Do wealthier drivers cut more at all-way stop intersections? Mechanisms underlying the relationship between social class and unethical behavior

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Abstract

As a means of exploring the relationship between social class and unethical behavior, 759 drivers were unobtrusively observed as they navigated 46 all-way stop intersections across Southern California. Observers indexed drivers’ wealth by estimating the value of their cars, then looked to see whether they waited their turn to proceed through intersections, or illegally cut off other drivers. The results demonstrate that wealthier drivers are more likely to cut at all-way stop intersections than other drivers. This bolsters previous reports of positive correlations between wealth and unethical behavior (Piff et al., 2012a), and goes against the notion that such findings are attributable to publication bias (Francis, 2012). Moreover, the data are inconsistent with cutting being due to accidental lapses of attention. This suggests that cutting among wealthier drivers may reflect adherence to ethical codes geared towards maximizing one’s self-interest, often at the expense of others.

*Keywords:* Social class, unethical behavior, attention.
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Does an individual’s socioeconomic status (SES) predict their tendency toward unethical behavior? If so, who is more likely to behave unethically—the rich or the poor? For many observers, conventional wisdom suggests that low SES individuals should be more likely to violate ethical norms. Low SES individuals live in environments in which resources are relatively scarce, and competition for scarce resources may lead people to lie, cheat, steal—and in some cases even kill—to survive.

Alternatively, it may be that high SES individuals are more likely to behave unethically. Anecdotal evidence supporting this hypothesis abounds in newspaper headlines, which suggest that high SES individuals are committing the same unethical acts more commonly attributed to lower SES individuals, only on a grander scale: banks dupe their clients into participating in investment schemes they know are doomed to fail (Corkery & Protess, 2014; Johnson, 2014), CEOs embezzle millions of dollars to fund lavish lifestyles (Sorkin, 2005), and companies strategically attempt to increase their profitability by breaking laws and harming the health and well-being of thousands (Waas, 2010).

While empirical evidence bearing on the relationship between SES and unethical behavior is sparse, recent results from Piff and colleagues (2012a) demonstrate a positive association between the two. Across seven studies the authors found that high SES consistently predicted increased unethical behavior. For example, high SES participants were more likely than low SES participants to endorse activities like pirating software and stealing from work (Study 3), were more likely to lie during a business negotiation (Study 5), and were more likely to cheat while playing a for-profit game (Study 6). Moreover, the results of some studies intimate
a causal relationship between SES and unethical behavior: when given the opportunity to help themselves to candy that had purportedly been set aside for children, participants who had been primed to think of themselves as high SES took more than those who had been primed to think of themselves as low SES (Study 4). Finally, the finding that high SES individuals are more prone to breaking traffic laws (Studies 1 and 2) suggests that the positive correlation between SES and unethical behavior is not simply a laboratory artifact, but may in fact be a feature of many everyday human activities.

**Are Piff et al.’s (2012a) Results Believable?**

A remarkable characteristic of Piff et al.’s (2012a) results is their consistency across different methods, samples, and operationalizations of SES. A critique by Francis (2012) however, argues that this consistency actually indicates that the results are too good to be true (but see Piff, Stancato, Côté, Mendoza-Denton, & Keltner, 2012b for a rebuttal). Francis calculated power estimates for each of the seven studies in Piff et al. (2012a) and found that most of them had only about a 50% chance of finding a statistically significant relationship between SES and unethical behavior. Given that level of power, it makes sense that some of Piff et al.’s studies should have rejected the null hypothesis. The likelihood that all seven would do so however, is quite low—around 2%. To account for this discrepancy, Francis argues that Piff et al. “may have (perhaps unwittingly) run, but not reported, additional experiments that failed to reject the null hypothesis (the file drawer problem), or they may have run the experiments in a way that improperly increased the rejection rate of the null hypothesis” (p. E1587). This critique represents a serious challenge to Piff et al. (2012a).

**The Present Studies**

The best way to address Francis’ (2012) critique is via independent replication. The
present work initiates this effort by attempting to replicate and extend Piff and colleagues’ Study 1. We focus on this particular study because it offers a compelling real-world demonstration of the relationship between SES and unethical behavior, and also because there are plausible explanations for the behavior of high SES participants that are largely unexplored in Piff et al. (2012a), but that we attempt to address here.

In Study 1 Piff and colleagues (2012a) observed 274 drivers as they navigated a single all-way stop intersection in the San Francisco Bay Area. Driver SES was indexed by estimating the value of drivers’ vehicles. Piff et al. found that those driving more expensive vehicles were more likely to illegally cut at the intersection—that is, they were less likely to wait their turn in the queue that formed as cars pulled up to the intersection, as required by California Vehicle Code (California Department of Motor Vehicles, 2014).

Why are higher SES drivers more likely to cut? While Piff et al. acknowledge that the relationship between SES and unethical behavior is complex, their central argument across all seven studies is that wealthier individuals entertain more positive attitudes towards greed. This contributes to behaviors like lying during business negotiations (Study 5), and cheating at for-profit games (Study 6). But while greed offers a relatively straightforward account of unethical behaviors that result in material gain, it seems ill-suited to explain cutting at all-way stop intersections, where drivers seem to be accruing nothing more than mere seconds. The present work explores alternative accounts of the relationship between SES and illegal cutting behavior.

**Could High SES Cutting be Accidental?**

One interpretation of Piff and colleagues’ (2012a) Study 1 is that increased cutting among higher SES drivers reflects their moral principles, or ethics. For example, wealthier
individuals have a greater ability to deal with the legal consequences of breaking the law. This may lead higher SES drivers to reason—either implicitly or explicitly—that there is less of a downside to cutting because they can easily afford to pay any traffic citations they might receive. This sort of reasoning, of course, ignores the fact that cutting is not fair. But considerations of fairness may not be foremost in the minds of higher SES drivers: wealth also tends to be associated with increases in self-interested behavior (Piff, 2014), and reduced compassion (Stellar, Manzo, Kraus, & Keltner, 2012).

Alternatively, it may be that cutting has very little to do with ethics. Instead, higher SES drivers may be more prone to accidental cutting due to SES-related differences in attention, as outlined below. Differentiating cutting that is accidental from cutting that stems from moral considerations is important because it bears on a driver’s culpability: many ethical and legal systems assign reduced culpability in the case of accidental law-breaking—e.g., the difference between murder and manslaughter (Numbers 35:16-29, New International Version).

How might higher SES drivers accidentally cut? Navigating an all-way stop intersection requires attention to other drivers in order to determine whose turn it is to proceed. Momentary lapses of attention can cause drivers to lose track of their place in the queue, which leads to accidental cutting if they happen to go through the intersection at the wrong time. Here we suggest that higher SES drivers might be more likely to cut accidentally because they devote less attention to other drivers.

The idea that higher SES individuals might attend less to others has been explored in a number of studies. Whereas lower class individuals show increased attention to the social environment and specifically to other people as a way of dealing with challenges, higher class individuals are less dependent on others for survival, which leaves them relatively more free to
focus on and pursue their own self-interest (Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012). These class-based differences manifest themselves in numerous subtle ways. For example, higher SES individuals show increased fidgeting and decreased gaze towards their partners during conversation (Kraus & Keltner, 2009), as well as decreased ability to read others’ emotions (Kraus, Côté, & Keltner, 2010), both of which are consistent with less attention to others. Indeed, the structure of many social hierarchies encourages decreased attention to others on the part of high SES individuals. In work settings for instance, there is an asymmetry of attention such that it is more likely to be directed up the hierarchy: subordinates pay more attention to their supervisors because success at work is heavily contingent on pleasing their supervisors. In contrast, supervisors pay less attention to subordinates because their success is less strongly dependent on having detailed knowledge of their subordinates’ lives and work (Fiske, 1993). It is thus possible for higher SES individuals—who tend to be positioned higher in social hierarchies—to learn to attend less to others as a function of their status.

Less attention to others suggests that high SES drivers might be more likely to accidentally cut at all-way stop intersections. But note that it is probably not the case that high SES drivers pay no attention to others. Rather, following resource limitation accounts (Lavie & Tsal, 1994; Navon & Gopher, 1979), we hypothesize that the attention that high SES drivers allocate to tracking other drivers will be sufficient to accurately monitor the queue that forms at intersections under light traffic conditions. However, as traffic becomes heavier and more resources are needed to monitor an increasingly complex queue, the likelihood that high SES drivers will lose their place in the queue and accidentally cut goes up. This account thus predicts an interaction between driver SES and traffic, such that the effect of SES on cutting is
larger when traffic at an intersection is heavy (see Figure 1, left panel). In contrast, there will be no such interaction if high SES drivers are cutting due to increased ability to pay a traffic citation: one’s ability to pay remains the same regardless of the amount of traffic present at an intersection (see Figure 1, right panel).

To summarize, the present work addresses a serious critique of Piff et al. (2012a) leveled by Francis (2012). It does so by attempting to replicate Piff et al.’s finding of a positive correlation between SES and illegal cutting behavior at all-way stop intersections. In addition, while it is relatively common to assume that unethical behavior among wealthier individuals is related to ethical shortcomings, here we investigate the possibility that high SES cutting might instead be accidental in that it reflects class-based differences in attention.

**Study 1**

In Piff and colleagues (2012a), a small set of coders observed driver behavior at a single all-way stop intersection in the San Francisco Bay area and found a positive correlation between driver SES and cutting. A secondary goal of the present work was investigate whether the same result would accrue when a much larger set of intersections was studied, in a different geographical region of the country. Following Piff et al., we planned to use the value of drivers’ vehicles to estimate their SES. Vehicle value is a reliable predictor of wealth (Frank, 1999). However, a problem with scaling this approach up to a large number of intersections is that it requires a large number of coders who are able to reliably estimate vehicle values. Study 1 was conducted to ensure that novices with no particular expertise or interest in automobiles could in fact be trained to estimate vehicle values with high agreement.

**Coders**
Thirty-five UCSD undergraduate students in a research methods course were trained to code vehicle values.

**Materials**

Vehicle values were quantified using the same five point scale found in Piff et al. (2012a): 1 = cars worth $3,000 or less; 2 = $3,001-$10,000; 3 = $10,001-$25,000; 4 = $25,001-$40,000; 5 = cars worth more than $40,000.

Images and prices for 30 cars were obtained from Craigslist and CarMax, with equal numbers of cars at each step of the vehicle value scale. The images of ten cars (two at each scale step) were randomly selected for use in a training block. The images of the remaining 20 cars (four at each step) were used in a test block to assess cross-coder agreement in the use of the scale.

A slideshow was constructed consisting of the training block images followed by the test block images. Images were randomly ordered within their block.

**Procedure**

Slides were shown to all 35 coders as a group. For each training car, the experimenter and coders discussed what vehicle value rating the car should be given and why. The experimenter then provided feedback by revealing the car’s actual rating, based on its Craigslist or CarMax price. For each test car, coders were instructed to rate it on the vehicle value scale.

**Results and Discussion**

Analysis of responses for the 20 test cars resulted in a Finn coefficient of 0.87 (Finn, 1970), indicating excellent agreement across coders in the use of the vehicle value scale (Gödert, Gamer, Rill, & Vossel, 2005). This outcome demonstrates that a large group of
novices with no particular expertise in cars can reliably estimate how much different cars are worth.

**Study 2**

Study 2 capitalized on the successful training done in Study 1 by having the same individuals code vehicle values and driver cutting behavior at 46 different all-way stop intersections across three Southern California counties: San Diego, Los Angeles, and Orange.

**Coders**

Study 2 utilized the same 35 UCSD undergraduate students who were trained in Study 1, plus two additional students who received separate training in the coding procedures.

**Procedure**

Coders positioned themselves unobtrusively at all-way stop intersections: for example, they sat at bus stops, in parked cars, or feigned phone conversations. Coders pseudo-randomly selected approaching vehicles for coding, with the constraint that vehicles approaching an empty intersection were not selected, and commercial vehicles were not selected. Prior to stopping, the estimated value of each selected vehicle was recorded using the same vehicle value scale described above, and the amount of traffic was measured—i.e., coders noted the number of lanes in the intersection in which other cars were already queued (see Figure 2). Coders then observed whether drivers waited their turn before proceeding through the intersection, or whether they jumped the queue and cut off other drivers, in violation of California Vehicle Code. As drivers pulled away, their perceived sex and age (1 = 16-35 years old, 2 = 36-55, 3 = 56 and older) were recorded, as well as the time of day.

—INSERT FIGURE 2 ABOUT HERE—

**Results**
778 drivers were observed at 46 all-way stop intersections. 88% of the data were collected in San Diego County, 8% in Los Angeles County, and 4% in Orange County. Nineteen of the 778 drivers, accounting for 2.4% of the data, were excluded from analysis, either because they were not visible enough to record their sex and age, or because it was not possible to definitively determine whether or not a cut had occurred (e.g., due to pedestrians or cyclists disrupting the queue).

In the remaining 759 datapoints, the predictor variables of vehicle value, traffic, driver sex, driver age, and time of day were distributed as shown in Figure 3.

—INSERT FIGURE 3 ABOUT HERE—

Binomial mixed effects regression was used to model the relationship between driver SES and cutting (Bates, Maechler, Bolker, & Walker, 2014; R Core Team, 2014). The main predictor variables of interest were vehicle value, traffic, and their interaction. Covariates included driver sex, driver age, and time of day. The clustering of datapoints by coder and intersection was taken into account by modeling coder and intersection as random effects with the maximal random effects structure (Barr, Levy, Scheepers, & Tily, 2013).

Results are shown in Figure 4. Drivers of higher value vehicles were significantly more likely to cut than drivers of lower value vehicles, $B = 0.27, p = 0.027, 95\% \text{ CI } [0.03, 0.50]$, and cutting was significantly more likely as traffic increased, $B = 0.32, p = 0.026, 95\% \text{ CI } [0.04, 0.60]$. However, the interaction of vehicle value and traffic was not statistically significant, $B = -0.18, p = 0.22, 95\% \text{ CI } [-0.46, 0.11]$, nor were the effects of driver sex, driver age, and time of day, all $p > 0.29$.

—INSERT FIGURE 4 ABOUT HERE—

**General Discussion**
In the present work 759 drivers were inconspicuously observed as they navigated all-way stop intersections in Southern California. Coders rated the value of drivers’ vehicles and noted whether they waited their turn in the queues that formed at intersections, or illegally cut. The results demonstrate that drivers of more expensive vehicles were more likely to cut than drivers of less expensive vehicles, even when statistically accounting for the contributions of traffic, driver sex, driver age, and time of day. This replicates Piff et al.’s (2012a) finding of a positive correlation between driver SES and cutting, and undercuts Francis’ (2012) suggestion that the Piff et al. results are spurious.

Study 2 builds on Piff et al.’s (2012a) work in two important ways. First, the Study 2 results demonstrate that the outcome of Piff et al.’s work was not determined by the particular drivers or intersection studied. We show that the relationship between driver SES and cutting generalizes to a much larger sample of drivers (759 vs. 274) navigating a much larger set of intersections (46 vs. one) in a different geographic region of the country (Southern California vs. the San Francisco Bay Area).

Second, the present work provides a more detailed investigation of the socio-cognitive mechanisms that might account for driver behavior at all-way stop intersections. Piff et al. (2012a) emphasized the role that attitudes towards greed have in contributing to an array of unethical behaviors. But while the greed hypothesis is well suited to explaining unethical behavior in the pursuit of material gain, its ability to account for cutting—which does not straightforwardly result in material gain—is questionable. Instead, we tested for an interaction between driver SES and traffic, based on the idea that the presence or absence of an interaction would be informative about the types of mechanisms that underlie driver behavior.

Specifically, the present study looked to see whether high SES cutting might be
Accidental in the sense that it reflects cognitive resource limitations rather than decision making based on one’s ethics. If higher SES individuals devote less attention to others generally (Fiske, 1993; Kraus et al., 2010; Kraus & Keltner, 2009), then the amount of attention they allocate to tracking other drivers at all-way stop intersections might be insufficient to accurately represent high traffic queues. This predicts increased cutting by higher SES drivers under high traffic conditions—i.e., an interaction between driver SES and traffic (see Figure 1, left panel).

The results of Study 2, however, failed to show an interaction (see Figure 4). Clearly this outcome does not prove that cutting among higher SES drivers is not accidental. Future studies featuring more power or using different methods may yet be able to find support for the accidental cutting hypothesis. At the same time though, the Study 2 data pattern is not unexpected. If higher SES drivers do not perceive the financial penalty associated with cutting to be particularly burdensome, then they will cut more often, regardless of the amount of traffic present at an intersection. This matches the overall behavior that was observed.

It is also worth noting that although we argued above against the idea that cutting might be straightforwardly attributable to greed in the same way that cheating in order to win money is, there is a more subtle sense in which greed and other characteristics that are associated with SES—including increased entitlement (Piff, 2014), and reduced compassion (Stellar et al., 2012)—are consistent with the present results. All of these factors index an increased focus on maximizing one’s own self-interest, and decreased consideration of others. When higher SES drivers commit unethical acts then, it seems likely that a number of factors might be included in their cost-benefit analysis. Their wealth insulates them from the negative consequences of a traffic citation, thereby decreasing the relative costs of illegal behavior. And cutting serves their own interests, which increases its benefits.
To conclude, one of the motivations for the present work was to question the commonly held belief that high SES individuals live by a different moral code than others, and that this contributes to the unethical acts that they commit. We considered a specific type of unethical behavior—cutting at all-way stop intersections—and outlined a hypothesis that views cutting among higher SES drivers as accidental. The data, however, failed to support the notion of accidental cutting. This suggests that SES-related differences in ethics may provide the best explanation for cutting behavior at all-way stop intersections.
References


Figure 1. Two accounts of the relationship between driver SES and illegal cutting behavior at all-way stop intersections. Both accounts assume that higher SES drivers will cut more, and that there will be more cutting at intersections with heavier traffic. They disagree, however, about whether the amount of traffic modulates the effect of SES. Under the attention account, higher SES drivers are more prone to accidental cutting because they pay less attention to others. This leads to especially large amounts of cutting by high SES drivers in situations that require the most attention to other drivers in the queue—i.e., under heavy traffic conditions (left panel). Alternatively, under the ethics account, higher SES drivers may cut because they have the financial resources to easily pay a ticket, even though cutting is unfair to other drivers. Since one’s finances are the same regardless of how busy an intersection is, there should be no interaction between SES and traffic (right panel).
Figure 2. One of the intersections observed in the study was at Voigt and Gilman in La Jolla, California. Lanes entering the intersection are marked with the word STOP. The amount of traffic that drivers dealt with was quantified as the number of lanes that were already occupied by other cars when drivers approached. For example, if there were cars waiting in two other lanes when a driver approached, then traffic was coded as two. Image courtesy of Google.
Figure 3. Distribution of variables used in the Study 2 statistical analysis. Percentages indicate the proportion of data in a category. (A) Vehicle value was normally distributed, with a plurality of drivers (29%) observed in cars estimated to be worth between $10,001 and $25,000—i.e., a vehicle value of three. (B) It was rare for drivers to approach intersections with very high levels of traffic—e.g., with five (5.3%) or six (0.4%) other lanes already occupied. (C) 38.9% of drivers in the sample were perceived to be female, while 61.1% were perceived to be male. (D) The majority of drivers (53.6%) were perceived to be between 16 and 35 years old. (E) Most drivers were observed between noon and 19:00 (7:00 p.m.).
Figure 4. Study 2 results. Higher vehicle value and increased traffic predicted more cutting, but there was no evidence that the relationship between vehicle value and cutting was modulated by the amount of traffic. Note that traffic is depicted here with just two levels to simplify the presentation (light = traffic values of 1-2; heavy = traffic values of 3-6). In the statistical analysis all six levels were represented (see Figure 3B). Error bars indicate the standard error.