The Effect of Financial Status on Consumer-Perceived Anthropomorphism and Evaluation of Products with Marketer-Intended Anthropomorphic Features

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Abstract

The present research distinguishes between marketers’ efforts to design products with human features and consumers-perceived anthropomorphism. Four studies assessed the hypothesis that consumers-perceived financial status moderates their expectations about how an anthropomorphized product would treat them, affecting their motivation to perceive the marketer-intended anthropomorphic features as signaling human agency and their evaluations of the anthropomorphized entity. In study 1, participants who felt rich expected a humanized entity (a self-driving car) would prioritize their well-being over those of others, whereas people in the perceived poor condition expected the opposite. The results of studies 2 and 3 indicate that participants who perceived themselves to be financially well off evaluated a product high in marketer-intended anthropomorphic features more positively (1) than a less anthropomorphic product and (2) than participants who felt financially worse off did. However, when participants adopted an unusual expectation about treatment in the marketplace, when they expected the poor to be treated better than the rich, we observed the reverse pattern (study 4). Consumer-perceived anthropomorphism of the marketer-designed product mediated these findings. Findings support the view that a readily measured variable—financial status—moderates consumer responses to marketer-intended anthropomorphic features.

Keywords

Anthropomorphism, Perceived financial status, Agency perception, Product liking
Marketers often have the option to give their products and services humanlike features. For example, automobile makers can configure the front end of their cars to resemble a human face, as Google has purportedly done with the prototype model of its self-driving car (see also Landwehr, McGill, and Hermann 2011). The Google car has a pert “nose” for a forward sensor, wide-open “eyes” for headlights, and a smiley “mouth” tilted slightly upward for a bumper line. Other efforts to “anthropomorphize” offerings go beyond giving products physical features that resemble those of people. For example, Amazon has imbued Echo, a cylindrically shaped interactive speaker, with the human name Alexa, a female voice that employs familiar human intonation and some quirky personality traits.

Although such efforts may make these products cute and engaging, recent research on the effects of anthropomorphism suggests the appeal of these options may depend on consumers’ characteristics, beliefs, or mindsets. For example, recent research has found the effects of anthropomorphism may depend on the degree of social power consumers feel (Kim and McGill 2011), consumers’ beliefs about the stability of personal characteristics (i.e., entity theorists vs. incremental theorists, Puzakova, Kwak, and Rocereto 2013), their value system (i.e., materialism, Kim and Kramer 2015), and their social orientation (communal orientation vs. agency orientation, Kwak, Puzakova, and Rocereto 2015). The present research is intended to extend this line of research by exploring another distinguishing characteristic of consumers that may influence responses to anthropomorphized products and services, specifically, perceived financial status. Because this variable may be readily observed or measured, the present research may provide marketing practitioners directly actionable insights. In addition, the present work reveals not only different evaluations of products that marketers have given human features, but also, moving back a step, differences in consumers’ willingness to see these products as somewhat human
depending on their own sense of wealth. Because rich and poor consumers may have different expectations about how other people will treat them, especially in the marketplace, they may be differently inclined to see products that marketers have given human features as possessing human agency.

The rationale for our predictions rests on the observation that people often think of anthropomorphized objects as social entities that provide (quasi)interpersonal relationships. Research has shown nonhuman agents with humanlike characteristics can be seen as a viable proxy for human companionship satisfying affiliation motivation (Epley, Waytz, and Cacioppo 2007). People who lack social connection with other humans are more likely to see nonhuman targets (i.e., animals, gadgets, God) as humanlike agencies (Epley, Akalis, Waytz, and Cacioppo 2008), and socially excluded consumers, who are motivated to establish a social relationship, exhibit greater preferences for anthropomorphized brands than for objectified brands (Chen, Wan and Levy 2016).

So too, financial status might affect consumers’ motivation to see nonhumans as possessing agency, especially an ability to treat the consumer well or poorly. Prior research has shown that a sense of power—often linked with financial status in a consumer context—changes peoples’ perceptions of others as instruments to serve their will (Gruenfeld, Inesi, Magee, and Galinsky 2008). Further, a profit motivation may lead firms (and the people employed by them) to treat consumers with the ability to spend better than those who lack the financial resources to do so. As a consequence, people with higher financial resources may eagerly perceive products that are given human features by marketers as additional agents in their environment, as others to do their bidding and to treat them well, whereas people with limited financial resources may be reluctant to afford these products agency. Therefore, we might expect that people who perceive
themselves as high in financial resources would be more willing to anthropomorphize products and to like them more. Consumers who feel poor, by contrast, may be wary of marketer-anthropomorphized products, which might not be fully on their side, and thus feel less willing to afford them humanity and to like them less. We develop these hypotheses in the following sections and test them in four studies.

**Anthropomorphism**

Anthropomorphism is the attribution of humanlike traits, emotions, motivations, or intentions to nonhuman objects, such as products, animals, supernatural phenomena, or even abstract concepts. For the most part, anthropomorphism has been thought to enhance favorable attitudes, because it enables people to have a sense of efficacy with respect to nonhuman entities or to form a social connection with them, satisfying states that enhance positive evaluation of the anthropomorphized target. For example, people who have anthropomorphic beliefs about objects showed an increased sense of attachment and decreased willingness to replace them (Chandler and Schwartz 2010), and people manifested increased compliance with anthropomorphized social causes (Ahn, Kim, and Aggarwal 2014). Marketers appear aware of these tendencies, thereby imbuing products, brands, and companies with human traits. Indeed, humanlike products, such as differently sized bottles resembling a human family or analog watches set to show a 10:10 time to appear like a smiling face, have scored considerable success in increasing attention and liking toward them (Aggarwal and McGill 2007; Labroo, Dhar, and Schwarz 2008).

However, recent research on the effects of anthropomorphism suggests anthropomorphism does not necessarily lead to positive target evaluations. For example,
anthropomorphism enhances appeal and liking only when the consumer perceives the object to have positive qualities, such as a helpful functionality, positive outcomes, and congruency between the consumer’s self-concept and brand image (Burgoon et al. 2000; Morewedge 2009; Puzakova, Kwak, and Rocereto 2009). Besides the perception of the anthropomorphized object itself, another important factor makes the anthropomorphism effect more complex: people’s social beliefs. When people encounter objects in anthropomorphic terms, their social worldview appears to extend to the inanimate world. Because people tend to apply their social attitudes or social beliefs to the anthropomorphized entity, researchers have observed different consequences depending on which attitudes consumers have toward other humans. For example, people tend to treat anthropomorphized objects similar to how they treat other people (e.g., to be less likely to throw away their outdated car when anthropomorphized as an “old and sick friend,” Chandler and Schwartz, 2010), to extend expectations about the credibility of speakers to the nonhuman world (e.g., to be more likely to believe what an anthropomorphized messenger says—which has less humanness than a real human messenger—for people with low interpersonal trust, Touré-Tillery and McGill, 2015), and to apply their implicit personality theories about the ability of people to change over time to anthropomorphized products that perform poorly (e.g., to judge anthropomorphized products less favorably after negative publicity compared to non-anthropomorphized products when endorsing an entity vs. an incremental theory of personality, Puzakova, Kwak, and Rocereto, 2013). We extend this prior research by positing that people’s expectations about how others will treat them contingent on their financial standing may affect consumers’ desire to see nonhuman objects offered by companies as social agents that also might treat them well or poorly. In our research, we specifically focus on the moderating role of perceived financial status in consumer judgment for anthropomorphized targets.
Commercial-Treatment Expectations

Social standing (objective socioeconomic status or subjective perceptions of social rank) often colors people’s thoughts and feelings, including their general sense of power and entitlement. Upper-class individuals feel increased control (Kraus et al. 2009), think they deserve more and are more important than others (Piff 2014), and expect other social entities to act accordingly (Albrecht et al. 2013; Hu et al. 2015). For example, people with high social status were more likely to reject unfair offers in the ultimatum game than people with low status, in line with the perspective that people who feel well off feel they deserve more and expect their counterparts to act accordingly (Hu et al. 2015).

In consumption contexts, financial standing may especially influence consumers’ expectations regarding the behavior of companies and their representatives, considering the prevalent use of preferential treatment in marketing. Preferential treatment is defined as “giving selective customers elevated social status recognition and/or additional or enhanced products and services above and beyond standard firm value propositions and customer service practices” (Lacey, Suh, and Morgan 2007, p.242). Loyalty programs are among the most prevalent examples of the preferential treatment. Firms segment their customers based on the level of loyalty, which, in the business world, is almost a synonym for spending, and bestow a corresponding “class” in their “customer society.” In a well-defined consumption hierarchy (even clearer stratification than in society), each class of customers is provided with specific benefits that differ from tier to tier. From a company’s perspective that strives to maximize its profit, all customers should not be treated as equal: without differentiating, a company might fail
to maximize its “bang for the marketing buck” while over-satisfying (over-serving) less valuable
customers and under-satisfying (under-serving) more profitable customers.

Consumers commonly observe or experience, either in public or private, the preferential
treatment offering extra benefits only to a group of qualified people (see also Ward and Dahl
2014). Frequent flyers with their “Executive Platinum Membership”—of course, obtained by
spending a lot of money and contributing to the airline’s bottom line—bypass the horribly long
check-in line at the airport and a special tag is attached to their baggage that guarantees priority
baggage handling. From these repeated observations and experiences, consumers with different
financial standing may develop different expectations and beliefs about how other social entities
will treat them. Special treatment for a firm’s best customers gives them a sense of superiority
and elevated status. Consumers who have recognized their high-priority status are more likely to
think they deserve commensurate treatment and to believe they are entitled to additional effort
and special attention from companies in return for their (potential) contribution (Bolton, Kannan,
and Bramlett 2000; Boyd and Helms 2005; Lacey et al. 2007). Further, recent work by Reczek,
Haws, and Summers (2014) suggests consumers’ greater feeling of deservingness (because they
perceive themselves, as “extraordinary” customers, to have invested more effort and money in a
firm than other “ordinary” customers) extends to a (mis)belief that they are more likely to
receive rewards from the firm even when the rewards are independent of loyalty (i.e., a random
draw). By contrast, consumers who lack financial standing may be all too familiar with
dismissive, even rude treatment from company representatives who know that those lacking in
means offer little financial benefit to companies’ profitability. Based on these findings, the
present research examines how such treatment expectations extend to customers’ willingness to
anthropomorphize products, and their assessment of them.
Marketer-Intended Human Features vs. Consumer-Perceived Anthropomorphism

Our research goes beyond prior research by distinguishing between marketer efforts to present a product in anthropomorphic terms and customers’ willingness to afford these products a degree of “actual” humanity. Specifically, marketers may depict products with physical features that appear human such as facial features and body shapes (see Aggarwal & McGill, 2007), which most customers would readily discern. However, these efforts by marketers to depict humanlike features can be independent from consumers’ interpretation of those as signaling “real” humanity, including thoughts and will, depending on consumers’ motivation. Therefore, here we use *marketer-Intended human features* (MIH) for those efforts from marketers to signal humanness with explicit humanlike features in products, whereas *consumer-perceived anthropomorphism* (CPA) refers to consumers’ interpretation of the products with MIH as having agency to think and act on their own.

People can see a target’s appearance as resembling human characteristics, but they do not necessarily automatically attribute humanlike mental states to the target. In the dehumanization literature, which is a conceptual inversion of anthropomorphism, people tend to dehumanize psychologically distant and dissimilar other people with whom they don’t want to be related, such as the drug addict or homeless person, by depriving primarily their mental capabilities (Waytz, Epley, and Cacioppo 2010), not their human appearance. In a similar way, perceiving a target as a cognitive “agent” and granting it agency to think, feel, and act on its own requires an independent, one-step-further process of anthropomorphism than merely finding physical features that humans usually have (i.e., face on power outlets) from a target “being.” According
to Guthrie (1993), among the three forms of anthropomorphism (partial, literal, and accidental) the author suggests, the partial anthropomorphism occurs when people see some human traits from objects or events but do not believe the target is a literal human. Especially in a commercial context, marketers can signal humanity in a product with an expectation of customers seeing it in partially human terms. Whether consumers accept or reject the given signals and to what extent they stretch the signals to interpret “how partially” human it is, however, is up to them.

Moreover, in most prior anthropomorphism studies, products with humanlike characteristics rarely provide “interaction” opportunities. A consumer-product relationship with these anthropomorphized objects (i.e., a round-shaped cookie with eyes on it [Hur, Koo, and Hofmann 2015]; an orange juice bottle sitting on a beach chair and wearing a hat [Puzakova, Kwak, and Rocereto 2013]) is usually unidirectional: the objects are not expected to react to users. Perceiving little possibility of interactive relationship with those anthropomorphized products (especially the entities’ own reaction to users), people might feel they have full control over target entities without worries about negative social outcomes, which might have led to negligible difference in consumers’ motivation to perceive agency based on humanlike targets. However, in our paper, target products are more engaged in consumer interaction, such as making a decision on behalf of users (a self-driving car in study 1), giving suggestions based on user’s prior experiences (entertainment-recommendation program in study 2), or providing feedback depending on user’s performance (movement-tracking application in studies 3 and 4).

When an agent has a higher cognitive ability to make a set of decisions contingent on situations, people’s treatment expectations—how a social entity would behave toward me—would play an important role in their motivation to see the entity as a fully volitional human. Because people desire positive social experiences (Baumeister and Leary 1995), people with a
favorable commercial-treatment expectation might be more likely to afford further humanity (agency) to products given human features by marketers whereas people who expect unfavorable treatment in a commercial context might show decreased motivation to further anthropomorphize such products.

Integrating these lines of research on financial status, commercial-treatment expectations, and motivated anthropomorphism, we predict that people with high financial standing will believe they would be treated more favorably by entities that have humanlike traits and will be more motivated to engage in an interaction with these anthropomorphized agents. High-financial-standing people will likely believe humanized entities would act favorably toward them as other humans usually do, whereas people with low financial standing will not have the positive beliefs about humanized entities. Moreover, the asymmetric beliefs about treatment in commercial contexts depending on people’s financial standing will also influence their motivation to further give agency to targets with superficial human features. People who perceive themselves as rich and therefore believe humans/humanlike entities will treat them well will be more inclined to confer agency (higher consumer-perceived anthropomorphism [CPA]) to the target with marketer-intended human features (MIH)—the anthropomorphism adds another good actor to their world. Thus, we predict people with high financial status will engage in further anthropomorphism, which perceives higher agency beyond human features, and exhibit more positive assessment toward humanized products than people lacking financial resources.

**Overview of Research**
We conducted four studies to examine the role of perceived financial status on participants’ evaluations of humanized products. More specifically, the main purpose of the experiments was to examine whether people who feel financially affluent (or deprived) increase (or decrease) their preference toward marketer-intended humanized consumer products. In study 1, we first show that people’s financial-status perception influences their beliefs about and expectations of how a humanlike product would treat them (e.g., a self-driving car in a “moral” dilemma situation). Studies 2 and 3 further explore how the different expectations about social entities influence (1) consumers’ motivation to further anthropomorphize and afford agency to a product, and (2) consumers’ evaluation of a product. Study 4 provides a boundary condition, showing the interactive effect of perceived financial status and human features is reversed when people’s treatment expectation based on their financial standing is disrupted. In particular, we demonstrate the increased preference toward anthropomorphized products among high-financial-standing people (compared to among low-financial-standing people) is reversed when they expect social entities would treat them unfavorably.

Study 1

In Study 1, we first explored whether people have different expectations about how a marketer-intended human-featured (MIH) product would treat them depending on their perceived financial status. We asked participants how they would expect an automated car in which they were riding to respond in a situation in which the car had to choose between protecting them and protecting others. We predicted that participants who perceived themselves to be financially well
off would expect the high-MIH car to be more likely to keep them safe, whereas poor participants would expect the high-MIH car to protect others, allowing them to be hurt.

**Methods**

*Participants.* We recruited 215 participants in the United States (109 male, $M_{age} = 36.76$) from Amazon Mechanical Turk (MTurk). Each participant received $.40 in exchange for their time. We excluded 23 participants due to extremely low ($< $10,000/year) or extremely high income ($> $200,000/year) that we expected would undermine the financial-status manipulation, or due to an attention-check failure—the exclusion criteria used in all studies.

*Design and procedure.* The experiment employed a 2 (financial status: rich or poor) X 2 (human feature: high or low) between-subjects design. The study consisted of two phases: the wealth-manipulation phase and the decision-making phase.

Marketing practitioners, who might ultimately use this research, would measure differences in financial status. However, in all our studies, we manipulated perceived standing to enhance our ability to draw inferences from our studies about the source of our effects, in particular, to distinguish the effect of perceived financial standing from demographic and sociographic variables that might be correlated with this factor in practice. For example, people with high financial standing might be older or better educated, which would confound the inferences we could draw from the studies.

We used two questions in tandem to manipulate subjective wealth given the potential difficulty in changing people’s perceptions of their relative financial standing. The first question asked participants to imagine they had just won a lottery, and to describe what they would like to do or buy with the unexpected money. In the rich condition, the winnings were $50, whereas in the poor condition, the winnings were $50,000. We expected that people would feel financially
deprived in imagining what they could do with $50,000, but that an additional $50 would not highlight any specific shortcoming in their present level of wealth. The second question asked participants to indicate their monthly income and expected savings in two years. In the rich condition, participants reported their monthly income and savings on two 11-point scales divided into $50 increments, from 1 ($0 - $50) to 11 (more than $500). We expected participants would cluster in the upper ends of the scales, creating a sense of greater financial well-being. In the poor condition, participants reported their monthly income on an 11-point scale from 1 ($0 - $10,000) to 11 (more than $30,000) and their savings on a scale from 1 ($0 - $10,000) to 11 (more than $450,000). We expected participants presented with scales labelled in this way would cluster at the low ends and so feel relatively poor (Nelson and Morrison 2005, Schwarz 1999).

As a manipulation check, we measured their subjective financial status using the sum of four questions: (1) “How satisfied are you with your current personal financial status?” (2) “How satisfied are you with your current material possessions?” (3) “How would you rate your current financial position?” (4) “What would you expect your financial position to be 10 years from now?” using a 100-point scale.

After the wealth manipulation, participants were asked to imagine a moral-dilemma situation involving an autonomous car. In the high-MIH condition, the car was humanized with a speech bubble saying, “Hi, I’m Jasper,” and the phrase “a self-driving car” was used to refer it. In the low-MIH condition, the speech bubble was replaced by an oval-shaped text box stating, “Here is Jasper,” and the phrase “a driverless car” was used (see Appendix A). The moral-dilemma scenario was as below:

Recently, you got a self-driving car [a driverless car] (a vehicle that is capable of detecting its surroundings and navigating without human input).
One day, while you are driving alone, an unfortunate set of events causes the self-driving car [a driverless car] to head toward a crowd of 10 people crossing the road. Since it cannot stop in time, it might swerve into a barrier, which would avoid injuring 10 people. However, if this collision happens, this would injure you seriously. On the other hand, the car might keep its direction, which would keep you safe and intact. However, this would injure the 10 people seriously.

After reading the scenario, participants reported on a 10-point scale what they thought the car would do in this situation (1 = Definitely steer into a barrier, 10 = Definitely keep its direction). They also used a 10-point scale to answer how quickly they thought the car would respond to this situation and determine what to do (1 = Almost instantly, 10 = After substantial deliberation/assessment), but this measure showed no significant difference between conditions; therefore, we do not discuss it further. Finally, at the end of the survey, participants answered demographic questions including their annual income, gender, and age.

**Results**

*Manipulation check.* Before the main study, we conducted an independent pretest ($N = 49$) on MTurk to verify the difference in the MIH in the stimuli we intended to use. Participants read generic information about how an autonomous car works, with the same human-feature manipulation. After reading the description, they used a 7-point scale (1 = Strongly Disagree, 7 = Strongly Agree) to rate the extent to which they perceived human features in the product: (1) “I see some human-like traits in Jasper” and (2) “I see the marketers’ intention to make Jasper look like a person.” Results revealed the participants successfully discerned marketers’ anthropomorphism intention between the high-MIH and the low-MIH car ($M_{hi} = 4.91$, $M_{lo} = 4.00$; $F(1, 47) = 3.95, p < .05$). Regarding the financial-status perception (Cronbach’s alpha = .80)
measured in the main study, a 2 (financial status: rich or poor) X 2 (anthropomorphism: high or low) ANOVA revealed only a significant main effect of financial-status manipulation ($F(1, 188) = 15.86, p < .01; \text{all other } p \text{'s > .05}$), suggesting a successful manipulation.

*Decision prediction.* We predicted that participants in the rich condition would be more likely to think the high-MIH “self-driving” car would protect them than the low-MIH “driver-less” car, whereas low-financial-status participants would show the opposite pattern. We conducted a 2 (financial status: rich or poor) X 2 (human feature: high or low) ANOVA to test this prediction. The result revealed a significant interaction ($F(1, 188) = 7.11, p < .01$; see Figure 1). We found no other significant effects (all $p$’s > .05). Specifically, rich participants predicted the high-MIH car would be more likely to keep them safe even at the cost of injuring 10 pedestrians than the low-MIH car would ($M_{\text{rich hi}} = 4.36, \text{SD}_{\text{rich hi}} = 2.99, M_{\text{rich lo}} = 3.13, \text{SD}_{\text{rich lo}} = 2.56; F(1, 188) = 4.54, p < .05$). By contrast, participants with low-financial-status perception thought the high-MIH car would be more likely to injure them and instead keep the pedestrians safe, although this effect was marginally significant ($M_{\text{poor hi}} = 3.31, \text{SD}_{\text{poor hi}} = 2.80, M_{\text{poor lo}} = 4.22, \text{SD}_{\text{poor lo}} = 2.77; F(1, 188) = 2.66, p = .10$). Also, looking at the other pair of contrasts, participants in the rich condition predicted a high-MIH car would act in a more favorable way toward them than did participants in the poor condition ($F(1, 188) = 3.46, p = .06$). However, the pattern was reversed when the car was not humanized, although the effect was marginally significant ($F(1, 188) = 3.66, p = .06$).

[Insert Figure 1 about here]

*Discussion*

Study 1 demonstrated that people have different expectations about how a target with humanlike features would behave toward them depending on their financial-status perception.
Participants who felt rich predicted a more favorable treatment from a high-MIH product, whereas those who felt poor predicted a product with limited humanlike characteristics would prioritize their benefits over others’. These results provide an initial validation of our framework that social expectations contingent on subjective financial status moderate the anthropomorphism effect. (We also note with interest that several months after this study was conducted, Mercedes Benz, which targets upscale customers, reported it plans to program its self-driving cars to prioritize the driver and passengers over pedestrians; Morris, 2016.)

Study 2

Based on the findings of study 1, the current experiment was intended to further examine how different treatment expectations based on financial standing influence the level of anthropomorphism that consumers actually perceive from products with marketer-intended human-features (MIH) and consumers’ assessment of those products. We expected people with high perceived financial standing, who believe that social entities will treat them favorably, would be more likely to embrace anthropomorphic features, further giving the high-MIH product agency, and would evaluate it more positively than people with low perceived financial standing. On the other hand, for low-MIH products, we expected the moderating effect of financial-status perception to be attenuated because consumers’ treatment expectations would have little relevance for non-human objects.

Methods

Participants. We recruited 263 participants in the United States (119 male, $M_{age} = 36.43$) via MTurk to complete this study in exchange for $.40. We excluded 34 participants per the
established criteria (due to either extremely low or high income [< $10,000/year; > $200,000/year], or attention-check failure).

Design and procedure. The experiment employed a 3 (financial status: rich, poor, or control) X 2 (human feature: high or low) between-subjects design. The study was presented as a “Smartphone Application Survey” and consisted of two phases: the wealth-manipulation phase and the product-evaluation phase. We used the same wealth-manipulation method as in Study 1, but we also added a control condition. In the control condition, we asked participants to describe a list of things they usually do in the evening on regular weekdays, and to report how many hours per day they usually spend watching TV and commuting. Upon completion of the wealth-manipulation task, participants responded to the PANAS (Positive and Negative Affect Schedule; Watson, Clark, and Tellegen 1988) as a control measure.

Participants then viewed descriptions of a smartphone application: a fictitious entertainment-recommendation program called MANGO. In the high-MIH condition, the application was described using humanlike traits, addressing participants directly in the first person. In the low-MIH condition, the application was described in the third person using object terms (see Appendix B). We conducted an independent pretest (N = 49) on MTurk to verify people successfully perceive the different levels of MIH features in the stimuli. Participants read a description of an entertainment-recommendation application with the same human-feature manipulation, and rated the extent to which they agreed with the two statements using a 7-point scale (1 = Strongly Disagree, 7 = Strongly Agree): (1) “I see some human-like traits from MANGO” and (2) “I see marketers’ intention to make MANGO look like a person.” Analysis of variance on the average score of the two questions revealed a significant difference between the high- and the low-MIH conditions (M_{hi} = 4.92, M_{lo} = 3.70; F(1, 47) = 8.24, p < .01).
After reading the description, participants reported their assessments and behavioral intentions regarding the application. Specifically, they answered five questions: (1) “How much do you like MANGO?” (1 = Not at all, 7 = Extremely), (2) “How much do you want to use MANGO?” (1 = Not at all, 7 = Extremely), (3) “If this application is free, how likely are you to download and use MANGO?” (1 = Definitely No, 7 = Definitely Yes), (4) “What is the maximum price that you are willing to pay to download MANGO?” (free response), (5) “Please rate the extent to which you think MANGO will suggest exactly what you like” (Never (0%), Always (100%) on a 100-point slider). Participants also rated the extent to which the application seemed like a person (“Please rate the extent to which MANGO seems like a person;” 1 = Absolutely No, 7 = Absolutely Yes), as a measure of consumer-perceived anthropomorphism (CPA).

Finally, at the end of the survey, we measured participants’ subjective financial status as a manipulation check using the same four questions in study 1, and their demographics including annual income, gender, and age. Also, participants answered four questions regarding their smartphone-usage patterns as control variables: (1) “Do you currently use a smartphone?” (2) “How familiar are you with using a smartphone?” (3) “How familiar are you with downloading and using smartphone applications?” (4) “How many times have you purchased a smartphone application or made in-app purchases?”

Results

Manipulation check and control measures. We found no significant effect for the control measures including mood and smartphone usage (all p’s > .05). Unexpectedly, our manipulation check on perceived wealth also showed no significant effects (all p’s > .05). One possibility for this result concerns the position of the manipulation-check questions at the end of the survey, at which point the manipulation of perceived wealth might have “worn off” or been influenced by
intervening questions. To check this explanation, we conducted a post-test of the manipulation. In the post-test, participants first completed the wealth-manipulation task and answered the four manipulation-check questions, and finally responded to the PANAS. The post-test (N = 92) on MTurk revealed a significant difference between the rich- and the poor-manipulation conditions in their financial-status perception ($F(1, 90) = 5.60, p < .05$). Specifically, participants in the rich condition ($M = 58.86, SD = 19.81$) perceived their financial status more positively than did participants in the poor condition ($M = 48.89, SD = 20.55$). It also revealed no significant difference in participants’ affective state between the two conditions (Positive Affect: $M_{\text{rich}} = 2.83, SD_{\text{rich}} = 0.72, M_{\text{poor}} = 2.69, SD_{\text{poor}} = 0.91, p = .59$; Negative Affect: $M_{\text{rich}} = 1.53, SD_{\text{rich}} = 0.50, M_{\text{poor}} = 1.43, SD_{\text{poor}} = 0.49, p = .31$). We therefore proceeded to analyze the effects of the wealth manipulation and anthropomorphism on the main dependent variables.

**Product evaluation.** We averaged ratings of liking, wanting, intentions to use the application, and its expected performance to form a product-evaluation measure (Cronbach’s alpha = .93). The open-ended willingness-to-pay (WTP) question was not highly correlated with the other four measures ($r_{\text{wtp-like}} = .35, r_{\text{wtp-want}} = .34, r_{\text{wtp-use}} = .33, r_{\text{wtp-perf}} = .36$). In addition, this question, for which the variance was very high ($M = 2.25, SD = 3.16$), showed no significant effects. We do not discuss this question further.

A 3 (financial status: rich, poor, or control) X 2 (human feature: high or low) ANOVA revealed a significant interaction on the product evaluation ($F(1, 223) = 3.95, p < .05$; see Figure 2). Separate 2 X 2 ANOVAs comparing each of the financial-status conditions showed a significant interaction effect only in the 2 (financial status: rich or poor) X 2 (human feature: high or low) ANOVA ($F(1, 158) = 7.40, p < .01$), and not in the other two analyses consisting of poor and control ($F(1, 139) = .96, p > .30$) or rich and control ($F(1, 149) = 2.87, p = .09$). The
marginal interaction of the ANOVA consisting of rich and control was due to a significant
difference between high- and low-MIH conditions among participants in the rich condition ($F(1, 149) = 5.90, p < .05$).

[Insert Figure 2 about here]

Specific contrasts revealed that for the high-MIH product, participants in the rich
condition—compared to participants in the poor condition—evaluated it more positively ($M_{\text{rich hi}} = 5.17, SD_{\text{rich hi}} = 1.29, M_{\text{poor hi}} = 4.38, SD_{\text{poor hi}} = 1.44; F(1, 223) = 5.82, p < .05$). By contrast, the low-MIH product was evaluated more positively among participants who perceived themselves as being poor than among participants who perceived themselves as being rich, although this effect was not significant ($M_{\text{rich lo}} = 4.41, SD_{\text{rich lo}} = 1.65, M_{\text{poor lo}} = 4.90, SD_{\text{poor lo}} = 1.51; F(1, 223) = 2.25, p = .13$). We also found that participants who felt rich reported more positive assessment of the product when it was highly human-featured ($F(1, 223) = 5.79, p < .05$). However, participants in the poor condition showed more positive attitudes toward the low-MIH product, although again this effect was only directional ($F(1, 223) = 2.37, p = .13$). We found no effect of human features in the control condition ($F(1, 223) = .01, p > .90$).

*Consumer-perceived anthropomorphism (CPA).* We also explored the degree of anthropomorphism perception for the described application as a dependent variable in a 3 (financial status: rich, poor, and control) X 2 (human feature: high or low) ANOVA. As expected, participants in the high-MIH conditions reported the application seemed more like a person than did those in the low-MIH conditions ($M_{\text{high}} = 3.37, SD_{\text{high}} = 1.85, M_{\text{low}} = 2.89, SD_{\text{low}} = 1.76; F(1, 223) = 4.33, p < .05$). As in the product-evaluation measure above, separate 2 X 2 ANOVAs comparing each of the financial-status conditions showed a significant interaction effect only in the 2 (financial status: rich or poor) X 2 (human feature: high or low) ANOVA ($F(1, 158) = 3.64$,
and not in the other two analyses consisting of poor and control ($F(1, 139) = .56, p > .40$) or rich and control ($F(1, 149) = 3.08, p = .08$). Again, the marginal interaction consisting of the rich and control condition seemed to be due to a significant difference between high- and low-MIH conditions among the rich ($F(1, 149) = 10.63, p < .01$). Specifically, regarding the high-MIH product, the rich participants reported greater CPA than did the poor participants ($M_{\text{rich hi}} = 3.76, \text{SD}_{\text{rich hi}} = 2.05, M_{\text{poor hi}} = 2.87, \text{SD}_{\text{poor hi}} = 1.68; F(1, 223) = 4.99, p < .05$). However, for the low-MIH product, the poor participants showed rather higher CPA than the rich participants, although this effect was not significant ($M_{\text{rich lo}} = 2.48, \text{SD}_{\text{rich lo}} = 1.82, M_{\text{poor lo}} = 3.05, \text{SD}_{\text{poor lo}} = 1.74; F(1, 223) = 2.11, p = .14$). In the other pair of contrasts, participants in the rich condition indicated the high-MIH application seemed more like a person than the low-MIH one ($F(1, 223) = 11.10, p < .01$), whereas participants in the poor condition showed no difference between the two ($F(1, 223) = 0.20, p > .05$).

*Moderated mediation analyses.* Next, we conducted a series of moderated mediation analyses using the PROCESS multiple mediation model 8: 2 X 2 design with two main-effect variables and one interaction term (Preacher and Hayes 2004; Hayes 2013). These analyses were intended to test whether the degree of anthropomorphism perception (CPA) for the product serves as a mediator of the interaction between financial status and human features on product evaluation. The regression model used the three independent variables (human feature, financial status, and human-feature x financial-status interaction), CPA as the mediating variable, and the product-evaluation index as the dependent variable. Bootstrapping provides upper- and lower-level confidence intervals. If the range of these two does not include zero, the analysis shows significance. Indirect effects for the person perception excluded zero ($\beta = .69; \text{CI} = .1234$ to 1.9672), and the analyses also confirmed the influence of financial status and anthropomorphism...
was fully mediated via CPA—the direct effect of the interaction term on product evaluation was no longer significant ($F(1, 222) = 1.26, p > .20$).

**Discussion**

From study 2, we observed that only participants who perceived themselves as financially well off evaluated an MIH product more positively; participants who perceived themselves as financially worse off did not. The current study also showed that high-financial-status participants were more likely to see the human-featured product as a “person,” and this greater person perception mediated the positive anthropomorphism effect, namely, increased preference for the anthropomorphized target. Along with the results in study 1, these findings provide converging evidence for our conceptual framework that people who feel financially affluent expect favorable interactions with social entities, and therefore are more motivated to perceive agency in a target with marketer-intended human features and to view it more favorably.

**Study 3**

We conducted study 3 with four objectives in mind. The first was to replicate the previously observed effects with new stimuli—a physical-movement-tracking application. The second was to modify the design of the study by ensuring the high- and low-MIH products did not differ on other dimensions, such as speaking in first versus third person as in study 2. The third was to employ a different wealth manipulation to ensure our results were not unique to the method used in study 1. Most importantly, beyond a single CPA measure, our fourth goal was to directly investigate, with a multi-item measure, the difference in consumers’ willingness to interpret the product with marketer-provided humanlike features as having the agency to think
and act on its own toward the consumer. In our suggested framework, people have different expectations about how other social entities would act toward them (positively or negatively) depending on their financial-status perception. Therefore, we expected the rich to be more inclined to give agency to a high-MIH product, because they think the entity would work for them, whereas we expected the poor to be disinclined to give agency, because they think the entity would not work on their behalf.

**Method**

**Participants.** We recruited 198 participants in the United States (84 male, $M_{\text{age}} = 36.60$) from MTurk to complete the study in exchange for $.40. We excluded 18 participants per the established criteria.

**Wealth manipulation.** Study 3 employed a 2 (financial status: rich or poor) X 2 (human feature: high or low) between-subjects design. We implemented a new financial-status manipulation by slightly modifying the scale of subjective socioeconomic status in Adler et al. (2000). Participants were given a graphical representation of a ladder with eight rungs following the instruction to “Think of the ladder below as representing where people stand in the current society.” In the rich condition, the bottom rung of the ladder was highlighted with a description as “People with the lowest income and least financial resource,” whereas in the poor condition, the top rung was highlighted and described as “People with the highest income and most financial resource.” Depending on the financial-status-perception condition, participants were instructed to compare themselves with those people at the very bottom (in the rich condition) or top (in the poor condition) rung of the ladder. Additional instruction was provided stating, “These are people who are the worst (best) off, earn the lowest (highest) income, have the least (most) money, and least (most) material possessions. In particular, we’d like you to compare
yourself to these people in terms of your own wealth, income, and material possessions.” After the wealth-manipulation phase, participants answered the same manipulation-check questions used in the prior studies.

**Marketer-intended human features (MIH) manipulation.** Participants were then asked to read a description of a fictitious smartphone application called TRACKER that keeps track of movement for a customized health goal. We manipulated the degree of featured humanity of the product using an image of a coach (high human feature) or a stopwatch (low human feature) that seemed to be delivering a message to users according to their performance. In contrast to the two previous studies, the target product was described from the third-person perspective in all conditions to control for any confounding factors due to the messenger perspective (Touré-Tillery and McGill 2015).

We conducted an independent pretest ($N = 49$) on MTurk to verify the featured humanity-level difference in the stimuli we intended to use in the main study. Participants read the same description of the movement-tracking application with the same human-feature manipulation depending on the condition, and answered for the two MIH measures used in the stimuli pretest for the prior studies. Analysis of variance on the composite score revealed a significant difference between the high- and the low-MIH conditions ($M_{hi} = 5.31$, $M_{lo} = 3.64$; $F(1, 47) = 17.78$, $p < .01$).

**Product evaluation.** After reading the description, participants reported their evaluation of the application. Due to the different intended benefits of the target application to be assessed, we did not measure its expected performance in this study, but we retained the (1) liking, (2) wanting, and (3) intention-to-use measures. In addition to the single person-perception question for the CPA measure, participants also reported, using a 7-point scale, the extent to which the
application seemed to have its own intentions, own personality, and free will. These questions were intended to more directly measure participants’ inclination to give agency to the target product. Finally, participants reported the maximum price they would be willing to pay for the product on a sliding bar with a range from $0 to $10. We specified the price range considering the large variance and predominant response of $0 when the WTP measure was an open-ended question in study 2.

**Results**

*Manipulation check.* As we intended, a 2 (financial status: rich or poor) X 2 (human feature: high or low) ANOVA on the perceived financial-status perception revealed only a significant main effect of financial-status manipulation ($F(1, 177) = 20.23, p < .01$). No other effects were significant ($p$’s > .05).

*Product evaluation.* We conducted a 2 (financial status: rich or poor) X 2 (human feature: high or low) ANOVA on the composite score of product evaluation (Cronbach’s alpha = .92). Replicating the findings of study 2, analysis revealed a marginally significant two-way interaction of financial status and human features ($F(1, 177) = 3.66, p = .057$; see Figure 3). For the high-MIH product, participants in the rich condition evaluated the product more positively than those in the poor condition ($M_{rich \, hi} = 5.44$, $SD_{rich \, hi} = 1.02$, $M_{poor \, hi} = 4.85$, $SD_{poor \, hi} = 1.50$; $F(1, 177) = 4.04, p < .05$). However, for the low-MIH product, we found no significant difference depending on perceived financial status ($M_{rich \, lo} = 4.82$, $SD_{rich \, lo} = 1.50$, $M_{poor \, lo} = 4.85$, $SD_{poor \, lo} = 1.50$; $F(1, 177) = 0.63, p > .40$). Also, the rich participants evaluated the high-MIH product more positively than the low-MIH product ($F(1, 177) = 4.16, p < .05$), but poor participants’ evaluations of the high- and low-MIH products did not differ ($F(1, 177) = 0.38, p > .50$).
Consumer perceived anthropomorphism (CPA). We averaged the four measures—person, intention, personality, and free will—to create a composite score reflecting agency perception of a product (Cronbach’s alpha = .83). The 2 (financial status: rich or poor) X 2 (human feature: high or low) ANOVA showed a similar interactive effect as on the product evaluation ($F(1, 177) = 6.78, p = .01$; see Figure 3). Rich participants were more inclined to afford the humanized product agency, whereas poor participants were disinclined to do so. Specifically, participants in the rich condition reported higher CPA in the high-MIH product than in the low-MIH product ($M_{\text{rich hi}} = 3.90, SD_{\text{rich hi}} = 1.24, M_{\text{rich lo}} = 3.03, SD_{\text{rich lo}} = 1.34; F(1, 177) = 8.91, p < .01$).

However, participants in the poor condition did not show a difference in their agency perception depending on the level of MIH in the products ($M_{\text{poor hi}} = 3.38, SD_{\text{poor hi}} = 1.37, M_{\text{poor lo}} = 3.54, SD_{\text{poor lo}} = 1.36; F(1, 177) = 0.38, p > .50$). Also, replicating our previous results, we found the rich participants were more willing than the poor participants to interpret the human features in the high MIH target as signaling agency ($F(1, 177) = 3.58, p = .06$), although the effect was marginally significant. Regarding the low-MIH product, on the other hand, participants in the poor condition showed marginally higher CPA than the rich participants ($F(1, 177) = 3.20, p = .08$), consistent with the findings of study 2. This unexpected effect, which warrants further investigation in future work, could reflect greater sensitivity to potentially humanlike features in a target among the participants with low perceived financial status. We discuss these findings further in the General Discussion.

WTP. The same 2 X 2 ANOVA revealed a significant interaction between financial-status perception and human features on participants’ WTP for the target product ($F(1, 177) = 8.40, p < .005$; see Figure 3). Specifically, WTP among people with high-financial-status perception was
higher for the high- than the low-MIH product ($M_{\text{rich hi}} = 2.24$, $SD_{\text{rich hi}} = 1.91$, $M_{\text{rich lo}} = 1.64$, $SD_{\text{rich lo}} = 1.61$; $F(1, 177) = 2.44, p = .11$), whereas WTP among people with low-financial-status perception was lower for the high-MIH product ($M_{\text{poor hi}} = 1.72$, $SD_{\text{poor hi}} = 1.56$, $M_{\text{poor lo}} = 2.64$, $SD_{\text{poor lo}} = 1.94$; $F(1, 177) = 6.63, p = .01$). The other pair of contrast further showed that WTP for the low-MIH product was higher among the poor than the rich participants ($F(1, 177) = 7.07, p < .01$), whereas WTP for the high-MIH product was directionally higher among the rich ($F(1, 177) = 2.05, p = .15$).

**Moderated mediation analyses.** Again, we conducted moderated mediation analyses using the PROCESS (model 8) to test whether increased agency perception mediated the interactive effect of perceived financial status and human features on product evaluation. The model included the perceived financial status and human features as the independent variables, CPA measure as the mediator, and the product-evaluation index as the dependent variable. The indirect effect excluded zero for CPA ($\beta = .36; CI = .077 to .7326$). The direct effect of the interaction term on product evaluation was no longer significant ($F(1, 177) = 1.33, p > .25$), indicating a significant mediating role of agency perception.

**Discussion**

Study 3 replicated the findings of study 2, using a different financial-status-perception manipulation, target product, and human-features manipulation. Participants who felt rich showed a more positive attitude toward the high-MIH product (1) than the low MIH product and (2) than did participants who felt poor. Furthermore, note that the interactive effect of subjective financial standing and human features was extended to a more consequential and practical variable that reflects the perceived value of a product: WTP.
Replicating the mediation results in study 2, here we again demonstrated that the difference in how much agency people interpreted from a target depending on their financial status led to different evaluations of the high and low MIH products. People were more willing to give agency to a target when they expected to have a positive social interaction with it, and consequently increased their evaluations of it. Specifically, participants with higher financial-status perception found the humanlike features of the product as signaling agency (to treat them nicely), which led to increased preference for the anthropomorphized product.

**Study 4**

Study 4 was intended to disrupt people’s commercial-treatment expectations depending on their financial standing, so that the rich would expect an anthropomorphized product to have a hostile attitude toward them, whereas the poor would expect a favorable attitude. In our prior studies in which people’s expectations about how they would be treated in the marketplace were intact, we observed that people with high-perceived financial status were more inclined to give agency and show more positive attitudes toward an anthropomorphized product. However, we predicted the opposite pattern in the current study where the social expectation linking financial status and commercial treatment was reversed.

**Method**

*Participants.* We recruited 270 participants in the United States (125 male, $M_{age} = 36.44$) from MTurk who received $.40 in exchange for completing the study. We excluded 15 participants per the established criteria.
Design and procedure. We used the same financial-status manipulation and product stimuli as in study 3, except that we provided additional information about the developer of the application. After the wealth manipulation, participants responded to the manipulation-check questions and proceeded to a product-evaluation phase. Before the product description, participants first read a passage explaining TRACKER was developed in conjunction with “Fair Economy,” a non-profit network working against financial inequity and for a better life for people with limited financial resources (see Appendix C). This passage was intended to reverse people’s spontaneous expectation that people with high financial standing are treated better than people with low financial standing, especially in the business world. After reading the description, participants answered the same evaluation questions as in study 3.

Results

Manipulation check. A 2 (financial status: rich or poor) X 2 (human feature: high or low) ANOVA on perceived financial status revealed only a significant main effect of financial-status manipulation ($F(1, 251) = 11.66, p < .001; \text{all other } p's > .05$), indicating a successful manipulation.

Product evaluation. We predicted a reversal pattern on the product-evaluation index (Cronbach’s alpha = .94). As expected, 2 X 2 ANOVA results demonstrated a significant interaction ($F(1, 251) = 3.82, p = .05$; see Figure 4). In contrast to the prior results but as expected, the high-MIH product was preferred less among participants in the rich condition than among those in the poor condition ($M_{\text{rich hi}} = 4.12, SD_{\text{rich hi}} = 1.73, M_{\text{poor hi}} = 4.74, SD_{\text{poor hi}} = 1.58; F(1, 251) = 4.93, p < .05$). Also, rich participants reported more positive evaluations of the low-than the high-MIH product ($M_{\text{rich lo}} = 4.68, SD_{\text{rich lo}} = 1.47; F(1, 251) = 3.98, p < .05$). No other contrast revealed a significant difference (all $p's > .05$).
Consumer perceived anthropomorphism (CPA). The same 2 X 2 ANOVA was conducted on the composite CPA measure (Cronbach’s alpha = .81). In this analysis, only the interaction between financial status and human features was significant ($F(1, 251) = 4.12, p < .05$; see Figure 4). Consistent with our prediction, poor participants were more willing to give agency to the high-MIH product than rich participants ($M_{\text{rich hi}} = 3.06, SD_{\text{rich hi}} = 1.23, M_{\text{poor hi}} = 3.63, SD_{\text{poor hi}} = 1.62; F(1, 251) = 5.17, p < .05$). Further, the poor participants reported higher agency perceptions in the high- than in the low-MIH-product condition ($M_{\text{poor lo}} = 3.01, SD_{\text{poor lo}} = 1.40; F(1, 251) = 5.87, p < .05$). By contrast, participants in the rich condition were disinclined to think of the high-MIH product as a social being with agency, resulting in no difference in CPA depending on the human-features level ($M_{\text{rich lo}} = 3.17, SD_{\text{rich lo}} = 1.46; F(1, 251) = 0.18, p > .60$). We found no difference regarding the low-MIH product between the rich and the poor participants ($p > .50$). WTP. Reflecting the interactive effect on the product-evaluation index, a 2 X 2 ANOVA on WTP also showed an interaction, although this effect was only marginally significant ($F(1, 251) = 3.18, p = .07$; see Figure 4). Analysis also revealed a marginally significant main effect of perceived financial status ($F(1, 251) = 2.88, p = .09$), but interestingly, participants in the poor condition reported higher WTP than those in the rich condition ($M_{\text{rich}} = $1.60, $M_{\text{poor}} = $1.94). Planned contrasts revealed that for the high-MIH product, participants in the poor condition reported higher WTP than those in the rich condition ($M_{\text{rich hi}} = $1.46, SD_{\text{rich hi}} = 1.52, $M_{\text{poor hi}} = $2.17, SD_{\text{poor hi}} = 1.77; $F(1, 251) = 6.03, p = .01$), whereas we found no difference for the low-MIH product ($F(1, 251) = 0.01, p = .92$). Also, the poor participants’ WTP was higher for the high- than the low-MIH product, although the difference was marginal ($M_{\text{poor lo}} = $1.72, SD_{\text{poor lo}}
= 1.55; \( F(1, 251) = 2.18, p = .14 \). The rich participants showed no difference in WTP depending on the level of human features (\( M_{\text{rich lo}} = $1.72, \) \( \text{SD}_{\text{rich lo}} = 1.55; F(1, 251) = 1.09, p = .30 \)).

**Moderated mediation analyses.** We again conducted moderated mediation analyses using the PROCESS (model 8) as in prior studies. The indirect effect excluded zero (\( \beta = -.35; \text{CI} = -.7324 \) to -.0154), and the direct effect of the interaction term on product evaluation was no longer significant (\( F(1, 251) = 1.44, p > .20 \)) when we included CPA in the model. These results indicate that the extent to which consumers actually afforded agency to the target served as a mediator.

**Discussion**

Findings in study 4 suggest a boundary condition for the observed effects of financial status on assessments of anthropomorphized products while supporting our underlying theory: affluent consumers’ preference for an anthropomorphized target depends on the extent to which they believe those products will treat them well, as other people usually do. In the current study, when the spontaneous expectation about money and preferential treatment was reversed, participants with high perceived financial status evaluated the high-MIH product more negatively than did participants with low perceived financial status. Also, those poor participants, who believed the given social entity would have favorable attitudes toward the poor and hostile attitudes toward the rich, preferred the high-MIH product to the low-MIH product.

Studies 2 and 3 revealed that people who perceived themselves to be wealthy are more willing to see an MIH product as a person, reflecting the belief that this anthropomorphized entity with agency would serve them well. However, in study 4, where participants had the opposite treatment expectation from social entities, the result was reversed: participants who perceived themselves as poor were more inclined to further give agency to the humanized
product (compared to the rich participants), with the expectation that they then would be treated nicely, leading to a more positive evaluation of that product.

**General Discussion**

Across the first three studies, we found that people with higher perceived financial standing were more willing to perceive agency in products that were given humanlike features by marketers, and they liked these products better than people with lower perceived financial standing. Study 1 showed the foundational effect of perceived financial status on people’s treatment expectations about other social entities’ (including anthropomorphized products) behavior toward them. Participants with high-financial-status perception believed a self-driving car with human features would choose their well-being over the well-being of others, whereas participants with low-financial-status perception expected the car with human features would sacrifice their well-being for others. Building on this finding about people’s treatment expectation depending on financial standing, study 2 looked further into consumers’ evaluations of humanized products. When encountering the same level of humanness that marketers intended to signal, participants in the rich condition interpreted the humanlike features more proactively (reporting higher agency perception in the humanized product), and showed more positive evaluation for it than did those in the poor condition. Results of studies 3 and 4 provide converging evidence that subjective financial status moderates the anthropomorphism effect based on people’s commercial-treatment expectation. In particular, study 4 shows that the effect observed in the prior three studies can be reversed when people believe the human-featured product would favor people who are poor over those who are rich. Studies 3 and 4 suggests that
these effects of perceived financial status derive from positive commercial-treatment expectations (i.e., favorable attitude from others), and therefore, when consumers expect social entities to show hostile attitudes toward affluent people, the observed effects are reversed. Further, studies of 2-4 consistently show that the different treatment expectations from social entities influence the level of anthropomorphism actually accepted and perceived by consumers (CPA), and consequently, the CPA mediates consumers’ subjective evaluation of them.

The results of studies 2 and 3 revealed an unexpected effect on the extent to which participants saw humanity in the low-MIH product. Consistent with our discussion above, those participants who perceived themselves to be rich interpreted more agency in the high-MIH product than in the low-MIH product. However, participants who perceived themselves to be poor saw more agency in the low-MIH product than those who perceived themselves as rich, although these results were marginally significant ($p = .14$ in study 2, $p = .08$ in study 3). We speculate that one possible explanation for this effect rests on the observation that the products in the low-MIH conditions could be seen as having some degree of agency, for example, by offering advice and keeping track of tastes or goals. For participants with limited finances who might expect less positive outcomes from social interactions, being attuned to possible social cues could be beneficial. Therefore, they might have been relatively more aware of the potential humanity behind the products the marketers had designed with limited human features than participants who felt rich. Further, given that the marketer had not signaled strongly that these products were intended to be seen as people, these wary customers might not have been worried about affording them a bit of agency. However, when the target’s humanlike features were presented overtly, these vigilant, low-financial-status participants might have been motivated not to give agency to the humanlike entity in order to ease any fears of mistreatment. That is,
ironically, the low-financial-status participants might have been more worried about granting a degree of agency to the product when the marketer presented it in overtly human terms. Future work could explore this explanation further.

Our findings suggest that marketers use caution in presenting their products in anthropomorphic terms. Those consumers who feel financially well off might willingly accept these products as being like real people, because social beings usually treat them well. Those who do not feel well off, however, might resist efforts to anthropomorphize, because these products could then become yet more people who are able to make their lives difficult. Moreover, less affluent consumers would be less likely to perceive the possibility of a positive social relationship with these highly humanized products. Such a response would in turn result in detrimental consequences of anthropomorphism. In particular, as suggested in study 1, the consequences of anthropomorphism go beyond the mere positive or negative evaluations of a product. In a more consequential situation involving safety and lives, people would have different expectations and predictions on how an anthropomorphized social entity could serve them. Such differences might be particularly meaningful in the health-related industry, including pharmaceutical, insurance, and healthcare companies. Of course, marketers intending to reach wealthy customers should ensure their efforts to anthropomorphize products and services align with intended brand associations. Because efforts to anthropomorphize might render products cute or childlike, luxury-goods makers might not want to anthropomorphize their options, despite the general openness of wealthy consumers to humanlike helpers.

Also, to avoid any confounding factors in our theoretical model, here we manipulated people’s perceived financial standing instead of using their actual wealth as a variable. However, the fact that “perceived” financial status was what changed people’s judgment could provide a
new opportunity: marketers could utilize strategies to enhance positive attitudes toward their product by changing consumers’ subjective financial perception at the moment of choice. Future studies could investigate whether subtle manipulations of perceived wealth, such as reminding consumers of the money in their pocket versus in their checking account (Morewedge, Holtzman, and Epley 2007), may bring the same effects we observed here.

Although the current study did not specify the role of the anthropomorphized entity (i.e., product-as-partner vs. product-as-servant), future work examining how the intended characteristics of the consumer-product relationship influence the interactive effect of perceived financial status and anthropomorphism would also add an important insight to the literature. Recent research has shown materialists respond more favorably to an anthropomorphized brand, especially when the brand role was a servant instead of a partner (Kim and Kramer 2015). Further, Kim and Kramer’s findings suggest that differences in the desire to dominate the target brand drove the distinctive responses to the partner and servant positioning. Considering these findings, we can predict the influence of perceived financial status might be magnified when one interacts with a product or service positioned as a servant, whereas it could be attenuated or even reversed when the target is positioned as a partner or an expert who teaches/gives professional advice to users in a seemingly superior status.

In sum, the current findings show that consumers evaluate products conveying human features differently depending on their perceived financial status. Even with the same level of marketer effort to anthropomorphize a product, people with high perceived financial status, having a more positive commercial-treatment expectation, are more likely to accept and extend the anthropomorphism to give the product higher agency. Further, high-financial-standing people like high-anthropomorphized products more than do people with low financial status, and more
than low-anthropomorphized products. This different assessment of high-/low-
anthropomorphized products is based on the different commercial-treatment expectations people infer from a social target.
References


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FIGURE 1

STUDY 1: THE EFFECT OF PERCEIVED FINANCIAL STATUS AND A PRODUCT’S HUMAN FEATURES ON CAR-DECISION PREDICTION
STUDY 2: THE EFFECT OF PERCEIVED FINANCIAL STATUS AND A PRODUCT’S HUMAN FEATURES ON (1) PRODUCT EVALUATION AND (2) CONSUMER-PERCEIVED ANTHROPOMORPHISM (CPA)
FIGURE 3

STUDY 3: THE EFFECT OF PERCEIVED FINANCIAL STATUS AND A PRODUCT’S HUMAN FEATURES ON (1) PRODUCT EVALUATION, (2) CONSUMER-PERCEIVED ANTHROPAOMORPHISM (CPA), AND (3) WTP
FIGURE 4

STUDY 4: THE EFFECT OF PERCEIVED FINANCIAL STATUS AND A PRODUCT’S HUMAN FEATURES ON (1) PRODUCT EVALUATION, (2) CONSUMER-PERCEIVED ANTHROPOMORPHISM (CPA), AND (3) WTP
Appendix A

PRODUCT ANTHROPOMORPHISM (STUDY 1)

A: High-Human-Feature Product

Hello, I’m Jasper.

B: Low-Human-Feature Product

Here is Jasper.
Appendix B

PRODUCT ANTHROPOMORPHISM (STUDY 2 AND 3)

A: High-Human-Feature Product

**Hi, I’m MANGO, your ultimate entertainment recommendation buddy!**

**Here I am, MANGO,** to help you discover hundreds of films (and more) you may love, even some hidden treasures that you have never even heard of! I go beyond just movies. For example, if you really like “The Dark Knight”, I will also fill you in on what kind of musicians you’ll like to listen to, books you’ll want to read, and “other stuff” related to that film.

B: Low-Human-Feature Product

**This is MANGO, your ultimate entertainment recommendation engine.**

**Here is MANGO,** to help you discover hundreds of films (and more) you may love, even some hidden treasures that you have never even heard of! This app goes beyond just movies. For example, if you really like “The Dark Knight”, it will also provide you what kind of musicians you’ll like to listen to, books you’ll want to read, and “other stuff” that’s related to that film.
Appendix C

COMMERCIAL-TREATMENT-EXPECTATION MANIPULATION

(STUDY 4, HIGH-ANTHROPOMOPHRIZED CONDITION)

Tracker is developed in conjunction with “Fair Economy”.

Financial inequality in America has been exacerbated profoundly in the last few decades and is at its historic high.

“Fair Economy”, both a non-profit organization and a grassroots network, works against economic injustice, financial inequity, and ultimately for a better life of people with limited financial resources.

“Fair Economy” cares for the other half. Tracker is developed with the shared vision of “Fair Economy” fighting for the other half to get their fair share.