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About Face: Seeing Class and Race

Mark Paul,¹ Sarah E. Gaither,² and William Darity, Jr.³

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Abstract

People's social class, and the perceptions of their social class are embedded in an institutional context that has important ramifications for one's life opportunities and outcomes. Research on first impressions has found that people are relatively accurate at judging a variety of traits such as perceived sexual orientation and income, but there is a paucity of research that investigates whether people are also accurate at judging wealth or class. In this article, we first investigate whether people understand the distinction between income and wealth (Study 1). Then, using a novel dataset, we examine whether people are accurate at identifying the income and wealth levels of individuals across racial and ethnic groups by facial cues alone (Study 2). We find that participants understand the meaning of income, but not wealth. Additionally, we find that perceivers categorize class more accurately than by sheer chance, using minimal facial cues, but perceivers are particularly inaccurate when categorizing high-income and high-wealth Black and Latinx subjects.

Keywords: socioeconomic status, first impression, person perception, social class, inequality, stratification economics

JEL Classification Codes: Z13, D63; J15

¹ Mark Paul is an Assistant Professor of Economics and Environmental Studies at New College of Florida. *Corresponding author. Email: mapaul@ncf.edu. Phone: (413) 230-9175

² Sarah E. Gaither is an Assistant Professor of Psychology and Neuroscience and faculty affiliate with the Samuel DuBois Cook Center on Social Equity and The Center on Health and Society at Duke University

³ William Darity, Jr. is the Samuel DuBois Cook Professor of Public Policy, African and African-American Studies and Economics and the director of the Samuel DuBois Cook Center on Social Equity at Duke University.

Introduction

First impressions matter—whether they are based on someone's profile photo from their LinkedIn account, their name on a job application, or their voice over the phone. These first impressions have been found to have meaningful impacts on individual opportunities and outcomes, including hiring decisions, access to leadership roles, home rental and homeownership prospects, and even sentencing in criminal cases (e.g., Bertrand and Mullainathan 2004; Eberhardt, Davies, Purdie-Vaughns, and Johnson 2006; Fasoli and Hegarty 2020; Pager, Bonikowski, and Western 2009; Pager and Western 2012). Such impressions do not occur in isolation, but are embedded in dominant social relations and may be influenced by the existence of structural inequalities which are pervasive in the economy.

Impressions of one's class position, such as judging if someone has a high-income or is "wealthy," can have important implications affecting access to employment, credit, one's social network, and broader opportunities for economic security and advancement (Goldsmith, Hamilton, and Darity 2007; Hamilton, Goldsmith, and Darity 2009; Keith et al 2017). These first impressions, also known as snap judgements, may play an important role in the continuation of existing group-based inequalities, such as those found across race/ethnicity and gender group lines, by curtailing economic mobility and contributing to discriminatory practices throughout the economy and people's everyday lived experiences. For instance, previous research has found that structural barriers, rather than individual agency, is central to understanding widespread racial inequality in the U.S. economy, yet widely held myths regarding racial inequality are pervasive and impact perceptions of social class (Shulman 1990; Hamilton and Darity 2017; Darity et al. 2018). While class is a salient category in the United States, some studies indicate that people may have a poor understanding of the difference between income and wealth—two distinct measures of class, which we argue may also differentially influence perceptions of class position (Stanley and Stanley Fallaw 2019). By extending previous social perception research to test whether perceivers are also accurate at knowing a person's income versus their wealth status, we are among the first to investigate how people may infer others' social class from facial cues alone, while also testing whether racial group identity affects accuracy.

Specifically, we explore perceptions and accuracy of class status through two studies. In Study 1 we investigate whether people understand the distinction between various measurements of class (income versus wealth). In Study 2 we investigate whether people are correct in identifying an individual's class position based upon the individual's facial cues.

We build upon a relatively new strand of research that demonstrates that people are surprisingly accurate when provided with minimal facial cues (e.g., Penton-Voak et al. 2006; Tskhay and Rule 2015). For example, past work shows that using facial cues alone, perceivers are accurate at detecting sexual orientation and even company profits (Rule and Ambady 2008a and 2008b). While researchers have tested if people are accurate at judging facial photos of subjects across many traits and salient group identities, there is a dearth of research regarding the social perception of class (income and wealth) through non-verbal cues. Such an extension is of great interest to economists who continue to study the different pathways through which inequality arises and the structural barriers which maintain deep-seated inequalities throughout the economy.

One recent snap judgement study by R. Thora Bjornsdottir and Nicholas Rule (2017) used a rough estimate of monetary income, which was self-reported from "web-based dating

advertisements” and found that perceivers were more accurate than chance at categorizing faces (also known as targets) as rich versus poor.⁴ However, in that study the quality of the income data was questionable and wealth information was entirely absent. This provides an opportunity for both replication of the income findings by Bjornsdottir and Rule and an opportunity to extend the results in order to explore perceptions related to wealth and broaden the work by looking across different racial and ethnic groups. Additionally, while their paper uses income data only, it conflates income measures with terms such as “wealthy” and “rich” which are a distinct measure of social class. Moreover, the potential impact on these social perceptions when categories like race are salient have been studied even less. Prior work found that there are significant biases when one considers individuals in lower status groups (Penner and Saperstein 2013). This leaves open an important question: are people generally correct at categorizing people’s social class based on minimal facial cues? And does accuracy differ across racial and ethnic groups? Answering these questions will also contribute to the economic literature on implicit bias—the attitudes, assumptions, and stereotypes which influence our understanding, actions, and decisions subconsciously (Bertrand, Chugh, and Mullainathan 2005).

In line with our expectations prior to conducting this work, we find the majority of participants are able to define income adequately, and present a clear understanding of the distinction between high- and low-income status. On the other hand, few participants in the study demonstrated a clear understanding of wealth as a separate measure of class. Furthermore, we find that individuals do better than chance at identifying both the income and wealth levels of individuals based on first impressions afforded by minimal facial cues. However, we find that participants are particularly poor at identifying high-income and high-wealth Black and Latinx targets, pinpointing another dimension of inequality with respect to race and ethnicity. This finding provides additional insight into why discrimination in the economy, for instance in labor and credit markets, persist. If people systematically assume Black and Latinx people are not in a high socioeconomic status, then these may be systematically bypassed for critical opportunities, contributing to the continuation of a racially stratified society.

Perceptions of Class: Income, Wealth, and Race

Social class, often operationalized as socioeconomic status, can be gauged in a variety of ways (Côté 2011). Traditionally, researchers rely on proxies to identify an individual’s socioeconomic status, which may include measures of occupation, employment status, and educational attainment, etc. For the present article, we focus on income and wealth data, both of which can have profound effects on individual life outcomes (Nam et al. 2015; Chetty et al. 2014a; Chetty et al. 2014b). For example, a person’s class position can affect one’s health status at birth (Aizer and Currie 2014), access to greater financial resources, healthier environments, and better funded schools (Ash et al. 2009; Bowles and Gintis 2002; Boyce 1994; Card and Krueger 1992; Drewnowski 2009; Oliver and Shapiro 2013; West 2018).

But the study of perceptions of class pose certain challenges since most people have a reasonable, shared understanding of the concept of income and yet equate it with wealth,

⁴ The term “targets” is borrowed from the psychology literature, where it is used regularly in the literature. Here the term refers to the individuals in the photographs being analyzed by participants. In contrast, the term “participants” refers to the people who come into the lab to participate in the studies directly.

which is a distinct and separate concept. In a brief review of previous research and popular media outlets, we found countless examples of the conflation of income and wealth. For example, recent work in the *New York Times* consistently referred to top income-earners as “rich” and “wealthy,” failing to note the distinction between the economic categories (Leonhardt 2019).

Additionally, we still do not know whether snap judgements of social class are accurate nor whether they vary across racial and ethnic groups. This is of interest since there are large and persistent differences in income and wealth across racial and ethnic groups, a large portion of which can be attributed to discrimination (Paul et al. 2018; Darity et al. 2018). Previous work shows people tend to equate being wealthy with traits such as “competent” and often report feeling admiration for wealthy individuals (Fiske et al. 2002). Other work examining verbal cues finds that signaling being upper-class through a stereotypical “high-class accent” or through conspicuous consumption, such as displaying luxury goods, elicits more favorable views from perceivers (Giles and Sassoon 1983; Nelissen and Meijers 2011). In fact, people frequently signal their preferred, personal social class identity in a number of ways, including social media profiles (Becker, Kraus, and Rheinschmidt-Same 2017) and clothing (Belfanti and Giusberti 2000; Piacentini and Mailer 2006).

Moreover, perceptions of class can vary across racial and ethnic lines. For instance, researchers have found that most Americans’ mental image of a poor person is a Black person (Brown-Iannuzzi et al. 2017; Lei and Bodenhausen 2017). Other work also documents how identical resumés with either white- or ethnic-sounding (Black or immigrant) names experience markedly different success rates, with ethnic sounding names resulting in significantly fewer call backs (Bertrand and Mullainathan, 2004; Oreopoulos 2011). This suggests that implicit biases as they relates to snap judgments of others are contributing to these inequities. Thus, this work fits within the context of stratification economics which takes an interdisciplinary approach to analyze intergroup differences. A recent book chapter on stratification economics noted that “stratification economics consciously rejects explanations for intergroup inequality on the grounds of collective dysfunction or self-defeating behaviors by the group experiencing comparatively negative outcomes” (Darity et al. 2017). It is also related to the institutionalist economist William M. Dugger’s work on “modes of inequality,” which include gender, race, class, and nation. In this work, Dugger notes that inequality is often a social process whereby a dominant group, or “top dog” benefits directly from the suppression of the “underdog” groups” (1996).

There also have been a number of papers to date which have investigated accuracy in perceptions of social class. The earliest paper in this vein demonstrated that through photos of people's living rooms, participants were fairly accurate at inferring people’s occupational status and educational attainment (Davis 1956). Since then, work using non-verbal cues, including the use of university employee photographs (Schmid Mast and Hall 2004) and photos of people’s shoes (Gillath, Bahns, Ge, and Crandall 2012), have been used to test accuracy in perception of social class. Other research has used verbal stimuli to test perception of social class, including Howard Giles and Caroline Sassoon (1983), who had college students mimic accents, and Michael Kraus et al. (2017) who had targets speak seven words, resulting in participants correctly identifying social class based on the accents of the speakers. There is variation across the literature in how researchers operationalize social class, with some relying on income (Bjornsdottir and Rule 2017; Lei and Bodenhausen 2017), and occupational status (Davis 1956), by asking participants “to which they belong (e.g., upper, middle, working)” (Adler et al. 2000), or by utilizing multiple measures (Kraus and Keltner 2009; Kraus and Keltner 2013).

Thus, following the one paper showing perceivers' accuracy in judging income level from a facial photograph (Bjornsdottir and Rule 2017), combined with the fact that income and wealth are distinct constructs with different associated social outcomes, the present study seeks to examine whether people are precise in identifying class from appearance when defined by income and wealth.

The Present Studies

In the current set of studies, we use two different measures of social class: (1) income, the money that an individual receives in exchange for providing a good or service in the market, or through interest earned on an asset, or receipt of a transfer payment; and (2) wealth, a stock of resources that represents the net value of an individual's or a household's property, the difference between the value of what they own in assets and what they owe in liabilities. Unlike previous studies looking at perceptions of social class through facial cues (e.g., Bjornsdottir and Rule 2017), we have a unique dataset that has detailed information on both economic indicators, along with a set of photos from a racially diverse sample of participants.

Study 1 tests if people generally have an accurate understanding of income and wealth as two distinct measures of social class and asks participants to identify income and wealth brackets that are associated with either low- or high-income and low- or high-wealth. We expect participants to accurately describe income, but to be inaccurate at describing wealth, in line with past work. Study 2 tests whether participants accurately infer targets as either high- or low-income and high- or low-wealth (tested separately) based on facial photographs, for which we have self-reported survey data on targets' income and wealth. Additionally, we test to see if these results varied depending on the race and ethnicity of the target in the photograph. All materials and methods for these studies were approved by the Institutional Review Board.

Study 1—Definitions of Income vs. Wealth

As noted above, income tends to be well understood, while wealth is often conflated with income by researchers, the media, and the public at large. We first seek to determine whether people actually do distinguish income and wealth by surveying an online sample of adults.

Data and Methodology

Participants were recruited via Amazon's Mechanical Turk (MTurk). An original sample of 254 participants was recruited but 27 participants were excluded due to incomplete surveys, resulting in a final sample size of 227 participants (122 female, 104 male, 1 unspecified; 109 White, 33 Black, 22 Latinx, 36 Asian, 20 biracial, 4 "other," 2 unspecified, and 3 refused to answer; $M_{age} = 42.83$, $SD = 16.55$; see table 1 for sample details).

Table 1. Study 1, Summary Statistics for Participants

	N	Percent
Sex		
<i>Male</i>	104	45.8%
<i>Female</i>	122	53.7%
<i>Refuse</i>	1	0.4%
Race		
<i>White</i>	109	48.0%
<i>Black</i>	33	14.50%
<i>Latinx</i>	22	9.7%
<i>Asian</i>	36	15.9%
<i>Biracial</i>	20	8.8%
<i>Other</i>	4	1.8
<i>Refuse</i>	3	1.3%
Income		
<i>< \$50,000</i>	105	46.5%
<i>\$50,000-\$99,999</i>	92	40.7%
<i>\$100,000 +</i>	29	12.8%
Employment Status		
<i>Employed</i>	93	41.0%
<i>Unemployed</i>	43	18.9%
<i>Retired</i>	42	18.5%
<i>Seasonally Employed</i>	10	4.4%
<i>Not in Labor Force</i>	25	11.0%
<i>Student</i>	14	6.2%
Educational Attainment		
<i>High School</i>	6	2.6%
<i>Some College/Associate's</i>	90	39.7%
<i>Bachelor's Degree</i>	54	23.8%
<i>Some Graduate School</i>	54	23.8%
<i>Graduate Degree</i>	23	10.1%

Notes. The data is based on self-reported demographic characteristics gathered from MTURK survey participants during study 1

All data was collected using a Qualtrics survey. Participants were first asked to define, in their own words, what it means for a person to be high-income, low-income, high-wealth, and low-wealth. These qualitative responses were then coded by two research assistants to determine if participants were accurate or not in their responses. Definitions of income and wealth were provided to the research assistants by the research team and were based on commonly accepted definitions which have been used in prior research and by the U.S. Census Bureau (Norton 2011).

For income, the following definition was provided: "Income is money that an individual or business receives in exchange for providing a good or service or through investing capital. Income is used to fund day-to-day expenses. People aged 65 and under typically receive the majority of their income from a salary or wages earned from a job." Further, they were told that "Median income is \$56,000 in the United States." For wealth, the following definition was provided: "Wealth is determined by taking the total market value of all physical and intangible assets owned, then subtracting all debts. Essentially, wealth is the accumulation of resources. Specific people, organizations and nations are said to be wealthy when they are able to accumulate many valuable resources or goods." Further,

they were told “Median wealth is \$97,000 in the United States.” Coders agreed on the accuracy of participants responses 74% of the time. Discrepancies were discussed and resolved by the authors.

Next, participants were asked to categorize income ranges for an individual who is low-income, followed by high-income, low-wealth, and high-wealth. The income and wealth brackets were predetermined by the research team, but participants could select as many brackets as they believe applied to the given category. For the income brackets, participants were provided with ten different options ranging from “\$0-14,999” to “\$250,000 and above.” For the wealth treatment, participants were provided with thirteen different options, ranging from “Less than \$0” to “\$450,000 and above.”

Finally, participants also completed the MacArthur Scale of Subjective Social Class, which accounts for a person’s context (Adler et al. 2000). The MacArthur Scale allowed us to gather data on participants’ subjective social class enabling us to learn more about the demographics of our sample. For this task, participants were shown a ladder with ten rungs and were presented with the following prompt:

Now, please think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are best off, those who have the most money, most education, and best jobs. At the bottom are the people who are the worst off, those who have the least money, least education, and worst jobs or no job. Please tell us where on the ladder best represents where you think you stand on the ladder.

Since we are interested in perceptions of group-based inequality across racial groups we asked participants to not only identify where they believe they stand in society, but also where the following four racial and ethnic groups stand: White, Black, Latinx, and Asian. Participants also provided basic demographic information before being debriefed.

Results and Discussion

As we suspected, we found that participants defined income accurately 58.5% of the time, while participants were only accurate 33.9% of the time when asked to define wealth. A select sample of participant responses are provided in table 2.

Table 2. Study 1, Qualitative Responses

		High	Low
Wealth	Accurate	To have a lot of money/assets; High passive income, investments or properties; Have a high value of assets.	Living paycheck to paycheck; "Low-wealth" has to do with the amount of assets or money a person possesses, regardless of how much income s/he has.
	Inaccurate	Making more than most people; Making over \$250,000 per year; They have a very high income compared to everyone else	Below average income; To not have a good paying job; The same as low income.
Income	Accurate	Usually "high-income" refers to a set number, such as more than \$100,000/year. What constitutes "high" can vary; Earning more than 6 figures; Someone that earns a substantial amount of money and are able to pay all bills,	Average pay is below middle class; Making under \$30,000 a year and living paycheck to paycheck; not earning a lot of money at a low paying job; In poverty. Low paying or no job.
	Inaccurate	Wealthy; Someone who makes huge profit; Rich; Large savings, investments, and assets.	A person who displays little material wealth; Blue collar worker; Renting your home

Notes. Above are sample definitions provided by participants in study 1.

Next, we analyzed whether participants were accurate in deciding what income ranges represent low- versus high-income. Based on the 2017 Current Population Survey, we use the U.S. median income of \$56,000 as a cutoff point between low- and high-income. We found that 89% of participants thought people with incomes below \$45,000 were low-income. An additional 6.6% of participants thought the next income bracket (\$45,000–\$59,999) represented the cutoff for low-income individuals. The vast majority of participants (92.9%) reported that for someone to be high-income, they had to at least be in the income bracket that included the median income in the U.S. (\$45,000–\$59,999). A full 70.4% of respondents believed that people had to earn at least six-figures (\$100,000) to be considered high-income.

Repeating this exercise for wealth, we use the median U.S. wealth (\$97,000) as our baseline.⁵ We find the majority of participants (61.2%) indicated that people with wealth below \$30,000 should be described as low-wealth, while an additional 29.5% of participants thought people with wealth below \$75,000 should be categorized as low wealth. In terms of high-wealth, only 15% of participants thought someone who had below \$100,000 in wealth could be classified as high-wealth. A full 48.9% of the sample though individuals needed \$250,000 or more in wealth to be classified as high-wealth, with the remaining 51.1% of participants reporting that people in a bracket below \$250,000 was sufficient to classify people as high-wealth.

In terms of income, we found that participants both provided accurate definitions and were able to accurately select income ranges into high- or low-income. In terms of wealth, we found that participants were not accurate in their qualitative descriptions, but were fairly accurate in selecting wealth ranges for high- and low-wealth (91% categorized wealth levels that are below median wealth were “low-wealth,” while 75% categorized wealth levels above the median as “high-wealth”).

Regarding participants’ own subjective social status ratings, results indicate that on average, participants felt they were about in the middle of society (see table 3). In line with prior research, participants report that White individuals are seen as best off in society while Black and Latinx individuals are seen as less well-off than other racial groups (Zebrowitz and Montepare 2008). These trends support findings from general economic data as they pertain to income, wealth, education, and employment status (Paul et al. 2018; Noël 2018).

Interestingly, participants identify Asian individuals as better off than average, but not as well-off as White individuals. While White individuals remain the dominant group in the United States, Asians tend to have superior economic indicators, including income, level of education, and employment (Noël 2018). These findings confirm our expectations that Whites and Asian individuals are perceived as higher-status groups in comparison with Black and Latinx individuals, motivating Study 2. In sum, we show that people are not accurate in distinguishing between income and wealth, but they do seem to be reasonably accurate in identifying class tiers using either income or wealth, conditional on the information they were given about median levels of each.

⁵ This is based on both the Survey of Income and Program Participation and the Survey of Consumer Finances which report slightly different median wealth numbers for the U.S.

Table 3. Study 1 Subjective Social Class Ladder

	Mean	SD
Self	4.86	2.06
White	7.61	3.47
Asian	6.45	2.71
Black	4.65	2.96
Latino	4.63	2.05

Notes. N=227 The data is based on self-reported responses to the Subjective Social Class Ladder gathered from MTURK survey participants during study 1

Study 2—First Impressions of Income versus Wealth by Race

To measure the accuracy of the first impressions, we asked participants to categorize a racially diverse set of photographs of real people for which we have accurate income and wealth data (a rarity within the field of studying social class). Knowing there are widespread misperceptions regarding race-based economic equality in the United States (Kraus et al. 2017), this study is among the first to test the accuracy of income and wealth perceptions coupled with variation in perceived race.

Data and Methodology

Due to Institutional Review Board (IRB) limitations, including previous consenting processes on whom could see the photos used in this task, only undergraduates at the authors' institution were allowed to see the photographs used in this study. Undergraduate participants from a Southeastern university were recruited during fall 2017 and spring 2018 in exchange for \$10 (N = 218; 101 female, 110 male, 7 did not respond; Median age = 19.7, SD = 2.1; 112 White, 37 Black, 10 Latinx, 48 Asian, 2 biracial, 6 "other," and 3 refused to answer).

Table 4. Study 2, Summary Statistics for Participants

	N	Percent
Sex		
<i>Male</i>	110	50.5%
<i>Female</i>	101	46.3%
Refuse	7	3.2%
Race		
<i>White</i>	112	51.4%
<i>Black</i>	37	16.97%
<i>Latinx</i>	10	4.6%
<i>Asian</i>	48	22.0%
<i>Biracial</i>	2	0.9%
<i>Other</i>	6	2.75%
<i>Refuse</i>	3	1.38%
Income		
<i>> \$50,000</i>	33	15.1%
<i>\$50,000-\$99,999</i>	29	13.3%
<i>\$100,000-\$199,999</i>	52	23.9%
<i>\$200,000+</i>	61	28.0%
<i>unsure/ no answer</i>	43	19.7%

Notes. The data is based on self-reported demographic characteristics gathered during study 2.

Finding facial stimuli in combination with accurate data on income and wealth has posed a significant challenge for research of this type in the past. As indicated above, prior studies have looked at similar questions using income ranges, but none have used precise income data nor have had any data on the wealth of the targets. For this study, we were able to use a proprietary dataset—the National Asset Scorecard and Communities of Color Survey (NASCC) administered by the Samuel DuBois Cook Center on Social Equity at Duke University.

This survey reports information on race and other key demographics, including income and wealth. This unique dataset is critical to our study, as no other dataset exists to our knowledge in the United States that has detailed income and wealth data in conjunction with photos of the individuals, which allow us to conduct our work on first impressions. The NASCC survey was originally developed to supplement existing national data sets that collect data on household wealth in the United States but rarely collect data disaggregated in detail by race and ethnicity.

While the survey covers five metropolitan areas in order to collect data about the assets and debt position of racial and ethnic groups at a detailed ancestral-origin level, the survey only collected photographs of a selection of the participants from the Los Angeles area. The full in-person survey in Los Angeles covered 703 people; 270 of those consented to be photographed for images that could be used in follow-up research. Among those, we had complete income and wealth data as well as a high-resolution photo for 196 targets.

Since we wanted a sample that was diverse across racial and ethnic groups, we split the remaining potential targets into the following groups based on participant self-reported race/ethnicity: White, Black, Latinx, and Asian (note: no racial/ethnic labels were provided to perceivers within this study since we were interested in measuring these perceptions

without added cognitive information such as a label). We aimed to have roughly thirty photos per racial/ethnic group, resulting in twenty-nine white, thirty Black, twenty-nine Latinx, and twenty-seven Asian targets for a total of one-hundred-fifteen targets (fifty-six male, fifty-nine female, self-identified). All targets' gazes faced the camera. Each photo contained just a target's face and neck.

Using Qualtrics survey software, participants were randomly assigned to one of two categorization conditions: (1) high-income or low-income or (2) high-wealth or low-wealth. All faces were shown in a randomized order and participants were instructed to respond as quickly as possible during a forced-choice dichotomous categorization task by pressing either "1" for low-income or "2" for high-income using a standard computer keyboard. This was repeated in the wealth treatment. Next, participants completed several exploratory measures of classism and social class essentialism. Participants were also asked to answer a number of questions to collect demographic information, including information on their race and ethnicity, family income, parental education, and subjective social class utilizing the same MacArthur Scale of Subjective Social Status as in Study 1.

Results

To test the accuracy of participants' first impressions, we use the signal detection statistic A' to measure accurate (with $A' = .50$ indicating chance). First, analyzing the income condition, we found that participants, indeed, do better than random selection at categorizing targets as either high- or low-income. Overall, targets (i.e., photos) were categorized correctly in this treatment 63% of the time ($SD = .06$), which is better than the random outcome ($t(108) = 15.69, p < .001$). Low-income targets were significantly more likely to be rated accurately (73% of the time, $SD = .15, t(77) = 13.35, p < .001$) compared to high-income targets (37%, $SD = .21, t(36) = 7.5, p < .001$).

Due to sample size, we were unable to stratify the sample across all racial and ethnic groups with signal detection measures; however, we are able to report the frequency of a target being classified correctly. Stratifying by race and ethnicity, white targets were categorized correctly 61% of the time, Black targets were categorized correctly 57% of the time, Latinx targets were categorized correctly 64% of the time, and Asian targets were categorized correctly 72% of the time. The groups which are least likely to be categorized correctly are high-income Black and Latinx targets, which were only categorized correctly 28 and 30% of the time respectively; this is compared to 50% of white and Asian high-income targets being correctly categorized. Using a Chi-square test, we ask if there is a relationship between a target being rated accurately at least 50% of the time (summing across all participants' ratings) and the target's self-reported racial or ethnic identity. For this test, we are able to stratify across our four main racial/ethnic groups (White, Black, Latinx, and Asian), and find that White and Asian targets are more likely to be categorized correctly compared to Black and Latinx targets.

Contrary to our predictions, we found participants overall also were above chance levels at categorizing a target's wealth correctly. In total, participants were accurate at wealth categorization 60% of the time ($SD = .07, t(114) = 4.19, p < .001$). Following the pattern we observed for income, participants were more accurate at identifying low-wealth targets (72% accurate, $SD = .15, t(78) = 2.04, p = .04$) than high-wealth targets (32% accurate, $SD = .17, t(35) = .25, p = .40$). Thus, using a t -test, we confirmed that participants are indeed more

accurate than chance at identifying low-wealth targets; however, they do not do better than random assignment at identifying high-wealth targets.

Stratifying the targets by self-reported race and ethnicity, we see that White targets are categorized correctly 49% of the time, Black targets were categorized correctly 57% of the time, Latinx targets were categorized correctly 63% of the time, and Asian targets were categorized correctly 71% of the time. The groups which are least likely to be categorized correctly are high-wealth Black and Latinx targets, which were only categorized correctly 28 and 27% of the time respectively; however, high-wealth White targets do not fare much better, with only 36% categorized correctly. We also see that participants incorrectly categorized high-income and high-wealth Black targets much more frequently (62% and 56%) than they incorrectly categorize low-income and low-wealth Black targets (36% and 38%). Our results indicate that Asian targets are rated the most accurately in both treatments.

Finally, we test if the race or ethnicity of the participant in the experiment affects their accuracy at identifying the social class of targets across racial/ethnic groups. We do not find any statistical support to indicate that some groups are more accurate at identifying the class of those in the same group, nor those in other groups.

Discussion

In sum, two studies were conducted to investigate the accuracy of people's understanding of income and wealth (Study 1) and people's social perceptions of one's class simply from facial cues (Study 2). Through qualitative responses from Study 1, we find that participants accurately identified the meaning of income, but not wealth. When participants were provided with money ranges and asked to select ones which represent high- and low-income, we again confirm that people have an accurate understanding of income as a category to differentiate between classes. However, despite their inability to define the concept of wealth, participants were accurate at identifying ranges of wealth as high or low.

Study 2 demonstrates that participants accurately judge targets' class when it was operationalized as both income and wealth from standardized facial photos of real individuals. This is an important finding within the first impression literature and has broader implications for how we understand persistent group-based inequality. First, replicating past work, participants did better than chance at identifying White and East-Asian targets as either high-income or low-income (Bjomsdottir and Rule 2017). However, the present study also tested this same question by the target's race/ethnicity. When we stratify the targets by self-reported race and ethnicity we find that Asian targets are categorized correctly most frequently (72%), followed by Latinx targets (64%), White targets (61%) and Black targets (57%). On average, we find that the classes of White and Asian targets were more likely to be accurately identified by perceivers. Participants were particularly inaccurate at identifying high-income Black and Latinx targets, which were correctly identified less than one-third of the time. This is an important finding that may help provide additional insight into understanding why some socially stigmatized groups face continued structural barriers to achieving economic security as described in the stratification economics literature.

We also extended this work to measure perceptions of wealth. In this treatment, we found that participants did better than chance at identifying an individual as either high- or low-wealth. However, participants were particularly inaccurate at categorizing high-wealth Black and Latinx targets. Overall, this work broadens the literature on social perceptions of

class by studying first-person perceptions of both income and wealth across a racially diverse sample of targets.

As this is still a relatively new literature, future work should test the robustness of these results. While our novel and unique dataset allowed us to be the first to examine the social perceptions of wealth across targets, and the first to test the visibility of social class across numerous racial groups, there are a number of limitations that warrant further exploration. For one, additional data points regarding one's accuracy of income and wealth perceptions across different racial and ethnic groups is needed. Although not expected, participants were, in fact, accurate in perceiving wealth via facial cues. We believe that the natural unbalanced variation that existed within our set of photographs, with more low-wealth photos for Black and Latinx targets, may have led to higher rates of accuracy than we expected related to previous research on stereotype congruency. For example, if people's mental image of a poor person is a Black person this may influence the results in two ways: first, this may account for the fact that people were more accurate than chance at identifying an individual's wealth since a disproportionate number of photos for Black and Latinx participants were low-wealth; second, this may explain why participants in our study were particularly inaccurate at identifying high-income and high-wealth Black and Latinx targets (Brown-Iannuzzi et al. 2017; Lei and Bodenhausen 2017) since the hit rate was lower for that combination of social traits.

While our stimuli set was racially/ethnically diverse overall, statistically we did not have a large enough sample size to use signal detection methods across self-reported racial and ethnic groups, limiting the exploration of the heterogeneity that may exist across racial and ethnic groups. While this is a valid limitation of our current work, it should be noted that based on our knowledge, alternative stimuli sets with photos and detailed wealth information do not exist. Moreover, the photographs of individuals are not evenly split between high- and low-income, nor evenly split between high- and low-wealth. While this is not an ideal research design, we feel these results still spark needed initial considerations surrounding the intersections of social class and race via one's first impressions.

Relatedly, future work should also use a more representative pool of perceiver participants. These two studies relied on Mechanical Turk workers and undergraduate students for participants—two convenience samples, one of which was limited due to IRB regulations for the available stimuli. Future work also could test social perceptions amongst decision makers, such as loan officers, judges, and employers for real-world ecological validity. Such work would help researchers better understand the exact pathways through which discriminatory practices arise such as through these snap judgments which may better inform policymakers in developing policies to counter structural racism. Provided that first impressions matter greatly, especially in instances of employment opportunities and access to credit, the real-world implications of our findings are palpable.

In sum, snap judgements can play an important role in limiting class mobility, perpetuate existing inequality, contribute to discriminatory practices, and can have long-lasting implications in continuing class stratification, especially across racial and ethnic groups. Despite the move towards convergence in many productivity-linked characteristics, the presence of discrimination across different markets is ever-present (Paul et al. 2018). Our results indicate that people tend to think Black and Latinx individuals are poor and unlikely to be of high-income or wealth, which is a contributing factor to structural racism in the economy, and perhaps beyond. Our findings suggest that the field needs to broaden its study of social perceptions of class to include other identities which may influence perceptions of class, namely race and ethnicity. Since there are important feedback loops at play, these

identity intersections must be better understood, so our institutional processes can better promote social progress and limit the unequal distribution of power between groups.

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Appendix A

MacArthur Scale of Subjective Social Class *Questions adopted from Adler et al. (2000)*

Now, please think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are best off, those who have the most money, most education, and best jobs. At the bottom are the people who are the worst off, those who have the least money, least education, and worst jobs or no job. Please tell us where on the ladder best represents where you think you stand on the ladder.

Figure A.

Next, using this same ladder, please tell us where you think the following racial groups stand on the ladder. Remember, people at the top of the ladder are the people who are the best off, and people at the bottom are the people who are the worst off.

Asians
Blacks
Latinos
Whites

Appendix B

Demographic Questions.

Sex:

Female
Male
Transgender
Other (please specify)
Prefer not to answer

Age: _____

Home State: _____

Native Language: _____

Were you born in the United States?

Yes No (please specify where) _____

How many years have you lived in the United States? _____

Are you either a first- or second-generation immigrant?

Yes, I am a first-generation immigrant.
Yes, I am a second-generation immigrant.
No, I am not a first- or second-generation immigrant.
Unsure
Prefer not to answer

Please select any of the following that best describe your racial and ethnic background:

- Asian (a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian Subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand and Vietnam)
- American Indian and Alaska Native (a person having origins in any of the original people of North and South America)
- Black or African American (a person having origins in any of the black racial groups of Africa)
- Native Hawaiian and other Pacific Islander (a person having origins in any of the original peoples of Hawaii, Samoa, or other Pacific Islands)
- Spanish/Hispanic/Latino (e.g. Mexican, Mexican-American, Chicano, Puerto Rican, Cuban)
- White/Caucasian (a person having origins in any of the original peoples of Europe, the Middle East, or North Africa)
- Biracial/Multicultural (Please specify: _____)
- I choose not to answer this question

Which is your family income level?

- Lower income
- Middle income
- High income
- Unsure
- Prefer not to answer

What is your estimated family income before taxes in 2016?

- Below \$50,000
- \$50,001–\$100,000
- \$100,001–\$200,000
- \$200,001–\$300,000
- \$300,001–\$400,000
- Above \$400,001
- Unsure
- Prefer not to answer

What is the education level of your parents?

Parent 1:

- Some high school
- Highschool degree
- Some college
- College degree
- Some graduate school
- Has earned a Masters/MBA
- Has earned a Phd/MD/JD
- Not Applicable
- Unsure

Parent 2:

- Some high school
- Highschool degree
- Some college
- College degree
- Some graduate school
- Has earned a Masters/MBA
- Has earned a Phd/MD/JD
- Not Applicable
- Unsure