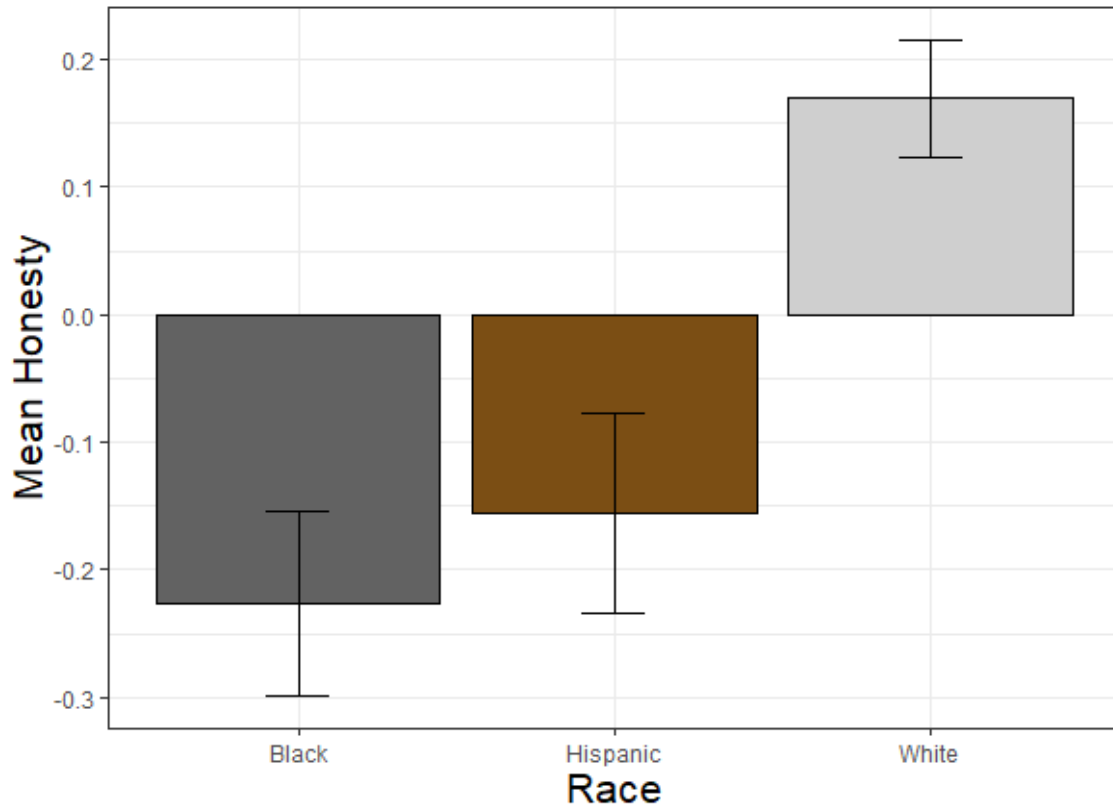


Table 1. Difference in general honesty by race, relative to the White (n=1,646) mean.

Race	Cohen's d	p-value
Black (n=807)	-0.404	p<.001
Hispanic (n=616)	-0.337	p<.001

Table 2. Difference in self-reported honesty by race, relative to the White (n=2,676) mean.

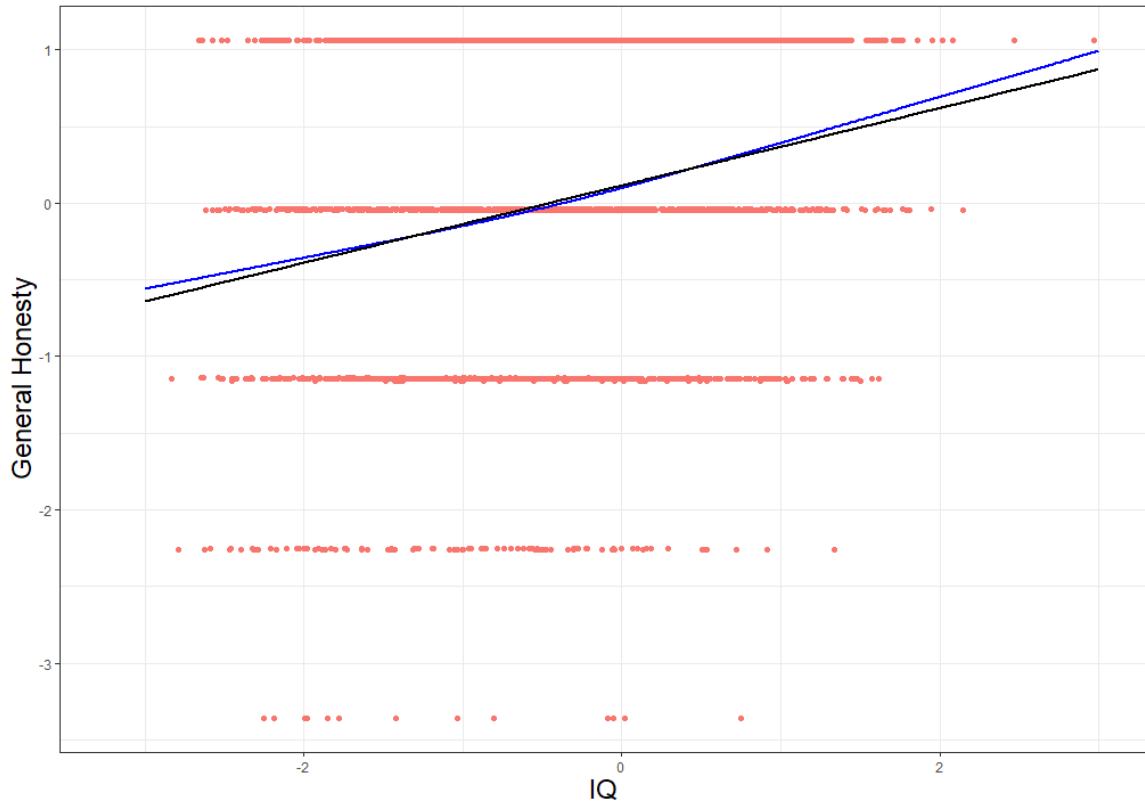
Race	Cohen's d	p-value
Black (n=1388)	-0.183	p<.001
Hispanic (n=1097)	-0.237	p<.001

Table 3. Difference in parent-reported honesty by race, relative to the White (n=1,686) mean.

Race	Cohen's d	p-value
Black (n=829)	-0.432	p<.001

Hispanic (n=645) -0.247 p<.001

Figure 4. Scatterplot of intelligence and honesty. Blue - restricted cubic spline, Black - linear regression.



The difference in R between the linear and non-linear model was negligible (nonlinear -> .246, linear -> .245) and the difference in residuals did not pass statistical significance (F=1.3, p=0.183). This finding collides with the prior observation that differences in intelligence above the average did not correspond to increased honesty (Ruffle & Tobol, 2016), indicating that this was likely due to a power failure (n=427).

In addition, both IQ and parental SES were correlated with honesty measurements, as displayed in Table 4. Correlations were assessed with structural equation models which can address measurement error better than the Pearson correlation coefficient. Most notably, using an SEM to judge the correlation between intelligence and honesty raised the correlation from .245 to .363, indicating that measurement error is a significant downward bias.

Table 4. Correlations between various variables of interest in the dataset.

Variable 1	Variable 2	Latent Correlation	p-value
g	Self reported honesty	0.096	p<.001
g	Parent reported honesty	0.282	p<.001

g	General honesty	0.363 p<.001
Parental SES	Self reported honesty	0.044 p<.01
Parental SES	Parent reported honesty	0.160 p<.001
Parental SES	General honesty	0.219 p<.001
Parental SES	g	0.466 p<.001

Given that there are race differences in intelligence and parental SES, it would be appropriate to see if these race differences in honesty remain after controlling for IQ and parental SES. To assess this, linear regression was used to examine what the effect of race was independent of parental SES and IQ. Based on the results from the 5 models that were run displayed in Table 5, the effect of race on honesty diminishes but does not disappear after intelligence is controlled for. The influence of parental SES diminishes greatly in models where IQ was included, indicating that the relationship between parental SES and honesty is wholly or mostly due to the correlation parental SES has with IQ.

Table 5. Linear Regression models predicting general honesty.

Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
SES	0.019 (0.91)		0.0871 (4.7)***	0.0098 (0.46)	
IQ	0.242 (10.6)***	0.221 (9.6)***		0.217 (8.8)***	
Black		-0.14 (2.7)**	-0.332 (7.5)***	-0.137 (2.6)**	-0.396 (9.4)***
Hispanic		-0.0908 (1.7)	-0.238 (4.8)***	-0.0847 (1.5)	-0.325 (7)***
R2	0.0601	0.0627	0.0407	0.0628	0.034

Note: racial reference group is Whites, non-racial parameter estimates are standardized. t-values in parenthesis \* = p<0.05, \*\* = p<0.01 \*\*\*=p<0.001.

It is possible that there are differences in what influences parent-reported vs self-reported honesty. For example, it could be possible that intelligence can influence the way somebody reports their honesty, but not how their parents report their honesty. To clarify questions like these, the same models used in Table 3 were also used to predict self-reported in Table 6 honesty and parent reported honesty in Table 7.

Table 6. Regression models predicting self-reported honesty.

Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
SES	-0.013 (0.76)		0.00373 (0.25)	-0.0268 (1.5)	
IQ	0.105 (5.8)***	0.0766 (4.2)***		0.0868 (4.5)***	
Black		-0.0759 (1.8)	-0.176 (5.1)***	-0.0841 (2)*	-0.178 (5.4)***
Hispanic		-0.128 (2.9)**	-0.229 (5.9)***	-0.145 (3.2)**	-0.232 (6.5)***
R2	0.00942	0.0115	0.0105	0.0121	0.0105



Note: racial reference group is Whites, non-racial parameter estimates are standardized. t-values in parenthesis \* = p<0.05, \*\* = p<0.01 \*\*\*=p<0.001.

Table 7. Regression models predicting parent-reported honesty.

Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
SES	0.0278 (1.4)		0.112 (6.1)***	0.0278 (1.4)	
IQ	0.269 (12.3)***	0.26 (11.8)***		0.248 (10.5)***	
Black		-0.191 (2.7)**	-0.338 (7.8)***	-0.127 (2.5)*	-0.42 (10.1)***
Hispanic		0.0009 (0.01)	-0.125 (2.6)**	-0.0184 (0.34)	-0.236 (5.2)***
R2	0.0786	0.081	0.044	0.0817	0.0326

Note: racial reference group is Whites, non-racial parameter estimates are standardized. t-values in parenthesis \* = p<0.05, \*\* = p<0.01 \*\*\*=p<0.001.

Models were also run to determine if GPA was a mediating variable in Table 8. The reason for doing this is that intelligence could influence grades, and then grades could impact the desire to cheat, which impacts self reports and parent reports. The model using IQ and racial variables was judged to be the best model, as these were the variables most consistently associated with the outcome variables. While the impact of intelligence did decrease, the variable still reached significance in the 2 models.

Table 8. Regression models predicting general honesty.

Parameter	Dependent: general honesty	Dependent: parent-reported honesty	Dependent: self-reported honesty
GPA	0.113 (4.1)***	0.137 (5.2)***	0.0573 (2.5)*
IQ	0.133 (4.1)***	0.166 (5.5)***	0.0411 (1.6)
Black	-0.181 (2.8)**	-0.196 (3.3)**	-0.0606 (1.2)
Hispanic	-0.0163 (0.24)	0.0386 (0.61)	-0.0768 (1.4)
R2	0.0639	0.097	0.0104

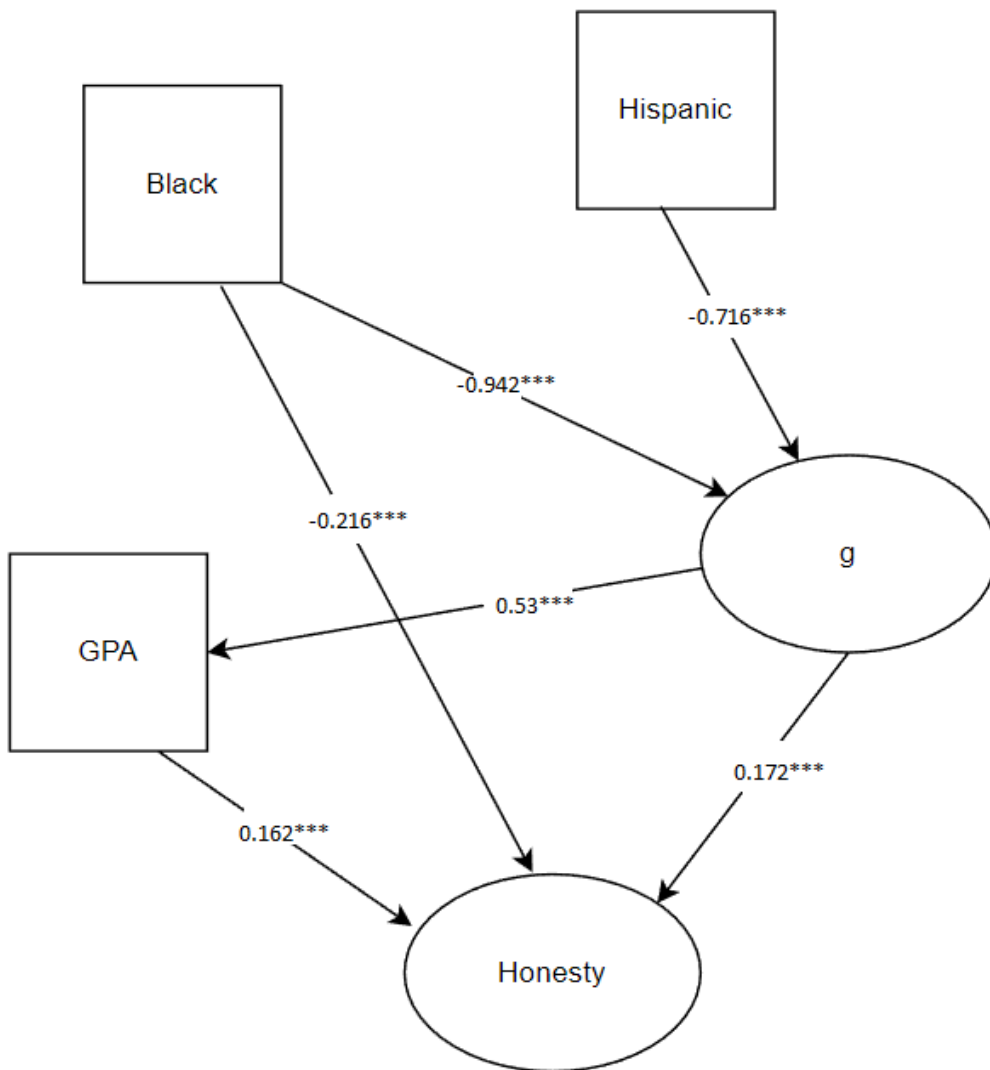
Note: racial reference group is Whites, non-racial parameter estimates are standardized. t-values in parenthesis \* = p<0.05, \*\* = p<0.01 \*\*\*=p<0.001.

According to the regression models in Table 8., being Hispanic does not seem to be associated with Honesty independent of GPA and IQ. However, being Black still is associated with Honesty even after controlling for GPA and IQ. Both GPA and IQ are associated with honesty after adjusting for controls in the two models with the least predictive error.

Another notable result is that parent-reported honesty is significantly easier to predict than self-reported honesty. The R of the best model for predicting parent-reported honesty had an effect size 3.05 times larger than the best model predicting self-reported honesty. This is likely because it is a more valid metric, as the idea of dishonest people accurately reporting their honesty is dubious.

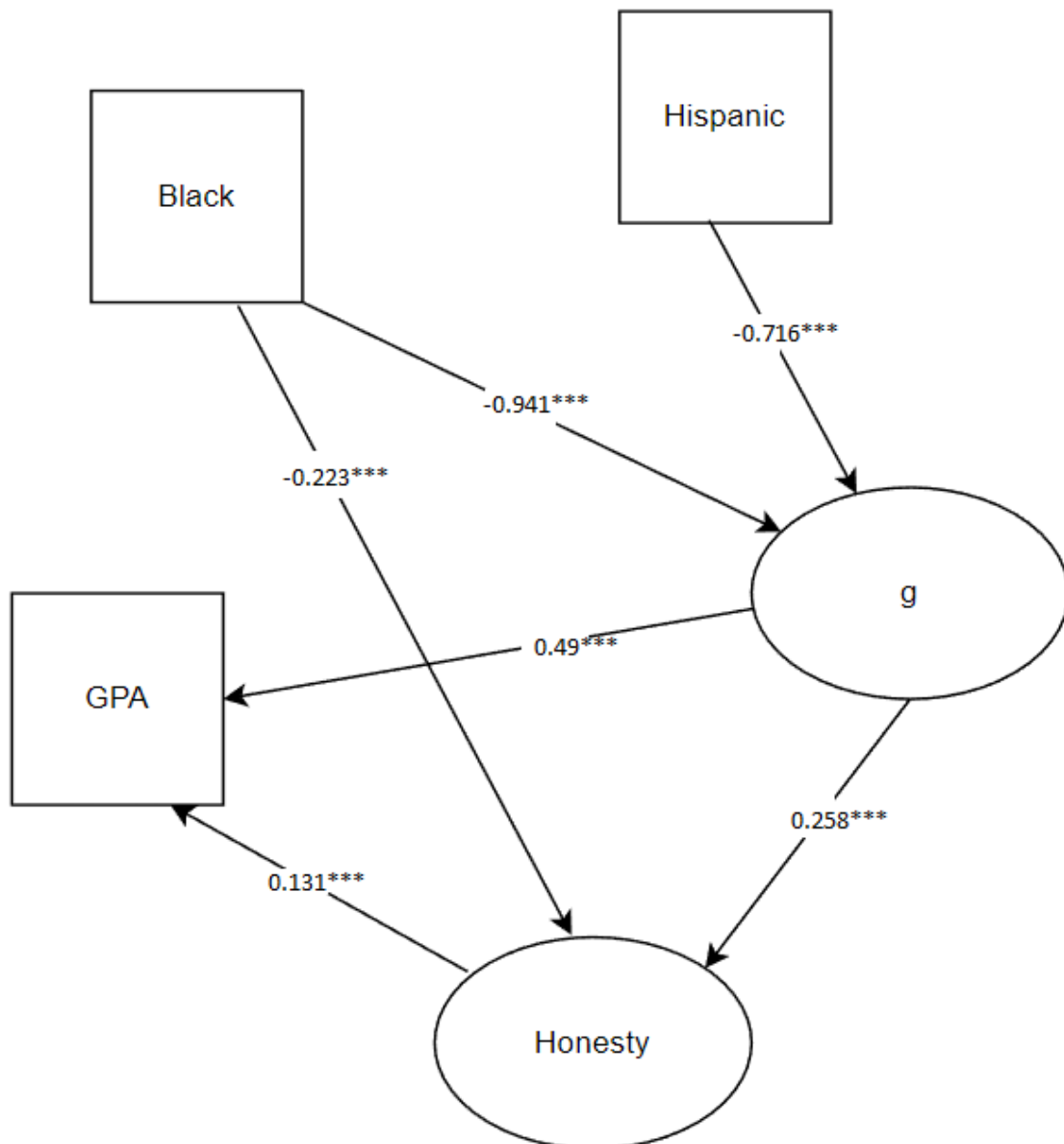
Two structural equation models were considered to determine the direction of the relationship between GPA and general honesty. While GPA was initially considered as a mediator in the relationship between IQ and honesty, it is just as plausible that honesty or personality traits associated with it positively impact GPA by decreasing the likelihood they fail due to getting caught cheating. These SEM models were ran based on the information gained from the multiple regression analysis, and are shown in Figure 5 and 6. Table 9 shows the model fit statistics.

Figure 5. SEM with GPA as a mediating variable (GPA Mediator Model)



Note: racial reference group is Whites. Racial path coefficients are unstandardized, others are standardized. Honesty is a latent variable derived from parent and self reports, g is a latent variable derived from the 12 ASVAB subtests. \* =  $p < 0.05$ , \*\* =  $p < 0.01$  \*\*\*= $p < 0.001$ .

Figure 6. SEM with Honesty as a mediating variable (Honesty Mediator Model)



Note: racial reference group is Whites. Racial path coefficients are unstandardized, others are standardized. Honesty is a latent variable derived from parent and self reports, g is a latent variable derived from the 12 ASVAB subtests. \* =  $p < 0.05$ , \*\* =  $p < 0.01$  \*\*\* =  $p < 0.001$ .

Table 9. Comparison of fit statistics between the two models

Model	BIC	AIC	$\chi^2$
GPA Mediator Model	52270.01	52081.73	2015.619
Honesty Mediator Model	52269.37	52081.08	2014.973

The Honesty Mediator Model appears to be a slightly better fit, though it is unclear if this reflects a true difference in better fit or if it is a sampling error. Given that the models have the same degrees of freedom, a comparison cannot be made.

## Discussion

We replicated prior results that intelligence, honesty, and race are related, with intelligence and race having clear relationships with honesty. Hispanics ( $d = -0.341$ ) and Blacks ( $d = -0.404$ ) were less honest than whites and  $g$  and honesty were positively correlated (latent correlation = .363). Linear regression analysis indicated that the relationship between honesty and parental SES greatly diminished when IQ was controlled for, being Black had a negative relationship with honesty, and intelligence was positively related to honesty. Being Hispanic does not seem to be related to Honesty independent of GPA and IQ.

GPA was a predictor of honesty independent of race and intelligence. It is worth noting that this finding is vulnerable to a measurement error confounding (Westfall & Yarkoni, 2016). Imperfect validity and reliability of the intelligence measure would cause any covariate to gain the remaining covariation. As GPA and intelligence correlated strongly ( $r = .52$  in this dataset), this is potentially a problem. However, the relationship IQ and GPA had with parent-reported or general honesty were about equivalent in strength, indicating that the imperfect validity or reliability of the IQ measurement did not cause this finding.

Two structural equation models were run to compare the two different mediation hypotheses: IQ->Honesty->GPA (Honesty Mediation Model) and IQ->GPA->Honesty (GPA Mediation Model). While the Honesty Mediation Model seemed to have a slightly better fit to the data, it is unclear whether this reflects a truly superior model.

Data from 226 Dutch university students found that conscientiousness ( $\beta = 0.28, p < .01$ ) and honesty-humility ( $\beta = 0.19, p < .05$ ) still predicted GPA after controlling for the other HEXACO personality traits and gender (de Vries et al., 2011). In addition, counterproductive academic behaviour assessed with a 25 item scale was negatively related to conscientiousness ( $\beta = -0.36, p < .01$ ) and honesty-humility ( $\beta = -.36, p < .01$ ) when controlling for the same confounders. Conscientiousness and humility were weakly correlated ( $r = .21, p < .01$ ). While the relationship between GPA and honesty mirrors the one obtained from our analysis, this data is not able to determine which direction the path between honesty and GPA goes.

There are several potential reasons why there is a relationship between honesty and intelligence, even when controlling for various variables. The first is that intelligent people have a lower time preference, which causes them to be more honest. Another theory is that intelligence allows people to morally reason more effectively, which causes them to be more honest. Alternatively, intelligent people have an easier time succeeding, which decreases their need to lie. Lastly, intelligent people are less predisposed to psychopathy, which may cause them to lie less. The plausibility of these theories and the evidence supporting them is discussed in the following paragraphs.

The basis of the first theory regarding time preference is that the rewards of honesty are delayed, while the rewards for lying are not. For example, the benefits of lying to a police officer could be an increase in short term reputation and lower stress. The drawback would be that it could be viewed as uncooperative behaviour in a criminal trial or increase the length of a sentence. A meta-analysis indicates that intelligence and higher time preference are correlated ( $r = -.23$ ) (Shamosh & Gray, 2008).

Another potential reason intelligence is correlated with honesty is because intelligence enables individuals to use moral reasoning. Even within a highly selected gifted sample with a mean IQ of 126.5, IQ and moral reasoning assessed with the Defining Issues Test correlated at .14 ( $p < .05$ ) (Karnes & Brown, 1980). Within that study, moral reasoning correlated somewhat higher with verbal IQ ( $r = .25$ ) than performance IQ ( $r = -.06$ ), and this difference passed statistical significance ( $n = 208$ ,  $p < .01$ ). Similar studies evaluating the relationship between intelligence and moral reasoning also corroborate these findings (Hanks, 1985);(Eisenberg-Berg, 1979).

There is a vast amount of literature suggesting intelligence is linked to various measurements of success (Strenze, 2015). Analysis that control for socioeconomic status or use sibling controls suggest that this effect is causal (Herrnstein & Murray, 1994 ; Murray, 2002 ; Hegelund et al., 2019 ; Marks, 2022). Our own analysis suggests that GPA relates to honesty independent of IQ. It is unclear whether this is an effect honesty has on GPA, an effect GPA has on honesty, or confounding with prosocial personality traits, so it is difficult to infer if success has an effect on honesty.

Lastly, it is possible that intelligence correlates with honesty because intelligence negatively covaries with the p-factor (Kirkegaard & Nyborg, 2021), the general predisposition to psychopathological behaviour. This theory is evidenced by the fact that psychopathic factors such as machiavellianism ( $r = -.40$ ) and psychopathy ( $r = -.45$ ) negatively correlate with the personality factor known as honesty-humility (Ashton et al., 2000). Because of this, intelligence and honesty should negatively correlate independent of other variables. In addition, these correlations between intelligence and personality traits appear to be almost completely genetic (Bartels et al., 2012), indicating that the true relationship between intelligence and personality is pleiotropic or causal.

One of our findings is that the relationship between race and honesty decreases significantly after controlling for IQ, suggesting that some of the race differences in honesty are due to the difference in intelligence. If genetic differences cause differences in intelligence between the races, then it likely follows that these genetic differences in intelligence are associated with genetic differences in honesty. This is because most of the association between personality variables and intelligence is driven by genetic causes, based on twin studies (Bartels et al., 2012).

### **Implications for further research**

Currently, the most plausible theory concerning the association between intelligence and honesty is that it is driven by the negative relationship intelligence has with the p-factor. It should be fairly easy to test whether this is the most influential variable, with this method being to gather self-reports and parent-reports of honesty and personality along with

measurements of intelligence. Using this information, it could be examined whether the p-factor is driving the relationship between intelligence and honesty through regression analysis. A similar design can be used to test the theory that moral reasoning or success mediate the relationship IQ has with honesty.

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