

## Does everyone have the potential to achieve their ideal body weight? Lay theories about body weight and support for price discrimination policies



Shaobo (Kevin) Li<sup>a</sup>, Michail D. Kokkoris<sup>b</sup>, Krishna Savani<sup>c,\*</sup>

<sup>a</sup> Faculty of Business, Southern University of Science and Technology (SUSTech), 1088 Xueyuan Avenue, Nanshan District, Shenzhen 518055, China

<sup>b</sup> Department of Marketing, WU Vienna University of Economics and Business, Welthandelsplatz 1, 1020 Vienna, Austria

<sup>c</sup> Nanyang Business School, Nanyang Technological University, 50 Nanyang Ave S3-01C-76, Singapore 639798, Singapore

### ARTICLE INFO

#### Keywords:

Universal-nonuniversal  
Lay theories  
Mindsets  
Body weight  
Price discrimination  
Fairness

### ABSTRACT

Six studies identified a novel lay theory—whether people believe that nearly everyone (the *universal belief*) or only some people (the *nonuniversal belief*) can achieve their ideal body weight. The universal belief leads people to view price discrimination policies (e.g., health insurances overcharging overweight or underweight customers) as more fair (Studies 1–2). The underlying mechanism is that people with a more nonuniversal belief believe that individuals have limited control over their body weight, and thus attribute the responsibility for additional costs less to customers and more to organizations (Study 3). The universal belief predicts support for price discrimination only when price discrimination is based on body weight but not on other risk factors (e.g., drug usage; Study 4), and only when consumers' weight would influence the company's costs (Study 5). The findings identify a novel lay theory and document its implications for an emerging class of policies in the marketplace.

In 2013, Samoa Air became the world's first airline to institute a “pay-by-weight” system, which calculates the fare by multiplying a base fare (depending on the route flown) by the total weight of the passenger plus his/her luggage (Hunter, 2013). Subsequently, Uzbekistan Airways and Hawaiian Airlines announced that they will also weigh passengers before boarding (Bailey, 2019). Similarly, Tigerair, a major low-cost airline in the Asia-Pacific area, requests passengers who are super-oversized to book two seats or else they risk being denied boarding (Condition of Carriage, n.d.). In the same vein, certain life insurance companies, such as AIG and Haven Life, charge insurance premiums based on a customer's body mass index (BMI); those overweight pay higher premiums (Taylor, 2017). Similarly, some cafeterias in China charge customers based on their body weight (Li & Wang, 2012).

Price discrimination policies based on body weight have received rified media attention and spurred public debate (e.g., Hunter, 2013; Koman, 2016; Taylor, 2017). Supporters of these policies argue that these policies are justified on two grounds. First, companies incur significantly higher costs (e.g., transportation costs, medical costs) for overweight people (e.g., Brownlee, 2011; Hunter, 2013). Second, such policies can nudge customers to pay attention to their body weight and adopt a healthier lifestyle. As such, these policies can help fight obesity, which has become a global epidemic (Karnani, McFerran, & Mukhopadhyay, 2014). In contrast, opponents claim that these policies

institutionalize discrimination toward overweight people and are thus akin to discrimination based on race or gender (Pashman, 2014; Vartanian & Porter, 2016). Additionally, opponents dispute the prosocial motivation of such policies and aver that they are primarily centered on increasing firm profit (e.g., Gavin, 2016).

The present research introduces a novel construct, universal-non-universal lay theories about the potential to achieve one's ideal body weight, and investigates whether these beliefs influence people's fairness perceptions of price discrimination policies. Specifically, we ask whether individuals who believe that nearly everyone has the potential to achieve his/her ideal body weight (the *universal belief*) are more favorable toward price discrimination policies than those who believe that only some people have this potential (the *nonuniversal belief*).

### 1. Fixed-growth and universal-nonuniversal lay theories

Extensive research has studied peoples' beliefs about the stability or malleability of human characteristics (Dweck, 2006, 2012). This stream of research has investigated whether people believe that human characteristics (e.g., intelligence, personality, morality) are stable and fixed (the *fixed belief*) or whether these features can be changed and developed (the *growth belief*). For instance, fixed theorists believe that people's body weight cannot be changed very much, whereas growth

\* Corresponding author.

E-mail addresses: [lisb3@sustech.edu.cn](mailto:lisb3@sustech.edu.cn) (S.K. Li), [michail.kokkoris@wu.ac.at](mailto:michail.kokkoris@wu.ac.at) (M.D. Kokkoris), [ksavani@ntu.edu.sg](mailto:ksavani@ntu.edu.sg) (K. Savani).

theorists believe that people can significantly change their body weight (Burnette, 2010). Past research (Burnette, 2010) has found that upon encountering a dieting setback, the more people have a fixed mindset, the more likely they are to engage in avoidant coping (e.g., giving up the dieting plan). Related research has examined more general beliefs about whether a person's body is fixed or can be changed; this work has found that the more people have a fixed mindset about the body, the less they exercise (Lyons, Kaufman, & Rima, 2015). Researchers have also investigated lay theories about body weight beyond the fixed-growth dimension, such as whether obesity is caused by poor diet or by lack of exercise. The more people believed that obesity is due to lack of exercise, the more they ate, and thus the more overweight they were (McFerran & Mukhopadhyay, 2013).

To our knowledge, all past research on lay theories about body weight has focused on how individuals' lay theories influence their own weight-related behaviors. More generally, research on fixed-growth lay theories has typically explored individual-level outcomes rather than population-level outcomes (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013; Carr, Rattan, & Dweck, 2012). In the current research, we examine whether individuals' lay theories influence their support for weight-related policies that would be applicable to the population as a whole, such as Samoa Air's "pay as you weight" policy. Perhaps fixed-growth lay theories might not be as relevant to population-level policies because individuals might not apply their personal lay theories to the population as a whole. However, another class of lay theories—universal-nonuniversal lay theories—directly refer to people's beliefs about the population and thus might be more relevant.

Recent research has identified a novel dimension of lay theories—whether individuals believe that the potential to achieve ideal levels of a certain characteristic is either rare (the *nonuniversal belief*) or widespread (the *universal belief*) in the population (Rattan, Savani, Naidu, & Dweck, 2012; Savani, Rattan, & Dweck, 2017). The universal and nonuniversal beliefs are not separate categories but represent two ends of a single continuum. Universal-nonuniversal beliefs are both conceptually and empirically distinct from the well-studied fixed-growth beliefs. First, whereas fixed-growth beliefs refer to people's ability to alter their current level of a given characteristic (e.g., current intelligence level), universal-nonuniversal beliefs refer to people's potential to achieve high levels of those characteristics (e.g., the intelligence of a Nobel prize winner). Second, whereas fixed-growth beliefs refer to the individual (e.g., "Can individuals change their intelligence?"), universal-nonuniversal beliefs refer to the distribution of high potential across the population (e.g., "Does everyone have the highest intellectual potential?"). Third, fixed-growth and universal-nonuniversal beliefs predict distinct outcomes. For example, the more people believe that everyone has high intellectual potential, the more likely they are to support policies that distribute educational resources equitably across advantaged and disadvantaged communities (Rattan et al., 2012) and to view education as a fundamental human right (Savani et al., 2017); people's beliefs about whether intelligence is fixed or can grow, however, do not predict their support for these policies.

As past research indicated that lay theories are domain specific (e.g., a person can have a growth theory about intelligence and a fixed theory about moral character; Chiu, Hong, & Dweck, 1997; Dweck, Chiu, & Hong, 1995), in the present research, we investigate universal-nonuniversal lay theories in the domain of body weight. We define ideal body weight as a healthy body mass index (BMI), as defined by the World Health Organization (World Health Organization, 2006). Ideal body weight is not just an academic construct but is often referred to in the marketplace. For example, a DNA sequencing program offered by a health insurance company promises to help consumers achieve their ideal body weight (Yeung, 2017); a bestseller on Amazon argues that the mind is the most important part of achieving ideal weight (R. Griswold & D. Griswold, 2004); and hypnotherapists offer a program to assist people achieve their ideal weight (Walker, 2015). Along these lines, we conceptualize a novel lay theory: the universal-nonuniversal

lay theory about ideal body weight. The nonuniversal end of the continuum represents the belief that only some people have the potential to achieve their ideal body weight, regardless of how much they try. In contrast, the universal end of the continuum refers to the belief that nearly everyone has the potential to achieve his/her ideal body weight.

The two dimensions of lay theories might be related in that people with the universal belief might also be more likely to hold the growth belief. Nonetheless, theoretically distinguishing universal vs. non-universal beliefs about ideal body weight and fixed vs. growth beliefs about body weight is possible. First, people may believe that body weight can be changed markedly and that most individuals can achieve their ideal body weight; this represents the confluence of growth and universal beliefs. Second, persons may believe that body weight can be changed noticeably, but only some people can achieve their ideal body weight. In this sense, body weight is something that is amenable to development but up to differing points for different individuals. This represents the confluence of growth and nonuniversal beliefs. Third, people may believe that body weight cannot be changed much and that only some individuals can achieve their ideal body weight; this denotes the confluence of fixed and nonuniversal beliefs. Finally, it is also possible to believe that body weight cannot be altered much but that most people are at their ideal body weight; this represents the confluence of fixed and universal beliefs. Given that many people are clearly not at their ideal body weight in societies, such as the US, the fixed-universal combination might be the most difficult of the four to hold in these societies. Although all four combinations are theoretically possible, based on past research (Rattan et al., 2012), we anticipate that there would be a positive correlation between the universal belief and the growth belief. However, we expect these two lay theories to have different implications for whether people perceive price discrimination policies as fair.

## 2. Price discrimination policies

Price discrimination occurs when a company charges different prices to different customer segments based on customer characteristics (e.g., Kuo, Rice, & Fennell, 2016; Samuelson & Marks, 1992; Wirtz & Kimes, 2007). Price discrimination is a widely-used practice in certain industries (e.g., tourist attractions charge different entrance fees for people of different age groups; auto insurance companies charge different amounts based on people's driving history; health insurance companies set premiums based on people's age).

Past research has found that there is quite some variability in whether people perceive price discrimination as fair (Haws & Bearden, 2006). Generally, people think it is unfair for a company to charge different consumers different amounts for the same good or service; but when the company's cost structure is made salient, then people are more willing to think otherwise (Xia, Monroe, & Cox, 2004). This is especially the case when either an external event or some consumers themselves caused the company to incur additional costs, but not when the company took advantage of the situation to increase its profit (e.g., Bolton, Warlop, & Alba, 2003; Kahneman, Knetsch, & Thaler, 1986; Tversky & Kahneman, 1991; Vaidyanathan & Aggarwal, 2003). As Xia et al. (2004, p. 5) argued, if consumers attribute the price increase to the firm's desire to increase profit, then they view price discrimination as unfair; if they attribute the price increase to external causes, though, then they regard the price discrimination as more fair. If individuals perceive that price discrimination is unfair, they have lower intentions to purchase the product (Bolton, Keh, & Alba, 2010; Campbell, 1999; Grewal, Hardesty, & Iyer, 2004), and higher intention to spread negative word-of-mouth about the seller (Ferguson, Ellen, & Bearden, 2014).

Although past research has studied contextual factors (e.g., product category, availability of social cues; Bolton et al., 2003; Haws & Bearden, 2006; Mazumdar, Raj, & Sinha, 2005) and demographic factors (e.g., gender, age; Major & Testa, 1989) that influence people's attitudes toward individual cases of price discrimination, much less

research has investigated the psychological states of individuals that can affect their sensitivity to price discrimination (see Jin, He, & Zhang, 2013, for an exception). Further, prior work on this topic has largely focused on elements that predict whether individuals are personally willing to accept price discrimination (e.g., pay a higher price for a product that is in high demand; Gerstner, 1985). In contrast, we focus on consumers' support for price discrimination policies in general, irrespective of whether they themselves might have to pay a higher or a lower price. To answer calls for additional empirical efforts on individual-level determinants of price fairness perceptions (Bolton et al., 2003; Xia et al., 2004), we examine whether individuals' lay theories influence their fairness perception of price discrimination policies.

### 3. Universal-nonuniversal beliefs and fairness perception of price discrimination

The core proposition of this research is that people with a more universal lay theory in a given domain find price discrimination in that domain to be more fair and acceptable. When people with a more universal belief about body weight consider a price discrimination policy based on body weight, they can argue that individuals can control their body weight—as everyone has the potential to achieve their ideal body weight, whether or not individuals are at their ideal body weight is due to their own free choice. Therefore, people with a more universal belief might think that it is the fault of overweight/underweight individuals for not being at their ideal body weight despite possessing the potential to do so. Thus, people with a more universal belief might be more likely to believe that the responsibility for higher prices lies with overweight/underweight customers themselves rather than with organizations. This means that the locus of causality related to the increased price is internal to the customers and external to organizations, and therefore, people with a more universal belief might think that it is fair for the company to charge overweight/underweight customers for the additional cost incurred (Martin, Ponder, & Lueg, 2009; Vaidyanathan & Aggarwal, 2003; Xia et al., 2004). To sum up, we expect people with a more universal belief to perceive price discrimination policies as more fair because they believe that individuals can control their body weight, and thus attribute the responsibility for additional costs incurred by companies more to customers and less to the company.

In contrast, when people with a more nonuniversal belief about body weight consider a price discrimination policy based on body weight, they can argue that many people simply do not have the potential to achieve their ideal body weight no matter what they do. Thus, they might think that overweight/underweight people are not personally responsible for the additional cost that they bring to organizations, and instead, the additional cost should be treated as a random variation that the company needs to absorb as part of their business. This means that the locus of causality related to the increased price is external to the customers and internal to organizations. Therefore, they might consider charging overweight/underweight customers for the additional cost incurred as inequitable (Martin et al., 2009; Vaidyanathan & Aggarwal, 2003; Xia et al., 2004). In other words, we expect people with a more nonuniversal belief to perceive price discrimination policies as more unfair because they believe that individuals have limited control over their body weight, and thus attribute the responsibility of additional costs incurred by companies less to customers and more to the company. Therefore, we anticipate that consumers' universal-nonuniversal beliefs predict whether they find price discrimination policies fair and acceptable, and that this difference is explained by their beliefs on the extent to which individuals can control their body weight, and whether the responsibility for the additional costs rests with customers or with companies.

In addition, people with a stronger growth belief may also find price discrimination policies more fair, as they believe that people can alter their body weight markedly. However, we expect the universal-

nonuniversal dimension to be a stronger predictor of a person's perceptions of price discrimination policies than the fixed-growth dimension. First, in the domain of weight, unlike intelligence, we expect most people to have a growth belief, as people know that their own body weight can change, and might think that “obese individuals are personally responsible for their weight” (Puhl & Heuer, 2010, p. 1019). Thus, the fixed-growth lay theory might not be a strong predictor of people's fairness perception. On the universal-nonuniversal dimension, everyday experience does not present individuals with clear evidence on whether nearly everyone or only some people have the potential to achieve their ideal body weight. As such, we expect people to be more widely distributed on this dimension.

Second, universal-nonuniversal lay theories are much more radical than the fixed-growth belief. We argue that the perception that body weight can be changed still leaves room for large differences in individuals' beliefs about people's potential to achieve their ideal body weight. Specifically, believing that people can change their body weight does not require believing that all people have the potential to achieve their ideal body weight. For example, a person with a growth belief might think that some people can vary their weight within  $\pm 10$  lb, others within  $\pm 20$  lb, and yet others within  $\pm 30$  lb. The growth belief is silent on how the range of body weight that a given individual can attain varies across the population. Thus, people with a growth belief might not necessarily view price discrimination policies based on people's ideal body weight as fair; after all, these policies have ideal body weight as the goal, not merely weight change. In contrast, the universal belief likely shares the growth belief's assumption that body weight can change over time, but makes the additional assumption that across the population, nearly everyone has the potential to not only improve their weight but to achieve their ideal body weight. Therefore, we predict that people's universal-nonuniversal lay theories would influence their fairness perceptions of price discrimination policies to a greater extent than their fixed-growth theories would.

### 4. Overview of studies

We tested our hypotheses in a pilot study and five main studies. The pilot study assessed whether people's fixed-growth theories about body weight and their universal-nonuniversal theories about ideal body weight are empirically distinct constructs. Study 1 tested whether people with a more universal belief perceive price discrimination policies as more fair, even after controlling for the fixed-growth belief and other related constructs. Studies 2 and 3 sought to provide causal support for our hypothesis by manipulating universal-nonuniversal beliefs. Moreover, Study 3 tested the underlying mechanism, that is, whether those with a more nonuniversal belief are more likely to believe that individuals have limited control over their body weight, and thus attribute the responsibility for additional costs incurred by companies less to customers and more to companies. Study 4 tested an alternative explanation for why people with a more universal belief perceive price discrimination policies as more fair—a general preference for discrimination. Specifically, we tested whether the universal belief predicts fairness perceptions of price discrimination policies only when the source of the discrimination is related to body weight. Study 5 sought to offer additional support for the underlying mechanism by investigating whether people with a more universal belief perceive price discrimination policies as more fair when consumers' weight would affect the company's cost, but not when consumers' weight is unrelated to the cost incurred by the company.

Following the rules of the Institutional Review Board at the university where this research was conducted, participants were allowed to skip any question in the survey. Thus, several participants were omitted from each analysis in each study owing to nonresponse. The valid sample size and the degrees of freedom vary across different analyses in each study, due to varying rates of nonresponse across dissimilar

measures. Across all studies, we report all participants, measures, and experimental conditions. All the study materials can be accessed at [https://osf.io/8rx7v/?view\\_only](https://osf.io/8rx7v/?view_only).

## 5. Pilot study: Fixed-growth and universal-nonuniversal lay theories

The aim of the pilot study was to test whether people's universal-nonuniversal lay theories about ideal body weight and fixed-growth lay theories about body weight represent distinct constructs. As people know that their own body weight can change and have observed others whose body weight can be modified (Puhl & Brownell, 2006; Puhl & Heuer, 2009, 2010), we predicted that more people would hold the growth belief than the fixed belief. However, everyday experience does not present people with any clear evidence about whether nearly everyone or only some people have the potential to achieve their ideal body weight. Therefore, we expect individuals to be about equally divided on the universal-nonuniversal dimension.

### 5.1. Method

We posted a survey seeking 400 US residents on Amazon Mechanical Turk. In response, 404 US residents (63.1% women, average age = 37.16 years) completed the study. Following the methods of Rattan et al. (2012, Studies 4 and 5) and Savani et al. (2017, Study 2), we created four items measuring the nonuniversal lay theory (e.g., "There are people who just can't achieve their ideal body weight even if they try to"; reverse-scored), and four items assessing the universal lay theory (e.g., "Given a balanced diet and proper exercise, nearly everyone can achieve his/her ideal body weight"; see Appendix A). Moreover, following the fixed-growth beliefs scale about intelligence (Hong, Chiu, Dweck, Lin, & Wan, 1999), we created four items evaluating the fixed belief about body weight (e.g., "To be honest, people can't really change their body weight very much"; reverse-scored), and four items measuring the growth belief (e.g., "No matter what someone's body weight is, they can always change it"). For all items, participants indicated their agreement on a 6-point scale ranging from *strongly disagree* to *strongly agree*. We administered these two scales in a random order.

### 5.2. Results

We first reversed scored participants' responses such that higher numbers indicated a stronger universal belief ( $\alpha = 0.87$ ) or a higher growth belief ( $\alpha = 0.89$ ). The average participant was slightly on the universal half of the scale ( $M = 3.59$ , 95% *CI* [3.51, 3.67],  $SD = 0.84$ , range from 1 to 6) rather than on the growth half of the scale ( $M = 4.54$ , 95% *CI* [4.45, 4.62],  $SD = 0.83$ , range from 2.13 to 6). We found that the two beliefs were significantly, but not highly, correlated ( $r = 0.49$ ,  $p < 0.001$ ), indicating that those believing that everyone has the potential to have an ideal body weight were also more likely to perceive that body weight can be changed over time.

To test whether the two beliefs were empirically distinct, we conducted a confirmatory factor analysis. We used four latent variables, with the universal items loading on one factor, the nonuniversal items on the second factor, the fixed items on the third factor, and the growth items on the fourth factor. However, because the fixed-growth factors represent two ends of the same continuum, and the universal/universal factors also represent two ends of the same continuum, we assumed that one higher-order latent variable underlies the fixed and growth factors and another higher-order latent variable underlies the universal and nonuniversal factors. This structural equation model (SEM) had reasonable fit ( $RMSEA = 0.069$ ,  $CFI = 0.96$ ,  $SRMR = 0.044$ ,  $\chi^2(df = 99) = 288.14$ ). In the second SEM, we assumed that a single higher-order latent variable underlies all four

factors. This model revealed a worse fit ( $RMSEA = 0.070$ ,  $CFI = 0.962$ ,  $SRMR = 0.050$ ,  $\chi^2(df = 100) = 293.26$ ,  $\Delta\chi^2(df = 1) = 5.12$ ,  $p < 0.05$ ). Thus, the confirmatory factor analysis indicated that the universal-nonuniversal beliefs and the fixed-growth beliefs represent distinct constructs.

Next, given that both measures were administered on 6-point scales without a neutral midpoint, we split participants based on the theoretical mid-point of each of the two scales (i.e., 3.5 on the 6-point scale). We found that 53% of participants were nonuniversal theorists and 47% were universal theorists ( $\chi^2(df = 1) = 1.56$ ,  $p = 0.21$ ); whereas 15% were fixed theorists and 85% were growth theorists ( $\chi^2(df = 1) = 195.03$ ,  $p < 0.001$ ). This shows that participants tend to be more evenly distributed on the universal-nonuniversal belief dimension than on the fixed-growth dimension.

Thus, participants were evenly spread across the universal half and the nonuniversal half of the scale—approximately 50% held either belief. However, participants were not evenly spread across the fixed half and the growth half of the scale, with more than five times as many participants believing that body weight can change over time than the number believing that body weight is largely fixed (see Fig. 1).

### 5.3. Discussion

The pilot study found that participants tended to hold the growth belief rather than the fixed belief about body weight. However, participants were equally divided on the universal-nonuniversal dimension. Importantly, a confirmatory factor analysis indicated that the universal-nonuniversal dimension was distinct from the fixed-growth dimension. Collectively, the results of the pilot study confirmed that the universal-nonuniversal beliefs about ideal body weight represent a new lay theory that is related to, but distinct from, fixed-growth beliefs about body weight.

## 6. Study 1: Main effect and ruling out alternative explanations

The objective of Study 1 was threefold. First, we tested our key hypothesis that the more people endorse the universal lay theory about ideal body weight, the more they would view price discrimination policies as fair. Second, we sought to demonstrate that people's universal-nonuniversal beliefs about ideal body weight predicted their support for price discrimination policies above and beyond a number of potentially relevant constructs, including fixed-growth beliefs about body weight (Burnette, 2010), universal-nonuniversal beliefs about intelligence (Rattan et al., 2012), fixed-growth beliefs about intelligence (Dweck, 1986), dispositional self-control (Tangney, Baumeister, & Boone, 2004), general health locus of control (Wallston, Wallston, & DeVellis, 1978), dieting self-confidence (Wallston et al., 1978), dieting self-efficacy (Stich, Knäuper, & Tint, 2009), dieting beliefs (Burnette, 2010; Stotland & Zuroff, 1990), hours of sleep, presence or absence of various medical conditions, stress, and use of medications (McFerran & Mukhopadhyay, 2013). Third, as different people may have different perceptions of what ideal body weight is, which might affect their attitude towards price discrimination, we measured and controlled for participants' perception of ideal body weight in regards to their gender.

### 6.1. Method

We posted a survey seeking 200 US residents on Amazon Mechanical Turk. In response, 219 participants (63.9% women, average age = 38.11 years) completed the study.

First, we measured participants' perceptions of ideal body weight by showing them a series of nine body figures of participants' gender with different levels of BMI (ranging from 1 = *very skinny* to 9 = *very overweight*), and asked them to choose the figure that corresponded to what they perceived as the ideal body type in general and ideal body

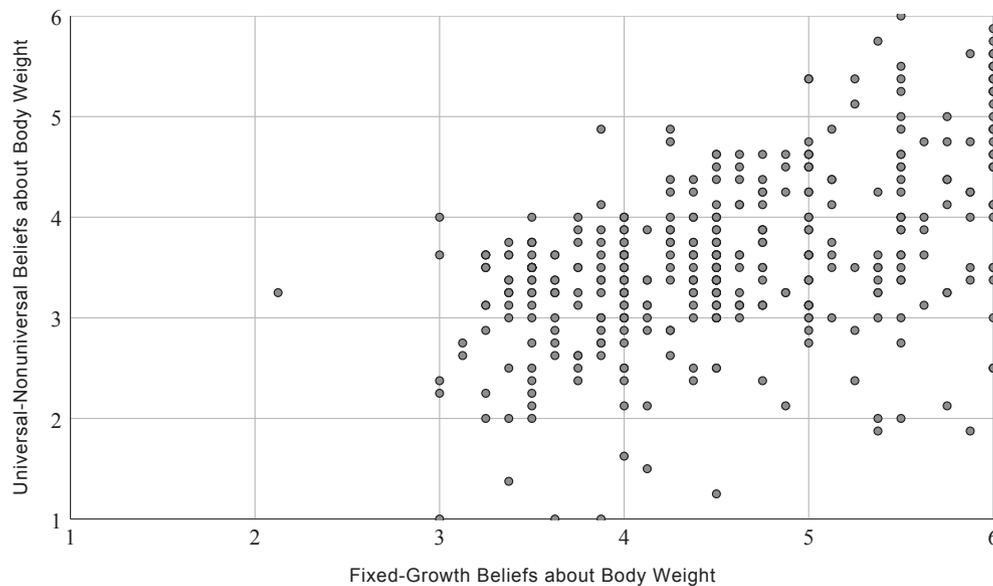


Fig. 1. Scatter plot representing participants' universal-nonuniversal beliefs about ideal body weight and their fixed-growth beliefs about body weight.

type for themselves.<sup>1</sup> Next, we presented participants with a price discrimination policy in which a health insurance company charged higher premiums for overweight and underweight customers (see Appendix B). We asked participants to indicate their overall fairness perception of the policy on a 7-point response scale ranging from *very unfair* to *very fair*, *very unreasonable* to *very reasonable*, and *very unacceptable* to *very acceptable* ( $\alpha = 0.96$ ). Then, participants completed the 8-item measure of universal-nonuniversal beliefs of body weight ( $\alpha = 0.87$ ) used in the previous study, an 8-item measure of universal-nonuniversal beliefs of intelligence ( $\alpha = 0.93$ ; Rattan et al., 2012), a 6-item measure of fixed-growth beliefs about body weight ( $\alpha = 0.80$ ; Burnette, 2010), and a 3-item measure of fixed-growth beliefs about intelligence ( $\alpha = 0.93$ ; Chiu, Dweck, Tong, & Fu, 1997). For all items, participants indicated their agreement on a 6-point scale ranging from *strongly disagree* to *strongly agree*.

We also assessed several potentially related constructs, such as participants' dispositional self-control ( $\alpha = 0.88$ ; Tangney et al., 2004), general health locus of control ( $\alpha = 0.85$ ; Wallston et al., 1978), dieting self-confidence ( $\alpha = 0.92$ ; Wallston et al., 1978), and dieting self-efficacy ( $\alpha = 0.90$ ; Stich et al., 2009). For all items, participants indicated their agreement on a 5-point scale ranging from *not at all* to *very much*. Additionally, we included a single-item assessment of each of the three sub-scales of the Dieting Beliefs Scale (Burnette, 2010; Stotland & Zurhoff, 1990). For these items, participants indicated their agreement on a 6-point scale ranging from *strongly disagree* to *strongly agree*. The order of scales was randomized across participants.

Additionally, we included other factors known to affect weight: hours of sleep, presence or absence of various medical conditions (i.e., participants were asked to check a box if they suffered from any of the following: high blood pressure, high cholesterol, diabetes, obesity, asthma, or heavy smoking), stress (a 5-point scale ranging from *very low* to *very high*), use of medications known to affect weight (i.e., participants were asked to check a box if they used any of the following:

corticosteroids; antidepressants, or seizure medicines; McFerran & Mukhopahyay, 2013), body weight in pounds, height in feet and inches, healthy eating habits (a 7-point scale ranging from *not at all* to *extremely*), and exercise frequency (a 5-point scale ranging from *less than once a month* to *4 times a week or more*).

## 6.2. Results

Table 1 presents the correlations among all variables and Table 2 presents the regression results. First, we regressed participants' fairness perception of the price discrimination policy on their universal-nonuniversal beliefs about body weight, universal-nonuniversal beliefs about intelligence, fixed-growth beliefs about body weight, and fixed-growth beliefs about intelligence. As expected, people with a more universal belief of body weight viewed the price discrimination policy as more fair ( $p < 0.001$ ). The effect of all other lay theories (i.e., universal belief of intelligence, growth belief of body weight, and growth belief of intelligence) were nonsignificant ( $ps > 0.21$ ). Next, we ran another regression while adding all the remaining covariates as predictors. We found that people with a more universal belief of body weight still viewed the price discrimination policy as more fair ( $p < 0.001$ ). Moreover, among all covariates, only the effect of dieting belief was significant ( $p = 0.013$ ).

## 6.3. Discussion

Study 1 demonstrated that participants' universal-nonuniversal beliefs about ideal body weight predict their support for price discrimination policies even after controlling for their fixed-growth beliefs about body weight, their universal-nonuniversal and fixed-growth beliefs about intelligence, and a host of related constructs. In fact, among 17 variables that have been known to affect people's body weight, participants' universal-nonuniversal lay theory about ideal body weight was one of the two predictors that were associated with participants' attitude towards a price discrimination policy.

## 7. Study 2: Causal evidence

Study 1 provided correlational evidence for our core hypothesis that the more people endorse the universal lay theory about body weight, the more they view price discrimination policies toward overweight or underweight customers as fair. The goal of Study 2 was to provide

<sup>1</sup> Overall, both men ( $M = 4.18$ , 95% CI [3.95, 4.41],  $SD = 1.04$ ) and women ( $M = 3.97$ , 95% CI [3.80, 4.15],  $SD = 1.05$ ) participants' perceived ideal body weight in general was near the midpoint of the 1–9 scale, which is close to the standard set by WHO (World Health Organization, 2006). Similarly, both men ( $M = 4.32$ , 95% CI [4.04, 4.59],  $SD = 1.23$ ) and women ( $M = 4.09$ , 95% CI [3.85, 4.32],  $SD = 1.43$ ) participants' perceived ideal body weight for themselves was also near the midpoint. Therefore, there appears to be a relatively high consensus about what the ideal body weight for one's gender is.

**Table 1**  
Descriptive statistics for Study 1.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Overall fairness perception	—																		
2. Universal-nonuniversal - weight	0.38**	—																	
3. Universal-nonuniversal - intelligence	0.17*	0.29**	—																
4. Fixed-growth - weight	0.13	0.49**	0.12	—															
5. Fixed-growth - intelligence	0.04	0.14*	0.66**	0.25**	—														
6. Dispositional self-control	-0.05	0.06	0.01	0.02	0.02	—													
7. General health locus of control	0.24**	0.39**	0.27**	0.29**	0.15*	0.11	—												
8. Dieting self-confidence	0.07	0.16*	0.08	0.05	0.03	0.44**	0.21**	—											
9. Dieting self-efficacy	0.13	0.18**	0.18**	0.02	0.06	0.34**	0.25**	0.21**	—										
10. Dieting beliefs	-0.05	0.40**	0.04	0.56**	0.15*	0.27**	0.24**	0.26**	0.10	—									
11. Medical conditions known to affect weight (1 = present, 0 = absent)	-0.09	0.04	0.03	0.11	0.12	0.07	0.01	0.05	-0.04	0.19**	—								
12. Use of medications known to affect weight (1 = use, 0 = no use)	0.02	0.13	0.06	0.11	0.08	0.18**	0.08	0.05	-0.07	0.16*	0.29**	—							
13. Hours of sleep	0.14*	0.05	0.01	-0.03	-0.05	-0.02	0.05	0.02	0.04	-0.06	0.07	0.02	—						
14. Stress	-0.09	-0.15*	0.00	-0.06	0.02	-0.31**	-0.12	-0.38**	-0.08	-0.13	-0.12	-0.19**	0.00	—					
15. Perception of ideal body weight in general	0.08	0.00	0.17*	-0.26**	-0.01	-0.16*	0.07	-0.01	0.12	-0.21**	-0.10	-0.11	0.15*	0.04	—				
16. BMI	-0.16*	-0.11	-0.02	-0.01	0.10	-0.22**	-0.05	-0.03	-0.27**	0.03	-0.06	-0.07	-0.11	0.09	0.24**	—			
17. Level of healthy eating	0.17*	0.20**	0.05	0.19**	-0.02	0.00	0.19**	0.05	0.17*	0.11	-0.03	-0.13	0.05	0.12	-0.04	-0.02	—		
18. Exercise frequency	0.03	0.12	-0.08	0.11	-0.05	0.23**	0.14*	0.06	0.17*	0.17**	0.12	0.05	0.02	-0.06	-0.22**	-0.31**	0.18**	—	

Note. \*\*  $p < 0.01$ . \*  $p < 0.05$ .

experimental evidence for this idea. Further, we examined downstream consequences of universal-nonuniversal beliefs about ideal body weight on behavioral intentions. Specifically, we predicted that people with a more nonuniversal lay theory would have lower purchase intentions for the policy given that they perceive the policy as less fair.

7.1. Method

**Participants.** We posted a survey seeking 400 US residents on Amazon Mechanical Turk. In response, 406 participants (58.6% women, average age = 37.38 years) completed the study.

**Manipulation.** To manipulate participants' universal-nonuniversal beliefs about body weight, we adopted the "news article" methodology that has been widely used to manipulate people's beliefs about the malleability and universality of human characteristics (e.g., Chiu et al., 1997; Savani et al., 2017). Specifically, we first defined ideal body weight as the healthy BMI range, as defined by the World Health Organization (World Health Organization, 2006). Then, we asked participants to read an article (approximately 500 words) that allegedly reported scientific research results that argued that either nearly everyone or only some people can achieve ideal body weight (see Appendix C). To increase the readability of the article, we divided it into six paragraphs and presented each paragraph on a separate screen. After participants finished reading the article, we asked them to summarize its main point. An external manipulation check confirmed that the manipulation influenced the target construct and a post-test study confirmed that there is no significant difference in believability of the articles used in the universal and the nonuniversal conditions (see Appendix D for details).

**Measures.** After reading the article intended to induce a universal or a nonuniversal lay theory, we presented participants with a text describing Samoa Air's "pay-by-weight" pricing policy introduced in 2013: "Samoa Air recently became the world's first airline to institute a 'pay-by-weight' system, which charges customers by body weight plus luggage. The fare is calculated by multiplying a base fare (depending on the route flown) by the total weight of the passenger plus their luggage [...] No more excess fees are charged, and no more discrimination, because as we know: A kilo is a kilo!" (see Appendix E). We measured participants' fairness perception of this pricing policy using the same items as in Study 1 (fair, reasonable, acceptable;  $\alpha = 0.96$ ). Additionally, we asked participants to indicate their overall attitude ("How would you describe your overall attitude toward this airline?"; very negative to very positive) and purchase intention ("How likely is it that you would choose this company?"; very unlikely to very likely). All measures were administered on 7-point scales. See Supplementary Materials for additional measures.

7.2. Results

As expected, we found that participants in the universal condition ( $M = 3.56, SD = 2.03, 95\% CI = [3.28, 3.84]$ ) viewed the price discrimination policy as more fair than those in the nonuniversal condition ( $M = 3.07, SD = 1.89, 95\% CI [2.81, 3.33]$ ),  $t(404) = 2.55, p = 0.011, d = 0.25, 95\% CI [0.11, 0.88]$ . We also found that participants in the universal condition ( $M = 3.39, SD = 2.02, 95\% CI [3.11, 3.67]$ ) indicated more positive attitude for the policy than those in the non-universal condition ( $M = 2.97, SD = 1.90, 95\% CI [2.71, 3.23]$ ),  $t(404) = 2.16, p = 0.031, d = 0.21, 95\% CI [0.04, 0.80]$ . Moreover, participants in the universal condition ( $M = 3.41, SD = 2.17, 95\% CI [3.12, 3.71]$ ) indicated higher purchase intention for the policy than those in the nonuniversal condition ( $M = 3.01, SD = 2.07, 95\% CI [2.72, 3.29]$ ),  $t(404) = 2.00, p = 0.047, d = 0.19, 95\% CI [0.01, 0.83]$ .

7.3. Discussion

Study 2 conceptually replicated the findings of Study 1 by

**Table 2**  
Results of linear regression predicting fairness perception in Study 1.

Predictor	Step 1 ( <i>df</i> = 215)	Step 2 ( <i>df</i> = 184)
Universal-nonuniversal beliefs of body weight	0.82**, [0.49, 1.14], 0.17, 0.38, 4.96	0.73**, [0.36, 1.09], 0.19, 0.34, 3.93
Universal-nonuniversal beliefs of intelligence	0.20, [-0.10, 0.49], 0.15, 0.12, 1.33	-0.03, [-0.36, 0.30], 0.17, -0.02, -0.18
Fixed-growth beliefs of body weight	-0.09, [-0.43, 0.25], 0.17, -0.04, -0.53	0.11, [-0.29, 0.51], 0.20, 0.05, 0.55
Fixed-growth beliefs of intelligence	-0.13, [-0.38, 0.12], 0.13, -0.09, -1.03	0.08, [-0.21, 0.36], 0.14, 0.05, 0.54
Dispositional self-control	—	-0.20, [-0.59, 0.19], 0.20, -0.09, -1.01
General health locus of control	—	0.34, [-0.13, 0.80], 0.24, 0.11, 1.42
Dieting self-confidence	—	0.07, [-0.18, 0.32], 0.13, 0.05, 0.58
Dieting self-efficacy	—	0.03, [-0.27, 0.33], 0.15, 0.01, 0.19
Dieting belief	—	-0.55*, [-0.98, -0.12], 0.22, -0.21, -2.50
Medical conditions known to affect weight (1 = presence, 0 = absence)	—	-0.58, [-1.36, 0.19], 0.39, -0.10, -1.49
Use of medications known to affect weight (1 = use, 0 = no use)	—	0.21, [-0.44, 0.86], 0.33, 0.05, 0.65
Hours of sleep	—	0.07, [-0.03, 0.16], 0.05, 0.10, 1.44
Stress	—	-0.14, [-0.40, 0.11], 0.13, -0.08, -1.10
Perception of ideal body weight in general	—	0.04, [-0.23, 0.32], 0.14, 0.02, 0.32
BMI	—	-0.03, [-0.06, 0.10], 0.02, -0.11, -1.42
Level of health eating	—	0.10, [-0.06, 0.27], 0.08, 0.09, 1.24
Exercise frequency	—	-0.04, [-0.23, 0.16], 0.10, -0.03, -0.37
R <sup>2</sup>	0.16	0.23
ΔR <sup>2</sup>		0.07**
F	F(4, 208) = 9.61**	F(17, 184) = 3.31**

Note. Results are reported in the form: *B* [95% CI], *SE*,  $\beta$ , *t*. \*\*  $p < 0.01$ . \*  $p < 0.05$ .

experimentally manipulating nonuniversal versus universal beliefs about body weight. We found that compared to those exposed to the nonuniversal lay theory about ideal body weight, participants exposed to the universal lay theory viewed price discrimination based on body weight as more fair and indicated that they would be more likely to purchase such a policy. These findings provided causal evidence for the hypothesized effect.

### 8. Study 3: Causal evidence and underlying mechanism

The goal of Study 3 was to investigate the underlying mechanism. Specifically, we predicted that people with a more nonuniversal belief are more likely to believe that individuals have limited control over their body weight, and thus attribute the responsibility for additional costs incurred by companies less to customers and more to companies, and as a result, people with a more nonuniversal belief perceive the policy as more unfair. We tested this serial mediation effect hypothesis in the current study.

#### 8.1. Method

We posted a survey seeking 400 US residents on Amazon Mechanical Turk. In response, 409 participants (49.6% women, average age = 40.66 years) completed the study.

Participants were first randomly assigned to one of two body-weight beliefs conditions (nonuniversal vs. universal). We manipulated universal-nonuniversal beliefs using the same method as in Study 2. After the manipulation, participants were exposed to the same scenario as in Study 1 (Health insurance X's "charging customers based on their BMI" pricing system).

Next, we measured the first mediator (perceptions of individuals' control over their body weight) using three items: "To what extent do you think overweight and underweight customers could have adjusted their behaviors to avoid additional costs to the health insurance company?"; "To what extent do you think overweight and underweight customers could have done something to not bring additional costs to the health insurance company?"; and "To what extent do you think it's under overweight and underweight customers' control to not bring additional costs to the health insurance company?" (1 = *not at all*; 6 = *very much*;  $\alpha = 0.90$ ).

Next, we measured the second mediator (attribution of responsibility for additional costs) by asking participants: "Who do you think is

more responsible/ more to blame/ more accountable for the additional cost that the health insurance company incurs for overweight and underweight customers?" (1 = *Overweight/underweight customers are much more responsible/to blame/accountable*; 6 = *The insurance company is much more responsible/to blame/accountable*;  $\alpha = 0.85$ ).

Finally, we asked the same questions as in the previous studies to assess participants' attitude toward the pricing policy (i.e., fair, reasonable, acceptable;  $\alpha = 0.96$ ).

#### 8.2. Results

We found that participants in the universal condition ( $M = 4.07$ ,  $SD = 1.07$ , 95% CI = [3.92, 4.21]) perceived that consumers have more control over their body weights than those in the nonuniversal condition ( $M = 3.53$ ,  $SD = 1.22$ , 95% CI [3.36, 3.70]),  $t(407) = 4.74$ ,  $p < 0.001$ ,  $d = 0.47$ , 95% CI [0.31, 0.76]. Moreover, participants in the universal condition ( $M = 2.97$ ,  $SD = 1.29$ , 95% CI = [2.79, 3.14]) attributed the increased cost more to consumers and less to the insurance company than those in the nonuniversal condition ( $M = 3.36$ ,  $SD = 1.31$ , 95% CI [3.18, 3.54]),  $t(407) = -3.08$ ,  $p = 0.002$ ,  $d = 0.30$ , 95% CI [-0.65, -0.14]. Finally, replicating the results of Study 2, we found that participants in the universal condition ( $M = 4.01$ ,  $SD = 1.78$ , 95% CI = [3.76, 4.25]) viewed the price discrimination policy as more fair than those in the nonuniversal condition ( $M = 3.62$ ,  $SD = 1.85$ , 95% CI [3.36, 3.87]),  $t(407) = 2.17$ ,  $p = 0.03$ ,  $d = 0.21$ , 95% CI [0.04, 0.74].

To test the hypothesized serial mediation chain, we conducted a mediation analysis with 5,000 bootstrapped samples using model 4 of the PROCESS macro for SPSS (Hayes, 2018). We used the universal-nonuniversal condition as independent variable, perceived control over body weight as mediator 1, attribution of responsibility for increased costs as mediator 2, and fairness perception as outcome variable. We found a significant indirect effect ( $B = -0.19$ , boot  $SE = 0.05$ ; 95% CI = [-0.29, -0.10]).

#### 8.3. Discussion

Study 3 identified the mechanism underlying the effect of universal-nonuniversal beliefs about ideal body weight on fairness perceptions of price discrimination policies. Compared to those exposed to a non-universal lay theory about ideal body weight, participants exposed to a universal lay theory viewed price discrimination based on body weight

as more fair because they were more likely to believe that individuals have more control over their body weight, and thus attributed the responsibility for additional costs more to the customers and less to the company. Moreover, Study 3 provided additional causal evidence for our key finding.

#### 9. Study 4: The moderating role of the basis of discrimination

The goal of Study 4 was twofold. First, Study 3 ruled in one mechanism for why people with a universal belief are more likely to support price discrimination policies. Yet, an alternative explanation could be that people with a universal belief are more likely to support discrimination of all types overall. One way to test this idea is to assess whether universal-nonuniversal beliefs about body weight predict people's support only for price discrimination that is related to body weight and not price discrimination that is related to other characteristics. We did so by manipulating whether a health insurance company discriminated against customers based on their weight or their drug abuse history. If people with a universal belief tend to support price discrimination in general, then they should support the price discrimination policy irrespective of whether it is based on weight or drug abuse. However, if people with a more universal belief support price discrimination policies more because they attribute the price increase to the added cost borne by the company due to customers' weight, then they should support price discrimination only when the discrimination is based on a relevant variable (e.g., body weight), not when the discrimination is based on an irrelevant variable (e.g., drug abuse).

##### 9.1. Method

We posted a survey seeking 400 US residents on Amazon Mechanical Turk. In response, 448 participants (60.6% women, average age = 37.34 years) completed the study. Participants were randomly assigned to one of two conditions: discrimination based on body weight vs. discrimination based on drug abuse. In both conditions, they read a text about the policy of a health insurance company. In the weight condition, the policy stated that, "If the client's BMI falls out of the range of a healthy BMI (as defined by the World Health Organization), the health insurance company will charge the client an additional 30% insurance premium." In the drug condition, the policy stated that, "If the client has a history of drug abuse, the health insurance company will charge the client an additional 30% insurance premium."

After they read the company's policy, participants were asked to indicate their fairness perception of the pricing policy (fair, reasonable, acceptable;  $\alpha = 0.98$ ), their overall attitude and their purchase intention, using the same items as in Study 2. Additionally, we measured the believability of the two scenarios by asking participants (1) "How much do you believe that a company would have such a policy?" (1 = *extremely unbelievable*; 7 = *extremely believable*), (2) "How absurd does this policy seem to you?" (1 = *extremely absurd*; 7 = *extremely unabsurd*). Finally, we measured participants' universal-nonuniversal beliefs about body weight by using the same 8-item scale (6-point scale ranging from *strongly disagree* to *strongly agree*) as in the pilot study ( $\alpha = 0.91$ ).

##### 9.2. Results

We first tested whether the believability of the policy differed across conditions. A *t*-test showed that discrimination based on body weight ( $M = 3.83$ ,  $SD = 1.63$ , 95% CI [3.62, 4.05]) was less believable than discrimination based on drug abuse ( $M = 4.21$ ,  $SD = 1.51$ , 95% CI [4.01, 4.41]),  $t(445) = 2.53$ ,  $p = 0.012$ ,  $d = 0.24$ , 95% CI [0.08, 0.67]. Therefore, we controlled for the believability rating in the subsequent analyses.

Next, we conducted a regression analysis with participants' average fairness perception rating as the dependent variable, and their universal

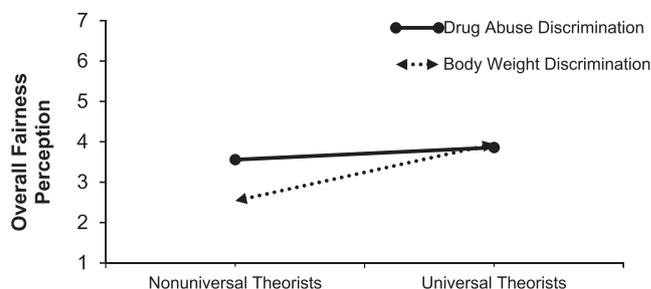


Fig. 2. Relationship between universal-nonuniversal beliefs and overall fairness perceptions of price discrimination policy across conditions in Study 4.

belief (mean centered), experimental condition (drug abuse = 0, weight = 1), their interaction, and perceived believability (mean centered) as predictors. The main effect of perceived believability was significant ( $B = 0.64$ , 95% CI [0.56, 0.73],  $SE = 0.04$ ,  $t(439) = 15.18$ ,  $p < 0.001$ ), indicating that higher believability is associated with higher fairness perception. The main effect of the discrimination condition was significant ( $B = -2.53$ , 95% CI [-3.47, -1.60],  $SE = 0.48$ ,  $t(439) = -5.32$ ,  $p < 0.001$ ), indicating that participants viewed price discrimination based on drug abuse as more fair than that based on weight. The main effect of the universal belief was not significant ( $B = 0.17$ , 95% CI [-0.03, 0.37],  $SE = 0.10$ ,  $t(439) = 1.67$ ,  $p = 0.10$ ). More importantly, we found a significant interaction ( $B = 0.64$ , 95% CI [0.37, 0.90],  $SE = 0.14$ ,  $t(439) = 4.64$ ,  $p < 0.001$ ; see Fig. 2).

To investigate the interaction, we analyzed the data separately by condition. In the body weight-based discrimination condition, the more people held a universal belief, the more they viewed the price discrimination policy as fair ( $B = 0.81$ , 95% CI [0.63, 0.99],  $SE = 0.09$ ,  $t(439) = 8.78$ ,  $p < 0.001$ ). In the drug-based discrimination condition, participants' universal-nonuniversal beliefs were not related to their fairness perceptions of the policy ( $B = 0.17$ , 95% CI [-0.03, 0.37],  $SE = 0.10$ ,  $t(439) = 1.67$ ,  $p = 0.10$ ). The effect for overall attitude and purchase intention resembled the pattern for fairness perception (see Appendix F).

##### 9.3. Discussion

Study 4 ruled out an alternative explanation for why participants' universal-nonuniversal beliefs about ideal body weight influence their fairness perceptions of price discrimination policies: namely, that people with a more universal belief might be more likely to support discrimination of all types. We found that people with a universal belief support price discrimination only when the discrimination is based on a variable related to the belief (e.g., body weight) and not when the discrimination is based on a variable that is unrelated to the belief (e.g., drug abuse).

#### 10. Study 5: The moderating role of the cost incurred by the company

Although Study 4 ruled out a general preference for discrimination as an alternative explanation for why people with a universal belief are more likely to support price discrimination policies, another alternative explanation is possible: individuals with a universal belief are more prejudiced toward overweight people and thus support policies that would charge overweight people more. In contrast, our theorizing predicts that people with a more universal belief perceive price discrimination policies as more fair because they realize that the company incurs more costs for customers with non-ideal body weights. To test these competing arguments, we manipulated whether the company incurred different costs based on customers' weight. In particular, companies discriminate customers based on body weight not only in the

airline and insurance domains, where customers' body weight influences their operation costs, but also in other domains where customers' body weight does not necessarily influence their operation costs. For instance, a hotel in Germany charges guests by weight based on the motto "weigh more, pay more" ("Hotel owner weighs in on obesity issue", 2006), and a restaurant in Japan discourages overweight consumers to reserve a table (Koman, 2016). By manipulating whether the company incurred different costs based on customers' weight, we can also shed more light on the underlying mechanism examined in Study 3—whether people attribute the additional costs incurred to customers or the company.

### 10.1. Method

We posted a survey seeking 400 US residents on Amazon Mechanical Turk. In response, 401 participants (59.6% women, average age = 35.88 years) completed the study. Participants in both conditions were asked to imagine that they were enrolled in a car insurance: "Like other car insurance companies in the US, car insurance X charges clients insurance premiums based on their demographics (e.g., age, gender), driving history, etc. Uniquely, Car insurance X is considering charging clients based on their BMI."

In the *discrimination due to variation in cost* condition, the article stated, "A recent study found that people with higher BMI are more likely to have car accidents, receive speeding tickets, etc., than people with lower BMI. Therefore, Car Insurance X decided to increase the premium of overweight customers by 30% and offer 30% discount to underweight customers accordingly." In contrast, in the *discrimination without variation in cost* condition, the article stated, "A recent study found people with higher BMI are no more likely to have car accidents, receive speeding tickets, etc., than people with lower BMI. Nevertheless, Car Insurance X decided to increase the premium of overweight customers by 30% and offer 30% discount to underweight customers accordingly."

Thereafter, participants in both conditions were asked the same questions about their fairness perception of the pricing policy (fair, reasonable, acceptable;  $\alpha = 0.97$ ), overall attitude and purchase intention using the same items as in Study 2. Additionally, we measured the believability of the findings presented in the two scenarios by asking participants (1) "How believable do you think this finding is?" (1 = *extremely unbelievable*; 7 = *extremely believable*), (2) "How credible do you think this finding is?" (1 = *extremely uncredible*; 7 = *extremely credible*), and (3) "How trustworthy do you think this finding is?" (1 = *extremely untrustworthy*; 7 = *extremely trustworthy*) ( $\alpha = 0.98$ ). Finally, we measured participants' universal-nonuniversal beliefs about body weight by using the same 8-item scale (6-point scale ranging from *strongly disagree* to *strongly agree*) as in the pilot study ( $\alpha = 0.89$ ).

### 10.2. Results

We first tested whether the believability of the findings differed across conditions. A *t*-test found that discrimination due to variation in cost (people with higher BMI are more likely to have car accidents) ( $M = 2.52$ ,  $SD = 1.54$ , 95% CI [2.30, 2.73]) is less believable than discrimination without variation in cost (people with higher BMI are no more likely to have car accidents) ( $M = 4.80$ ,  $SD = 2.07$ , 95% CI [4.51, 5.08]),  $t(397) = 12.47$ ,  $p < 0.001$ ,  $d = 1.25$ , 95% CI [1.92, 2.64]. Therefore, we controlled for the believability rating in the subsequent analyses.

We conducted a regression with participants' average fairness perception rating as the dependent variable, and their universal belief (mean-centered), experimental condition (discrimination without variation in cost = 0, discrimination due to variation in cost = 1), their interaction, and perceived believability (mean-centered) as predictors.

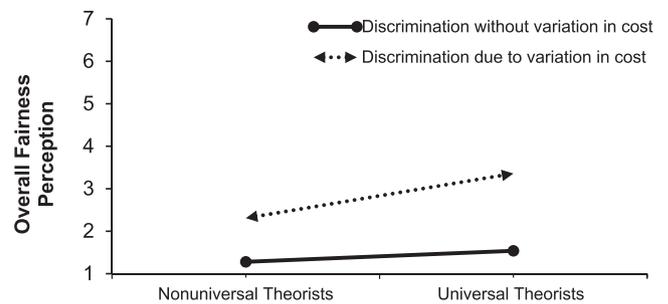


Fig. 3. Relationship between universal-nonuniversal beliefs and overall fairness perceptions of price discrimination policy across conditions in Study 5.

The main effect of perceived believability was significant ( $B = 0.20$ , 95% CI [0.13, 0.28],  $SE = 0.04$ ,  $t(381) = 5.14$ ,  $p < 0.001$ ), indicating that higher believability was associated with a higher fairness perception. The main effect of the discrimination conditions was non-significant ( $B = -0.25$ , 95% CI [-1.42, 0.91],  $SE = 0.59$ ,  $t(381) = -0.42$ ,  $p = 0.67$ ). The main effect of universal beliefs was also non-significant ( $B = 0.16$ , 95% CI [-0.05, 0.38],  $SE = 0.11$ ,  $t(381) = 1.49$ ,  $p = 0.14$ ). More importantly, we found a significant interaction effect between universal beliefs and the discrimination condition ( $B = 0.49$ , 95% CI [0.17, 0.81],  $SE = 0.16$ ,  $t(381) = 3.00$ ,  $p = 0.003$ ) (Fig. 3).

To investigate the interaction, we analyzed the data separately within each condition. Specifically, in the discrimination due to variation in cost condition, the more people held a universal belief, the more fair they perceived the price discrimination policy ( $B = 0.65$ , 95% CI [0.41, 0.89],  $SE = 0.12$ ,  $t(381) = 5.38$ ,  $p < 0.001$ ). In the discrimination without variation in cost condition, universal-nonuniversal beliefs did not predict participants' fairness perceptions ( $B = 0.16$ , 95% CI [-0.05, 0.37],  $SE = 0.11$ ,  $t(381) = 1.49$ ,  $p = 0.138$ ). A similar pattern of results was also found for overall attitude and purchase intention (see Appendix G).

## 11. Discussion

Study 5 ruled out another alternative explanation for the effect of universal-nonuniversal beliefs about ideal body weight on perceptions of price discrimination policies: People with a universal belief might be in general more prejudiced toward overweight people and thus support policies that would charge overweight people more. Specifically, we found that people with a more universal belief perceived price discrimination policies as more fair only when a company discriminates due to incurred costs and not when no costs are incurred. In other words, this result indicated that the reason why people with a universal belief support price discrimination was not because they were more prejudiced toward overweight individuals, but because consumers' weight influences the company's operation costs.

In addition, by varying whether or not the company incurred additional costs for customers who were charged higher prices, Study 5 sheds more light on the underlying mechanism revealed in Study 3. Specifically, Study 3 found that one reason why people with a more universal theory find price discrimination more fair is because they attribute the extra charges more to customers and less to the company (mediator 2). Study 5 experimentally manipulated this mediator to provide additional evidence in support of the hypothesized mechanism through moderation.

## 12. General discussion

The present research introduced a recently conceptualized dimension of lay theories to the organizational sciences (the universal-

nonuniversal dimension), and examined its implications for customers and organizations. We established the independence of universal-nonuniversal beliefs about ideal body weight from related constructs (i.e., fixed-growth beliefs about body weight), and found that these are correlated but distinct constructs (pilot study). Across various domains of weight-based discrimination (e.g., airline fares, health insurance), we consistently found that the more people endorsed the universal lay theory about ideal body weight, the more they viewed price discrimination policies toward overweight customers as fair (Studies 1–2). Importantly, this effect held even after controlling for other psychological constructs that typically influence people's attitudes on issues related to body weight (Study 1). The underlying mechanism was that people with a more nonuniversal belief perceive people as more in control of their bodies, and therefore, are more willing to hold customers rather than firms personally accountable for any additional costs incurred (Study 3).

Moreover, we identified two factors moderating this effect, the source of discrimination and the incurred costs, as the basis of discrimination. Specifically, we found that the proposed effect held only when price discrimination was based on body weight, not on other risk factors (e.g., drug usage; Study 4), and only when consumers' weight would influence the company's incurred costs (Study 5). In other words, people with a universal belief supported price discrimination neither because they supported all types of price discrimination in general nor because they were more prejudiced toward overweight individuals.

### 12.1. Theoretical contributions and managerial implications

The present research makes a number of contributions both to theory and practice. First, whereas extensive research spanning decades has examined people's fixed-growth lay theories in diverse domains (Burnette et al., 2013), limited research has examined universal-nonuniversal lay theories, and that, too, exclusively in the domain of intelligence (e.g., Rattan et al., 2012; Rattan et al., 2018; Savani et al., 2017). The present work is the first to expand previous work on universal-nonuniversal beliefs beyond the domain of intelligence, and showed that this dimension plays an important role in people's attitudes and decisions beyond the educational sphere.

Second, the current investigation extended the literature on lay theories about individual's bodies, which has primarily focused on people's beliefs about whether body weight is fixed or can change (Burnette, 2010), whether individuals' bodies are fixed or can change (Lyons et al., 2015), and whether obesity is primarily caused by overeating or lack of exercise (McFerran & Mukhopadhyay, 2013). We add to this body of research by identifying a novel lay theory about body weight—whether people believe that only some individuals or nearly everyone has the potential to achieve their ideal body weight.

Third, the present research contributes to the literature of discriminatory pricing, which has primarily focused on firms' or policies' characteristics, and contextual factors, that influence how people perceive discriminatory pricing policies (e.g., Bolton et al., 2003; Haws & Bearden, 2006; Mazumdar et al., 2005). We show that individuals' own beliefs and lay theories also influence their support for price discrimination policies while holding everything else constant. In this respect, our research suggests that the subjective realities in which individuals navigate can have a profound impact on their fairness perception of companies' policies. Accordingly, our work answered the call for more research on how people's psychological states influence their price fairness judgements (Jin et al., 2013; Xia et al., 2004). People's universal-nonuniversal beliefs about ideal body weight is a novel factor that has a strong impact on the perceived fairness of weight-based price discrimination.

Moreover, the current study showed that lay theories may influence people's attribution of responsibility when it comes to additional costs.

In line with literature suggesting that people consider price discrimination as fair if it stems from additional costs incurred by the company but not when it stems from the company's desire to exploit the situation to increase profit (e.g., Bolton et al., 2003; Tversky & Kahneman, 1991; Vaidyanathan & Aggarwal, 2003), we showed that these considerations played an important role in the proposed effect. Specifically, nonuniversal theorists were more likely to believe that individuals have limited control over their body weight, and thus were more likely to attribute the responsibility for additional cost less to the customers and more to the organization. Consequently, they were less willing to accept price discrimination based on body weight as fair.

Fourth, our research has implications for research on discriminatory behavior more broadly. Our findings suggested that perceivers' own beliefs influence their sense of fairness and discrimination. This is in line with recent empirical efforts suggesting that people are more likely to discriminate against others when they construe certain behaviors as a matter of individual choice (Kricheli-Katz, 2013). Probably, with increasing awareness of the negative outcomes of discrimination, individuals may suppress their own expression of prejudice toward unchangeable group characteristics (e.g., gender, race), but might be less likely to curb their prejudice against characteristics that they believe are under the individual's control. People typically think of body weight, the topic of our research, as a matter of individual self-control and choice, and underestimate the influence of congenital or sociocultural factors (Brownell et al., 2010; Kim & Anne-Willis, 2007). Our research showed that a stronger endorsement of universal beliefs, which is more associated with choice, effort, and individual agency, and less with uncontrollable factors, led people to perceive weight-based discrimination as more fair. The current findings, thus, highlight a negative effect of the universal belief in the domain of discrimination, in contrast to positive effects in the educational domain found in past research (e.g., Rattan et al., 2012; Rattan et al., 2018; Savani et al., 2017).

Managerially, our research provides companies and policy makers with various helpful insights and actionable recommendations. Our research showed that body-weight price discrimination was better received by customer segments scoring high on the universal belief about ideal body weight. However, this does not mean that a segmentation strategy (i.e., reaching out segments that are a priori high on universal beliefs) is the only suitable way to increase the acceptance of these policies. Instead, our findings support the plasticity of universal-nonuniversal beliefs, implying that both lay theories coexist within customers' minds, and situational activation of either belief can temporarily influence people's subsequent fairness perception. Against this backdrop, firms planning to implement price discrimination could benefit from coupling their policies with interventions (e.g., advertising campaigns) that aim to foster universal beliefs, thereby preempting people's concerns about whether achieving an ideal body is feasible for everyone. For example, messages such as "Now everyone can fly for less money if they want to" in the case of "pay-per-weight" airlines could help communicate that such a pricing policy is fair in that it is up to people themselves to achieve ideal body weight and subsequently pay reduced fares.

### 12.2. Limitations and future directions

The current set of studies offers a robust support for our hypothesized relationships. Although we only examined effects of perceivers' own lay theories on their perceptions of discriminatory pricing, a question that remains is whether these beliefs also influence people's own eating habits and behaviors. For example, would people with nonuniversal beliefs have a more fatalistic approach to body weight (e.g., "Even if I can change my body weight, I can never achieve a perfect body"), and thus be less likely to invest in healthy eating and exercise? Based on the current findings, we predict that universal-

nonuniversal beliefs are likely to have a profound impact on people’s own eating behavior. Future research needs to examine whether non-universal beliefs can have negative effects on people’s eating behaviors. If so, follow-up studies could build interventions aimed at inducing universal mindsets about ideal body weight, particularly in places where people are choosing among healthy vs. unhealthy options, such as in cafeterias, food courts, and supermarkets.

Whereas the present research identified a consequence of universal-nonuniversal lay theories about ideal body weight, future research can examine some of the antecedents of these lay theories. For instance, are these lay theories based on people’s individual experiences, psychographic, or sociocultural factors, such as their own body weight, weight gain/loss history, attitudes prevalent in their social network, social class, gender, age, or culture? By exploring the nomological network of these beliefs and their psychographic or sociocultural correlates, scholars can assist companies in their implementation of such pricing policies through augmented cognizance of relevant threats and opportunities (e.g., what kind of messages to address each target group). By unveiling factors that underlie this important belief, future research can provide further insights into how these beliefs could be affected.

12.3. Conclusion

People’s body weight has immense consequences for their health, well-being, and longevity, as well as for the policies of firms and governments. The present research shows that people’s beliefs about ideal

Appendix A

Universal-nonuniversal belief scale and fixed-growth belief scale used in the Pilot Study:

Universal belief	Nonuniversal belief
<ol style="list-style-type: none"> <li>Given a balanced diet and proper exercise, nearly everyone can achieve their ideal body weight.</li> <li>Most people have the potential to achieve their ideal body weight if they want to.</li> <li>Most people have the inborn potential to achieve their ideal body weight, but not all end up realizing their potential.</li> <li>Provided they have access to balanced diet and proper exercise, most people have the capacity to achieve their ideal body weight.</li> </ol> <p><b>Growth belief</b></p> <ol style="list-style-type: none"> <li>No matter who it is, people can always significantly change their body weight.</li> <li>People can always substantially change their body weight.</li> <li>No matter what someone’s body weight is, they can always change it.</li> <li>People can always change their body weight.</li> </ol>	<ol style="list-style-type: none"> <li>There are biological limits to whether some people can achieve their ideal body weight, despite the opportunities, support, and endurance they have.</li> <li>There are people who just can’t achieve their ideal body weight even if they try to.</li> <li>To be honest, there is a biological limit to whether some people can achieve their ideal body weight.</li> <li>All people cannot achieve their ideal body weight; there will always be individuals who just fail.</li> </ol> <p><b>Fixed belief</b></p> <ol style="list-style-type: none"> <li>People can’t really do much to change their body weight.</li> <li>People’s body weight is something about them that they can’t change very much.</li> <li>To be honest, people can’t really change their body weight very much.</li> <li>As much as I hate to admit it, people can’t really change their body weight to a significant degree.</li> </ol>

Appendix B

Scenario used in Study 1:

**Health Insurance X’s “Charging Customers Based on Their BMI” Pricing System** You are enrolled in Health Insurance X through your employer. This is the only health insurance offered by your employer. Like other health insurance companies in the US, Health Insurance X charges individual employees based on their demographics (e.g., BMI, age, gender, health history).

Further, if an employee faces a high health risk, Health Insurance X would charge the employee an additional premium if the employee does not take action to improve their health. This is because insurance companies incur significantly higher medical costs for people who are at high risk for chronic diseases.

Specifically, Health Insurance X’s policy is the following:

Health Insurance X requires all employees to visit a doctor, who will screen them for health risks (such as high blood pressure, obesity, malnutrition, asthma, etc.). If the employee has high health risk, the doctor would suggest steps they should take to lower their risks.

For example, if an employee is overweight or underweight, they would be recommended exercise and diet plan to change their body weight to a healthy level within a given period.

If the employee fails to achieve their health goal (for example, an overweight employee fails to reduce the weight to a healthy level, or an underweight employee fails to increase the weight to a healthy level), the insurance company will increase the employee’s insurance premium by 30%.

body weight play a significant role in shaping their fairness perception of firms’ pricing policies that charge different consumers different prices based on their body weight. Such efforts might be efficient at the societal level in that they provide consumers with financial incentives for engaging in healthy behaviors. The findings open a new avenue for research in social sciences on how people’s lay theories can be harnessed in the service of the common good.

CRedit authorship contribution statement

**Shaobo (Kevin) Li:** Conceptualization, Methodology, Investigation, Project administration, Data curation, Formal analysis, Validation, Writing - original draft. **Michail D. Kokkoris:** Conceptualization, Methodology, Writing - review & editing. **Krishna Savani:** Conceptualization, Methodology, Writing - review & editing, Funding acquisition, Resources, Supervision.

Acknowledgement

This research was supported by a Nanyang Assistant Professorship grant awarded by Nanyang Technological University to Krishna Savani, a research grant awarded by Natural Science Foundation of Guangdong Province, China to Shaobo Li, and a WU Visiting Fellow grant awarded by WU Vienna University of Economics and Business to Michail D. Kokkoris. We thank Dayana Bulchand, Ee Hwee Lau, Yue Liu, Lishi Tan, and Zhiqian Zhang for invaluable research assistance.

## Appendix C

Article used in the experimental manipulations of Studies 2 and 3:

Universal belief condition	Nonuniversal belief condition
<p>New Research Confirms: EVERYONE Can Achieve Their Ideal Body Weights by Tina Anderson   5 March 2016–11:47 a.m.</p> <p>Nowadays, many people want to have an ideal body weight. Although most people can change their body weight a little bit, many people seem like they cannot achieve and maintain their ideal body weight. I am sure we have all wondered - do only some people have the ability to achieve and maintain an ideal body weight, whereas others do not?</p> <p>Now, science has given us an answer. New research confirms that not only can everyone change their body weight a little bit, but everyone has the potential to achieve and maintain an ideal body weight.</p> <p>We know that by lifting weights, everyone can build stronger muscles. Even someone who can't lift 10 lb when they start exercising can get strong enough and lift 100 lb after working out a long time. Similarly, everyone can achieve their ideal body weight by altering their behavior. There is a scientific basis for this claim.</p> <p>Dr. Melissa Ryan, a famous scientist at the National Institutes of Health, said, "The key to achieving an ideal body is exercise and diet. By doing enough exercise, the right type of exercise, and eating the right type of food, everyone can achieve their ideal body weight - they can lose fat, gain weight, or get a toned body - whatever they want. Everyone can achieve their ideal body weight if they do the right thing."</p> <p>Recent research has confirmed Dr. Melissa Ryan's hypothesis. For instance, researchers at the National Institutes of Health conducted a study with 7,537 adults who were unhappy with their current body weight, that is, they were either overweight or underweight. Based on each person's characteristics, such as their age, gender, height, body type, etc., the researchers calculated their ideal body weight. To help them achieve their ideal body weight, the researchers ensured that all participants received a healthy balanced diet and regular exercise for six months. After six months, they found that 93% of the participants were within 5 lb of their ideal body weight, which was decided at the beginning of the study.</p> <p>The researchers then tracked participants over the next 5 years. Among participants who kept up their healthy eating habits and exercised regularly, a whopping 88% were still within 5 lb of their ideal body weight even five years later.</p> <p>Dr. Ryans, added, "Reviewing decades of work, I was shocked to realize how conclusive the science is. I really thought that it was not possible for everyone to achieve and maintain an ideal body weight, but I was wrong. The science at this point cannot be refuted - we have to accept the conclusion that not only can people gain or lose a little bit of weight, but everyone has the potential to achieve and maintain an ideal body weight."</p>	<p>New Research Confirms: ONLY SOME People Can Achieve Their Ideal Body Weights by Tina Anderson   5 March 2016–11:47 a.m.</p> <p>Nowadays, many people want to have an ideal body weight. Although most people can change their body weight a little bit, many people seem like they cannot achieve and maintain their ideal body weight. I am sure we have all wondered - do only some people have the ability to achieve and maintain an ideal body weight, whereas others do not?</p> <p>Now, science has given us an answer. New research confirms that even though everyone can change their body weight a little bit, only some people have the potential to achieve and maintain an ideal body weight.</p> <p>We know that by lifting weights, people can gain some muscles. But someone who can't lift 10 lb when they start exercising most probably cannot lift 100 lb even after working out a long time. Similarly, not everyone can achieve their ideal body weight by altering their behavior. There is a scientific basis for this claim.</p> <p>Dr. Melissa Ryan, a famous scientist at the National Institutes of Health, said, "The key to achieving an ideal body is exercise and diet. By doing enough exercise, the right type of exercise, and eating the right type of food, some people can achieve their ideal body weight - they can lose fat, gain weight, or get a toned body - whatever they want. But other people simply cannot achieve their ideal body weight no matter what they do."</p> <p>Recent research has confirmed Dr. Melissa Ryan's hypothesis. For instance, researchers at the National Institutes of Health conducted a study with 7,537 adults who were unhappy with their current body weight, that is, they were either overweight or underweight. Based on each person's characteristics, such as their age, gender, height, body type, etc., the researchers calculated their ideal body weight. To help them achieve their ideal body weight, the researchers ensured that all participants received a healthy balanced diet and regular exercise for six months. After six months, they found only 43% of the participants were within 5 lb of their ideal body weight, which was decided at the beginning of the study.</p> <p>The researchers then tracked participants over the next 5 years. Among participants who kept up their healthy eating habits and exercised regularly, only 18% were still within 5 lb of their ideal body weight even five years later.</p> <p>Dr. Ryans, added, "Reviewing decades of work, I was shocked to realize how conclusive the science is. I really thought it was possible for everyone to achieve and maintain an ideal body weight, but I was wrong. The science at this point cannot be refuted - we have to accept the conclusion that although people can gain or lose a little bit of weight, only some people have the potential to achieve and maintain an ideal body weight."</p>

## Appendix D

External manipulation check for the experimental manipulation used in Studies 2 and 3:

In an external manipulation check, we randomly assigned 398 participants recruited from Amazon Mechanical Turk to read either the universal or nonuniversal article. After participants read the article, we asked participants: (1) "Think about body weight. Do you believe that almost all people have the potential to achieve ideal body weights, or that only some people have the potential to achieve their ideal body weight?" (1 = *almost all people can achieve ideal body weights*; 20 = *only some people have the potential to achieve ideal body weights*) and (2) "In general, how much do you think people can change their body weight? Do you believe that people can change their body weight over time, or that people cannot change their body weight over time?" (1 = *body weight cannot be changed much over time*; 20 = *body weight can be changed over time*). Six participants who did not finish the survey were excluded from the analyses. As expected, participants in the universal condition were more likely to agree with the universal belief ( $M = 12.46$ , 95% CI [-5.96, -3.58],  $SD = 6.07$ ) than those in the nonuniversal condition ( $M = 7.69$ , 95% CI [-5.96, -3.58],  $SD = 5.92$ ),  $t(390) = -7.87$ ,  $p < 0.001$ ,  $d = 0.80$ . However, participants in the universal condition ( $M = 18.02$ ,  $SD = 3.02$ ) and nonuniversal condition ( $M = 17.58$ ,  $SD = 2.59$ ) did not significantly differ in their fixed-growth belief,  $t(390) = -1.52$ ,  $p = 0.130$ ,  $d = 0.15$ . This result indicates that the manipulation successfully influenced the targeted universal-nonuniversal belief but not the nontargeted fixed-growth belief.

In an additional post-test study, we posted a survey seeking 80 US residents on Amazon Mechanical Turk and 82 participants (43.9% women, average age = 35.48 years) completed the survey. Participants were randomly presented with either the universal or nonuniversal article mentioned above. After they read the article, participants were asked: (1) "How believable do you think this finding is?" (1 = *extremely unbelievable*; 7 = *extremely believable*), (2) "How credible do you think this finding is?" (1 = *extremely uncredible*; 7 = *extremely credible*), and (3) "How trustworthy do you think this finding is?" (1 = *extremely untrustworthy*; 7 = *extremely trustworthy*). We averaged these three items into an overall believability index ( $\alpha = 0.97$ ). We found no significant difference in the believability of the finding described in the universal condition ( $M = 4.15$ ,  $SD = 1.72$ , 95% CI = [3.60, 4.70]) and the nonuniversal condition ( $M = 4.48$ ,  $SD = 1.99$ , 95% CI [3.86, 5.11]),  $t(80) = -0.81$ ,  $p = 0.419$ ,  $d = 0.18$ , 95% CI [-1.15, 0.49]).

## Appendix E

Scenario used in Studies 3 and 4:

### Samoa Air's "Pay-by-Weight" Pricing System

Samoa Air recently became the world's first airline to institute a "pay-by-weight" system, which charges customers by body weight plus luggage. The fare is calculated by multiplying a base fare (depending on the route flown) by the total weight of the passenger plus their luggage. For example, for exactly the same flight a passenger weighing 80 kg and carrying 20 kg of luggage would pay \$132, whereas another passenger weighing 60 kg and traveling without luggage would pay \$79.20.

The idea is based on the fact that the heavier a passenger, the more fuel it takes to transport them. High fuel costs are a key factor keeping profit margins slim in the airline industry, and this is a way to recoup some of that cost.

Samoa Air Chief Executive Chris Langton said that "planes are run by weight and not by seat," explaining, "The plane can only carry a certain amount of weight and that weight needs to be paid." He believes other airlines should adopt the policy.

According to the airline, the new approach is not just the fairest way to charge travelers, but also addresses the obesity crisis, which is acute in Samoa's Pacific region. As the airline's website proclaims "with Samoa Air, you are the master of how much (or little!) your air ticket will cost".

Here is an excerpt from the airline's website:

Welcome to the fairest system for payment of carriage of anything by air. The world is now aware that charging by weight is the fairest way of paying for carriage. Whether its people, baggage, freight or anything which we might want to take or consign by air.

No more excess fees are charged and no more discrimination, because as we know: A kilo is a kilo is a kilo!

The Sky's the Limit!

## Appendix F

Analyses performed on additional measures included in Study 4.

**Overall Attitude.** The main effect of the perceived believability was significant ( $B = 0.55$ , 95% CI [0.46, 0.64],  $t(439) = 12.66$ ,  $p < 0.001$ ), indicating that higher believability is associated with more positive attitude. The main effect of the discrimination condition was significant ( $B = -2.76$ , 95% CI [-3.72, -1.80],  $t(439) = -5.65$ ,  $p < 0.001$ ), showing that participants have more positive attitude towards a company discriminating based on drug abuse compared to a company discriminating based on weight. Moreover, the main effect of the universal belief is not significant ( $B = 0.08$ , 95% CI [-0.13, 0.28],  $t(439) = 0.75$ ,  $p = 0.455$ ). More importantly, we found a significant interaction effect between universal beliefs and the discrimination condition ( $B = 0.75$ , CI [0.48, 1.03],  $t(439) = 5.36$ ,  $p < 0.001$ ). We conducted simple slopes analyses within each condition. Specifically, in the body weight discrimination condition, universal theorists indicated significantly more positive attitude compared to nonuniversal theorists ( $B = 0.84$ , 95% CI [0.65, 1.02],  $SE = 0.09$ ,  $t(439) = 8.46$ ,  $p < 0.001$ ). In the drug discrimination condition, there was no significant difference in overall attitude between nonuniversal theorists and universal theorists ( $B = 0.08$ , CI [-0.13, 0.28],  $SE = 0.10$ ,  $t(439) = 0.75$ ,  $p = 0.455$ ).

**Purchase Intention.** The main effect of the perceived believability was significant ( $B = 0.53$ , 95% CI [0.44, 0.62],  $t(438) = 11.09$ ,  $p < 0.001$ ), indicating that higher believability is associated with higher purchase intention. The main effect of the discrimination condition was significant ( $B = -2.82$ , 95% CI [-3.88, -1.76],  $t(438) = -5.23$ ,  $p < 0.001$ ), showing that participants have higher purchase intention towards a company discriminating based on drug abuse compared to a company discriminating based on weight. Moreover, the main effect of the universal belief is not significant ( $B = 0.19$ , 95% CI [-0.04, 0.41],  $t(438) = 1.60$ ,  $p = 0.11$ ). More importantly, we found a significant interaction effect between universal beliefs and the discrimination condition ( $B = 0.69$ , CI [0.39, 1.00],  $t(438) = 4.45$ ,  $p < 0.001$ ). We conducted simple slopes analyses within each condition. Specifically, in the body weight discrimination condition, universal theorists indicated significantly higher purchase intention compared to nonuniversal theorists ( $B = 0.88$ , 95% CI [0.67, 1.08],  $SE = 0.10$ ,  $t(438) = 8.46$ ,  $p < 0.001$ ). In the drug discrimination condition, there was no significant difference in purchase intention between nonuniversal theorists and universal theorists ( $B = 0.19$ , CI [-0.04, 0.41],  $SE = 0.12$ ,  $t(438) = 1.60$ ,  $p = 0.112$ ).

## Appendix G

Analyses performed on additional measures included in Study 5

**Overall Attitude.** The main effect of the perceived believability was significant ( $B = 0.21$ , 95% CI [0.13, 0.29],  $t(384) = 4.92$ ,  $p < 0.001$ ), indicating that higher believability is associated with more positive attitude. The main effect of the discrimination conditions was nonsignificant ( $B = 0.02$ , 95% CI [-1.23, 1.28],  $SE = 0.64$ ,  $t(384) = 0.04$ ,  $p = 0.97$ ). The main effect of universal beliefs was nonsignificant ( $B = 0.12$ , 95% CI [-0.11, 0.35],  $SE = 0.12$ ,  $t(384) = 1.03$ ,  $p = 0.31$ ). More importantly, we found a significant interaction effect between universal beliefs and the discrimination condition ( $B = 0.36$ , 95% CI [0.02, 0.71],  $t(384) = 2.07$ ,  $p = 0.04$ ). We conducted simple slopes analyses within each condition. Specifically, in the discrimination due to variation in cost condition, universal theorists indicated more positive attitude towards the discriminating policy compared to nonuniversal theorists ( $B = 0.48$ , 95% CI [0.23, 0.74],  $SE = 0.13$ ,  $t(384) = 3.71$ ,  $p < 0.001$ ). In the discrimination without variation in cost condition, there was no significant difference between nonuniversal theorists and universal theorists on overall attitude towards the policy ( $B = 0.12$ , 95% CI [-0.11, 0.35],  $SE = 0.12$ ,  $t(384) = 1.03$ ,  $p = 0.305$ ).

**Purchase Intention.** The main effect of the perceived believability was significant ( $B = 0.18$ , 95% CI [0.10, 0.27],  $t(384) = 4.05$ ,  $p < 0.001$ ), indicating that higher believability is associated with higher purchase intention. The main effect of the discrimination conditions was nonsignificant ( $B = -0.33$ , 95% CI [-1.67, 1.00],  $SE = 0.68$ ,  $t(384) = -0.49$ ,  $p = 0.62$ ). The main effect of universal beliefs was nonsignificant ( $B = 0.18$ , 95% CI [-0.07, 0.42],  $SE = 0.12$ ,  $t(384) = 1.42$ ,  $p = 0.16$ ). More importantly, the interaction effect between universal beliefs and the discrimination condition was significant ( $B = 0.47$ , 95% CI [0.10, 0.84],  $SE = 0.19$ ,  $t(384) = 2.53$ ,  $p = 0.01$ ). We conducted simple slopes analyses within each condition. Specifically, in the discrimination due to variation in cost condition, universal theorists indicated higher purchase intention compared to nonuniversal theorists ( $B = 0.65$ , 95% CI [0.38, 0.92],  $SE = 0.14$ ,  $t(384) = 4.69$ ,  $p < 0.001$ ). In the discrimination without variation in cost condition, there was no significant difference between nonuniversal theorists and universal theorists on purchase intention ( $B = 0.18$ , 95% CI [-0.07, 0.42],  $SE = 0.12$ ,  $t(384) = 1.42$ ,  $p = 0.155$ ).

## Appendix H. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.obhdp.2020.01.012>.

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