Revista de Administração Contemporânea
Journal of Contemporary Administration

ASSOCIAÇÃO NACIONAL DE PÓS-GRADUAÇÃO E PESQUISA EM ADMINISTRAÇÃO

e-ISSN: 1982-7849

Theoretical-empirical Article

(Non)Monetary Behaviors: How Morality and Status Shape Consumers' Perceptions about Sustainable Actions

Comportamentos (Não)Monetários: Como Moralidade e Status Formam as Percepções sobre Ações Sustentáveis

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ABSTRACT

Objective: in response to the growing importance of environmental issues, more and more consumers are adopting a sustainable lifestyle. Therefore, it is important to understand the judgments and perceptions consumers form about the different possibilities of being sustainable. This study aims to investigate how consumers' inferences about (non)monetary sustainable actions impact the judgments about the contribution of this action and about the actor responsible for the sustainable action. **Theoretical framework:** based on the costly signaling theory, this research investigates how consumers form judgments about (non)monetary sustainable actions. **Method:** Study 1 was a single factor (sustainable action: non-monetary vs. monetary) between-subjects design. Study 2 employed a 2 (sustainable action: non-monetary vs. monetary) by 2 (cost intensity: high vs. low costs) between-subjects design. In both studies, participants completed scales that measured the perceived environmental contribution of the action, the moral elevation of the actor performing the sustainable action, morality, and socioeconomic status. **Results:** consumers form more positive perceptions about non-monetary (vs. monetary) sustainable actions, making more positive inferences about environmental contribution and moral elevation. There is also evidence that morality shapes this effect. Given the actor's self-investment imputed in a non-monetary action, these individuals are perceived as signaling more morality than those buying a sustainable product. **Conclusions:** although past research shows that buying a green product signals status, this study shows that it is not enough to trigger more positive inferences about the actor (moral elevation — admiration) and about the contribution of the action to the environment.

Keywords: costly signaling; morality; (non)monetary sustainable actions; environmental contribution; moral elevation.

RESUMO

Objetivo: em resposta à crescente importância de questões ambientais, mais e mais consumidores têm adotado um estilo de vida sustentável. Dessa forma, é importante entender como consumidores formam julgamentos e percepções sobre as diferentes possibilidades de ser mais sustentável. O objetivo deste estudo é investigar como a sinalização sobre comportamentos sustentáveis (não)monetários impacta as avaliações que os consumidores fazem sobre a contribuição da ação sustentável e sobre o ator responsável pela ação. **Marco teórico:** com base na teoria da sinalização de custos, esta pesquisa investiga como os consumidores formam julgamentos sobre comportamentos sustentáveis (não) monetários. **Método:** o Estudo 1 foi um single factor (ação sustentável: não monetária vs. monetária) com design entre grupos. O Estudo 2 foi um 2 (ação sustentável: não monetária vs. monetária) por 2 (intensidade dos custos: alto vs. baixo custo) com design entre grupos. As variáveis mensuradas foram: contribuição percebida, elevação moral, moralidade e status socioeconômico. **Resultados:** esta pesquisa mostra que observadores formam percepções mais positivas sobre ações sustentáveis não monetárias (vs. monetárias), fazendo inferências mais positivas em relação à contribuição ambiental e elevação moral. Adicionalmente, há evidências de que julgamentos morais delineiam o efeito proposto. Dado o esforço dos indivíduos em realizar a ação não monetária, estes são percebidos com maior moralidade quando comparados aos indivíduos que compram produtos sustentáveis. **Conclusão:** embora pesquisas anteriores mostrem que comprar produtos green sinaliza status, este estudo mostra que o status não é suficiente para disparar inferências mais positivas sobre o ator (elevação moral — admiração) e sobre a contribuição da ação para o meio ambiente.

Palavras-chave: teoria da sinalização de custos; moralidade; comportamentos sustentáveis (não)monetários; contribuição ambiental; elevação moral.

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Cite as: Souto Maior, C., & Mantovani, D. (2023). (Non)Monetary behaviors: How morality and status shape consumers' perceptions about sustainable actions. *Revista de Administração Contemporânea, 27*(3), e220068. https://doi.org/10.1590/1982-7849rac2023220068.en

Published as Early Access: November 07, 2022.
Assigned to this issue: April 25, 2023.

JEL Code: M, M3, M31.

Editor-in-chief: Marcelo de Souza Bispo (Universidade Federal da Paraíba, PPGA, Brazil)
Associate Editor: Emílio José M. Arruda Filho (Universidade da Amazônia, Brazil)
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One reviewer did not authorize the disclosure of his/her identity.
Peer Review Report: The Peer Review Report is available at this external URL.

Received: March 08, 2022
Last version received: September 26, 2022
Accepted: October 10, 2022

# of invited reviewers until the decision:

	1	2	3	4	5	6	7	8	9
1st round	X	X							
2nd round									

INTRODUCTION

In the last 30 years, claims for pro-environmental behavior transition have been fostered in many ways, from government regulation to consumer daily behaviors (Cohen, 2020). Green brands have grown twice more than their traditional counterparts (Kronthal-Sacco & Whelan, 2019). As marketers have massively used sustainable appeals and attributes to encourage consumers to adopt a green lifestyle (Joshi & Kronrod, 2020), buying green products has become a commodity (Prothero et al., 2010). However, although compared to regular products, purchasing green products is better for the environment, contradictorily, it follows the traditional capitalist perspective, which stimulates continuous consumption of goods (Akenji, 2014; Hüttel et al., 2018).

From consumers' perspective, everyday consumption practices have become opportunities for performing sustainable actions (Adams & Raisborough, 2010; Helm & Little, 2022), but forecasts are still alarming. A report from the World Economic Forum (2016) estimated that in 2050, if current rates of plastic dumping hold, there will be more plastic than fish in oceans by weight. Claims for structural changes had given space for monetary (buying green products) and non-monetary (i.e., reduce consumption) sustainable consumption acts (Akenji, 2014; Johnson & Geisendorf, 2022). Several studies have explored the underlying mechanisms that motivate people to buy green products. For instance, research on social signaling has established that people may choose sustainable products to signal higher social status (Griskevicius et al., 2010; Hardy & Vugt, 2006). However, signaling about non-monetary sustainable practices (i.e., extending a product lifespan) needs further investigation since there are both positive and negative judgments involving these practices (Lee et al., 2020; Muncy & Iyer, 2020; Sekhon & Soule, 2020; Soule & Sekhon, 2022). For instance, Sekhon and Soule (2020) demonstrate that people who adopt non-monetary sustainable behaviors are perceived with a lack of resources and lower socioeconomic status. Instead, Chancellor and Lyubomirsk (2011) argue that happiness may arise from non-monetary sustainable practices, such as recycling and reducing consumption. Therefore, the goal of this study is to investigate consumers' inferences about (non)monetary sustainable actions.

This research shows that non-monetary sustainable actions trigger more positive evaluations about the impact of the action (contribution to the environment) and about the actor performing a sustainable action (moral elevation) compared to monetary sustainable actions. There is also evidence that morality associated with non-monetary actions shapes these judgments. Interestingly, while status is more strongly associated with monetary sustainable actions, it is not sufficient to overcome the more positive judgments associated with non-monetary actions. These findings advance previous knowledge on sustainable consumption by demonstrating how consumers form positive perceptions about (non)monetary sustainable actions from the costly signaling perspective. In addition, this research contributes to the literature on morality judgments and signaling theory showing how morality is a key piece for stimulating sustainable behaviors. From a managerial and social perspective, this study demonstrates that companies and society can also benefit from the positive inferences consumers make about (non)monetary sustainable actions.

Two experimental studies are conducted to test these predictions. Study 1 employed a single factor (sustainable action: non-monetary vs. monetary) between-subjects design. Study 2 was a 2 (sustainable action: non-monetary vs. monetary) by 2 (cost intensity: high vs. low costs) between-subjects design. The main measured variables were the perceived environmental contribution of the action, the moral elevation of the actor performing the sustainable action, morality, and socioeconomic status.

THEORETICAL BACKGROUND

(Non)Monetary sustainable actions

Sustainable consumer behaviors are those practices aimed to minimize environmental effects (Semprebon et al., 2019), and include purchasing green products or refraining from buying new products (Chatzidakis & Lee, 2013; Lee, 2022; Soule & Sekhon, 2022). There is a wide range of sustainable consumption options, which can be broadly defined as actions that result in an environmental contribution by decreasing the use of resources and decreasing adverse environmental impacts (White et al., 2019). Given the wide range of actions involving sustainable consumption, research has commonly characterized sustainable actions in two dimensions: efficiency and curtailment behaviors (Karlin et al., 2014; Uren et al., 2019). The main differences between efficiency and curtailment behaviors are based on the monetary and non-monetary costs, such as money, time, and efforts associated with performing them (Karlin et al., 2014).

Efficiency behaviors (i.e., install solar panels, buy an electric car, consume organic food) are the substitution of regular product consumption for similar ones with lower environmental impact, involve high monetary cost but are often associated with lower non-monetary costs (Brooks & Wilson, 2015; Nardo et al., 2017; Uren et al., 2019). Efficiency sustainable actions are present when consumers pay for products and services with sustainable certificates

(Pickett-Baker & Ozaki, 2008). Curtailment behaviors (i.e., reusing food containers, repairing clothes, riding in public transport, or walking instead of driving a car) include the reduction or change in the consumption achieved through personal effort rather than purchases, usually involve low monetary costs but high non-monetary costs (e.g., time, knowledge, effort, inconvenience) (Brooks & Wilson, 2015; Nardo et al., 2017; Uren et al., 2019). Curtailment sustainable consumer actions may include voluntarily reducing consumption (McDonald et al., 2006), adopting sustainable modes of waste disposal (White & Simpson, 2013), repurposing products (Scott & Weaver, 2018), and conserving resources, such as energy and water (Johnson & Geisendorf, 2022; Lin & Chang, 2012). In short, efficiency behaviors are sustainable actions associated with higher monetary costs, while curtailment behaviors involve higher non-monetary costs, from now on, namely monetary and non-monetary sustainable action, respectively.

Although there are many sustainable consumption options to adopt, scholars and practitioners frequently bump into the intention-attitude gap, motivating them to explore how to encourage consumers to embrace sustainable behaviors (Semprebon et al., 2019; White et al., 2019). Recent literature puts social signaling in evidence because consumers may choose sustainability and actions to impress others (Griskevicius et al., 2010; Luomala et al., 2020). Social signaling is the "act of conveying information about oneself in an implicit fashion, by engaging in behaviors that reveal one's traits and preferences to observers" (Bennett & Chakravarti, 2009, p. 1).

In the social signaling theory, seminal work explains that a signal can only be distinguished from another because of the costs related to the signaling (Spence, 1973). Previous research shows that the costs associated with companies' virtuous actions influence consumers' positive perception of the company (Langan & Kumar, 2019). As companies dedicate resources to increase their positive perception, people also engage in virtuous acts as a way of signaling their qualities and resources (Smith & Bliege-Bird, 2005). Individuals are also judged for their behavior by the signaling perception that others form about these actions (McAndrew, 2019).

The current research on (non)monetary sustainable actions explores how the cost of these actions signals status, mostly showing that non-monetary sustainable action leads to lower status perceptions (Nardo et al., 2017; Sekhon & Soule, 2020; Uren et al., 2019). For instance, Nardo et al. (2017) demonstrate that the uncertainty about the motivations increases the inference that non-monetary sustainable actions are associated with lower socioeconomic status. Motivation is also present in Sekhon and Soule (2020), showing that consumers perceive financial constraints in a decision for repairing a jacket, a non-monetary sustainable action. However, when the jacket has a luxury brand label, the status signaling of the action is re-established. Moreover, when compared to consumption intensive behaviors, reducing consumption may be perceived to be less appropriate for conveying status (Brooks & Wilson, 2015). Uren et al. (2019) summarize all these findings demonstrating that the intensity of visibility, cost, and effort are predictors of perceived status for (non) monetary sustainable actions.

However, non-monetary sustainable actions may not always trigger negative signaling. Strength and meaning influence how observers interpret signals (Dunham, 2011). For instance, Langan and Kumar (2019) show that corporate donations of time lead to higher levels of perceived effort, compared to monetary donations, which induced a more altruistic motivation perception. The authors found that companies have a more positive judgment when they donate time. In addition, Reed et al. (2016) show that giving time to charity is associated with self-investment and effort. When an individual performs (non)monetary sustainable actions, consumers form perceptions about the behavior based on the costs associated with it. The perceived value of a consumption action can be defined by the ratio between perceived benefits and perceived sacrifice, including monetary and non-monetary costs (Örgev & Bekar, 2013).

Therefore, based on the costly signaling theory (i.e., competitive altruism, Hardy & Vugt, 2006), when judging a virtuous behavior, the perceived sacrifice invested to the collective benefit may trigger more positive judgments. For instance, Rajapaksa et al. (2019) show that non-monetary values have a higher impact on reducing consumption than monetary incentives. The authors show that, compared to monetary incentives, non-monetary incentives lead to lower levels of residential water consumption and higher pro-environmental intentions.

Likewise, observers use the actor's effort and commitment perception to form their judgments about the impact of this action and the actor. For instance, a non-monetary sustainable action (i.e., reducing consumption) is associated with efforts against the acquisition of goods and use of disposable resources (Chatzidakis & Lee, 2013). When the non-monetary costs are high, and perceived as more effortful, it engenders a more positive evaluation of the actor and about the contribution of the action to preserve the environment. Differently, when a monetary sustainable act is performed (i.e., buying a green product), it signals to others that the actor can spend more monetary resources (Hardy & Vugt, 2006). Spending money is perceived as easier for those who have money to spare, but it is less related to self-investment and effort to preserve natural resources. That is, non-monetary sustainable actions will trigger more

positive inferences about the actor (e.g., moral elevation — admiration, positive image) and the contribution of the action to the environment, compared to monetary sustainable actions. Formally:

> H1: Sustainable actions generate more positive inferences about (a) the contribution of the action to the environment and (b) the actor performing the sustainable action when associated with non-monetary (vs. monetary) actions.

Sustainable action and morality judgments

A prominent avenue to incentive people to change behavior is based on moral values (Santangeli et al., 2016). Morality refers to the perceived correctness of an individual regarding honesty, sincerity, and trustworthiness (Brambilla et al., 2011). The moral is "prescriptive judgments of justice, rights, and welfare pertaining to how people ought to relate to each other" (Turiel, 1983, p. 2). In short, moral behaviors are responsive to the need of others (Aquino et al., 2011).

According to Jones and Davis (1965), when people infer about a person's action, they interpret the causal antecedents to determine if the consequences of the action are in response to the actor's intentions. Morality judgments are a result of the attributions related to causality, intentionality, and magnitude of the consequences regarding a behavior (Anderson et al., 2020). Past research demonstrates that the effort an individual makes to achieve a goal may be linked to moral judgments (Jones & Davis, 1965; Fong, 2001). When the effort and personal costs to perform a behavior are perceived to be high, people evaluate that the actor has a stronger moral character (Bigman & Tamir, 2016; Smith & Bliege-Bird, 2005). For instance, Reed et al. (2007) show that morality cues positively influence consumers to give time, instead of money, to a social cause. Therefore, we suggest that when consumers spend more time and effort to perform a sustainable action, they will be evaluated as more moral, compared with a sustainable action based on higher monetary costs. This moral judgment will shape the more positive inferences about the actor performing the sustainable action and its contribution to the environment.

Morality perceptions are the results of judgments regarding how the behavior exceeds typical duties and obligations (Anderson et al., 2020). Therefore, positive morality judgments are the perception that someone did more effort than usual for the collective benefit. In a person-based morality judgment, when a sustainable action is associated with non-monetary costs, self-investment is more salient than when the sustainable act is associated with a monetary cost. For instance, time donations are perceived as a costly moral action, given their visibility and immediacy, showing that those who donate time to a prosocial cause are good people, while monetary donations are perceived as compensation for investments (Ellingsen & Johannesson, 2009; Macdonnell & White, 2015). In addition, consumers view time donations as more morally praiseworthy and more diagnostic of moral character than monetary donations, even when the resource investment is comparable (Johnson & Park, 2021). That is, moral evaluations strongly predict liking and respect for an individual (Hartley et al., 2016). This research suggests that the morality associated with a non-monetary donation is also perceived when consumers perform sustainable actions that require more time and effort. Following the same perspective, although monetary sustainable actions are characterized as more efficient in terms of the use of natural resources, and increasing the social status of the actor, they are not perceived as moral as non-monetary sustainable actions because the actor is not actively involved with the behavior of being more altruistic. While monetary sustainable actions are perceived as easier to perform when the person can spend money, they elicit only an economic utility and are less associated with the actor's social concern.

As moral judgments operate like an answer to the question 'is this a good person?' rather than 'is this a good action?' (Anderson et al., 2020), it is proposed that the non-monetary costs associated with sustainable actions signal the good moral character of the actor who performed the sustainable action. Given that behaviors may vary in their symbolic significance, morality judgments represent a potential implication for how these behaviors are perceived and adopted (Sütterlin & Siegrist, 2014). Therefore, this research proposes that moral judgments shape the impact of (non)monetary behavior on consumers' evaluations about sustainable action. More specifically, people associate non-monetary sustainable actions with higher effort and self-investment to save resources for future generations, increasing morality perceptions, compared to sustainable actions based on spending monetary resources. This moral judgment will raise more positive evaluations about the actor and about the contribution of the action to the environment. Formally,

> H2: Morality judgment mediates the relation between (non)monetary sustainable action and positive inferences.

In addition, past research associates green consumption with higher status perception (Griskevicius et al., 2010; Luomala et al., 2020; Sekhon & Soule, 2020) and that observers perceive actions of consumption reduction as associated with lower socioeconomic status (Brooks & Wilson, 2015; Nardo et al., 2017). Therefore, it is also investigated if socioeconomic status mediates the impact of monetary sustainable action on consumers' inferences about these actions. It is expected that monetary sustainable actions trigger more positive inferences about the

socioeconomic status of the actor performing the sustainable action, which might generate more positive inferences about the contribution of the action and the actor. Therefore, we propose that:

> H3: Socioeconomic status mediates the relation between (non)monetary sustainable action and positive inferences.

STUDY 1 — (NON)MONETARY SUSTAINABLE ACTION AND ENVIRONMENTAL CONTRIBUTION

This study explores consumers' perceptions about (non)monetary sustainable behaviors. This study aims to test the proposition that a non-monetary action triggers more positive perceptions about the contribution of the action to the environment, compared to a monetary action (H1a). Further, it is expected that this positive inference is mediated by morality judgments (H2). It is also investigated if socioeconomic status mediates the impact of monetary sustainable behavior on consumers'inferences about these actions (H3). Because these hypotheses predict causal relationships, the experimental design is the most appropriate method for this study.

Participants and design

Two hundred eleven Brazilian participants were recruited on Facebook to participate in this study. Seventeen participants were excluded for not passing the attention check. Therefore, the final sample was composed by one hundred and ninety-four participants (n = 194, 66% female, Mage = 33.4, SD = 9.94). The experiment employed a single factor (sustainable action: non-monetary vs. monetary) between-subjects design. Respondents were randomly exposed to one of the two conditions.

Procedure

All respondents read the study disclaimer. After that, respondents read a schedule for a person named Patricia. The schedule was described as a typical Saturday and they were asked to evaluate Patricia based on her activities. The activities description was adapted from Sekhon and Soule (2020). The non-monetary behavior was described as Patricia repairing an old jacket and the monetary behavior was described as Patricia buying a new jacket from a pro-environmental collection. For the non-monetary sustainable action condition, participants read, "Patricia is 30 years old, has a job, and lives in the same city you live. Last Saturday, right after waking up, she did her workout routine, ate breakfast, and paid bills. After lunch, Patricia went to a mall to pick up her jacket, which was in a clothing repair service. Patricia owns this jacket for some while and decided to repair it to extend its use for more time." For the monetary sustainable condition, participants read,"Patricia is 30 years old, has a job, and lives in the same city you live in. Last Saturday, right after waking up, she did her workout routine, ate breakfast, and paid bills. After lunch, Patricia went to a mall to buy a new jacket and chose one from a sustainable collection. The main fabric is eco-friendly, made with a waterless innovation process, and made with organic cotton."After reading the schedule, all respondents rated the measure related to the positive inferences regarding the sustainable action. In this study, perceived environmental contribution of the sustainable action performed by Patricia is measured in two items "Paty's decision to repair her jacket (to buy a new jacket) has a positive impact on the environment," on a seven-point Likert scale (1 = 'No impact at all' to 7 = 'Very large impact'), based on Hoogendoorn et al. (2019), and "Paty's decision to repair her jacket (to buy a new jacket) makes a difference for the environment," on a seven-point Likert scale (1 = 'No difference at all' to 7 = 'Very large difference'). Following this measure, participants indicated Paty's perceived morality (Hoogendoorn et al., 2019) using two items on a seven-point semantic differential scale (1 = 'Hypocrite' to 7 = 'Moral' and 1 = 'Selfish' to 7 = 'Altruistic.' Participants also rated the perceived socioeconomic status of the actor performing the sustainable action, measured using five items on a seven-point scale, adapted from Sekhon and Soule (2020).

To control for possible additional influence on the main predictions, we also measured product quality perception and environmental consciousness. Product quality was measured using one item on a seven-point scale (1 = 'Very low quality' to 7 = 'Very high quality'). Respondents also answered one item measuring environmental consciousness, 'Patricia cares about the environment,' on a seven-point scale (1 = 'Not at all' to 7 = 'A lot'), previously used by Sekhon and Soule (2020). As an attention check, participants were asked to describe what Patricia had done at the mall. Finally, demographic questions were measured. After that, participants were thanked and debriefed.

Results

An index from the average of two items was created to test for perceived environmental contribution of the sustainable action (α = .815). Independent samples *T*-tests revealed that Patricia's action was perceived as having more environmental contribution when a non-monetary action was performed than when the monetary action was performed ($M_{non\text{-}monetary}$ = 5.77, SD = 1.35; $M_{monetary}$ = 4.80, SD = 1.72; $t(192) = -4.339$, $p < .00$). These results show that

non-monetary sustainable action generates higher positive perceptions of environmental contribution than monetary sustainable action, thus confirming H1a.

Results also show that morality (α = .879) was also higher for the non-monetary condition than for the monetary condition ($M_{non\text{-}monetary}$ = 5.45, SD = 1.18; $M_{monetary}$ = 5.00, SD = 1.25; $t(192) = -2.591$, $p < .01$). However, perceived socioeconomic status (α = .810) was higher for the monetary condition than for the non-monetary condition ($M_{monetary}$ = 3.95, SD = 1.12; $M_{non\text{-}monetary}$ = 3.42, SD = .95; $t(192) = 2.56$, $p < .00$).

The same independent samples *T*-tests were conducted to check for perceived quality and environmental consciousness to control for possible additional influence on the main predictions. There was no difference in product quality perception ($M_{non\text{-}monetary}$ = 5.36, SD = 1.19; $M_{monetary}$ = 5.37, SD = 1.39; $t(192) = -.182$, $p = .98$) nor for environmental consciousness ($M_{monetary}$ = 5.16, SD = 1.73; $M_{non\text{-}monetary}$ = 4.97, SD = 1.80; $t(192) = .740$, $p = .46$). Since effects regarding these control variables were not found, they will not be considered in further analyses. These results are summarized in Table 1.

Table 1. Results of Study 1 (N = 194).

Measure	Sustainable action		*t*(192)	*p*-value
	Non-monetary (n = 99)	Monetary (n = 95)		
	M*(SD)*	M*(SD)*		
Environmental contribution	5.77 *(1.35)*	4.80 *(1.72)*	-4.399	$p < .00$
Morality	5.45 *(1.18)*	5.00 *(1.25)*	-2.591	$p < .01$
Socioeconomic status	3.42 *(.95)*	3.94 *(1.12)*	3.547	$p < .00$
Product quality	5.36 *(1.19)*	5.37 *(1.39)*	0.740	$p = .46$
Environmental consciousness	4.97 *(1.80)*	5.16 *(1.73)*	0.026	$p = .98$

Note. Source: The authors.

We also included gender as a predictor and run additional analyses. The results show that overall, women judge sustainable actions as contributing more to the environment (M_{women} = 5.63, SD = 1.47; M_{men} = 4.66, *SD* = 1.64; $F(1, 190) = 17.14$, $p < .000$. However, these findings did not change the pattern of results. The influence of gender on judgments about morality, socioeconomic status, product quality, and environmental consciousness did not reach statistical significance (*ps* > .10).

Mediation analyses

Further, it was investigated if morality would mediate the impact of sustainable action on judgments about the perceived environmental contribution of the sustainable action (H2). The test for the mediating effect of morality was done through the PROCESS macro on SPSS (model 4; 10,000 samples; Hayes, 2018, 95% confidence interval). Non-monetary sustainable action was coded as 1 and monetary sustainable action was coded as 0. Since socioeconomic status plays a role in the relation between sustainable action and consumers' judgments (H3), both morality and socioeconomic status were included together as mediators. See Figure 1 for the visual representation of the model tested.

Results show that sustainable action influences morality (β = .4545, CI = .1085 to .006), and that sustainable action is significantly associated with the perceived environmental contribution of the sustainable action (β = .7396, CI = .3193 to 1.1598). Furthermore, morality is significantly associated with perceived environmental contribution (β = .5218, CI = .3570 to .6867). The expected indirect effect of the mediation of morality was positive ($\beta_{morality}$ = .2372, CI = .0600 to .4490). These results confirm H2. However, for socioeconomic status as a mediator, the indirect effect of perceived social status was not significant (β_{status} = -.0093, CI = -.0714 to .0592), thus not confirming H3.

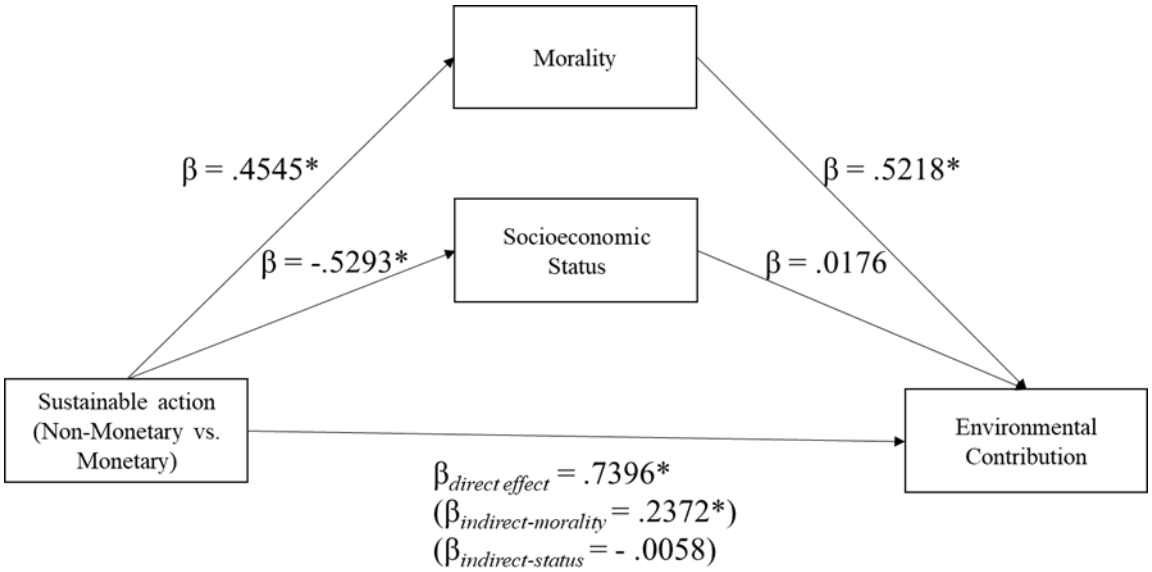

Figure 1. Mediation model — Results for Study 1 (N = 194).

Discussion

Study 1 shows that consumers performing non-monetary (vs. monetary) sustainable actions trigger a more positive inference about the environmental contribution of the sustainable action, supporting H1a. This study also demonstrates that this effect is mediated by morality judgments, which also confirms H2. More importantly, results demonstrate that the social status associated with monetary green consumption is insufficient to trigger a more positive perception about the contribution of this action to the environment. Although most sustainable actions are always judged as virtuous, this study shows that non-monetary and monetary sustainable actions lead to unique and opposite judgments regarding the morality and socioeconomic status of the actor who performed the action. Interestingly, morality is more important to determine how much an action has a positive contribution to the environment. In addition, there was no evidence of influence on product quality (buy a new green jacket vs. repair an old jacket) nor on environmental consciousness.

These results contribute to past research on sustainable consumption (Chatzidakis & Lee, 2013; Lee, 2022; Semprebon et al., 2019; Soule & Sekhon, 2022) by demonstrating that non-monetary sustainable actions may trigger positive signaling. Consumers perceive the value of non-monetary costs because of the perceived sacrifice associated with these actions, which is aligned with the perceived value of a consumption action proposed by Örgev and Bekar (2013). This study also shows that although sustainable actions are related to status perception (Athwal et al., 2019; Griskevicius et al., 2010), it is not enough to trigger more positive inferences about the contribution of the action to the environment.

In the next study, some of the limitations of Study 1 are addressed and the robustness of previous findings is further investigated. It might be argued that the scenario would be responsible for the effects to emerge. Therefore, the next study uses a different scenario, not involving a fashion product purchase/repair. Another potential limitation of the previous study is that two different situations were compared. The action of buying a green product was compared to the action of repairing an owned product. The next study will provide a unique sustainable action (buy organic food), manipulating the (non)monetary costs associated with these actions. Another point that requires further investigation is that Study 1 showed a stronger effect of the direct relationship (β = .7396, CI = .3193 to 1.1598) than indirect relationship ($_{morality}$ = .2372, CI = .0600 to .4490). Therefore, in Study 2, we investigate the consistency of these findings while we try to overcome some of the limitations of Study 1.

Study 2 also investigates the consistency of the findings by exploring the intensity of (non)monetary costs associated with sustainable actions. Since strength and meaning influence how observers interpret the signals of consumption (Dunham, 2011; Langan & Kumar, 2019), it is important to show that consumers' inferences are contingent on the intensity of costs associated with the sustainable action. Consumers form their impressions about

the behavior based on the costs associated with it. The costly signaling theory (Hardy & Vugt, 2006; Inzlicht et al., 2018; McAndrew, 2019) shows that when individuals judge a virtuous behavior, the perceived effort and sacrifice invested to the collective benefit are more likely to trigger positive judgments. Therefore, the higher the perceived costs associated with a sustainable action, the more positive might be the inferences made about these actions.

Finally, Study 2 also examines additional inferences consumers make about non(monetary) sustainable actions, including evaluations not only about the contribution of the action to the environment (H1a) but also about the person who performed the sustainable action (H1b).

STUDY 2 — (NON)MONETARY SUSTAINABLE ACTIONS AND INTENSITY OF ASSOCIATED COSTS

This study further explores how the intensity of (non)monetary sustainable actions impacts consumers' evaluations. It is expected that a sustainable action associated with high non-monetary costs generates the highest positive inferences about the environmental contribution of the action (H1a) and the actor performing the sustainable action (H1b). Furthermore, it is expected that morality shapes this effect (H2). Finally, we also test for the effect of socioeconomic status on the relation between sustainable action and consumers' inferences about these actions (H3). Again, because these hypotheses predict causal relationships, the experimental design is the most appropriate method for this study.

Participants and design

A total of 172 adults were recruited on Amazon Mechanical Turk (M_{age} = 39, 50.3% male) and completed the study in return for a small payment. The experiment was available only to participants with IP addresses from the United States. The experiment employed a 2 (sustainable action: non-monetary vs. monetary) by 2 (cost intensity: high vs. low costs) between-subjects design. Respondents were randomly assigned to one of the four conditions.

Procedure

All participants read the study disclaimer. After that, they read a typical Saturday list of activities for a person named Robert and were asked to evaluate Robert based on his activities, which include buying organic food and groceries. The differences across the four sustainable actions between-subjects conditions were the intensity of the costs associated with the non-monetary and monetary sustainable actions. This manipulation was based on previous studies (Diekmann & Preisendorfer, 2003; Nardo et al., 2017; Olson et al., 2016; Uren et al., 2019) about monetary and non-monetary sustainable actions.

The low-cost non-monetary sustainable condition was described as Robert buying organic food and groceries in a shop very close to his house, where he could finish his shopping quickly and easily. The high-cost non-monetary sustainable condition was described as Robert buying organic food and groceries in a once-a-week big farmer's market, where it is hard and time-consuming to finish his shopping. For the low-cost monetary condition, Robert buys his organic food and groceries in a shop with local suppliers' agreements and prices similar to his non-organic counterparts. For the high-cost monetary condition, Robert was described as buying his organic food and groceries with prices, on average, 30% more expensive compared to his non-organic counterparts. For the low-cost non-monetary condition, participants read, "Robert easily found an organic food and grocery shop very close to his house. Quickly, he shops, goes back home, and unpacks his groceries." In the high-cost non-monetary condition, it reads, "After searching a lot for a good place to buy organic food, Robert only found a once-a-week farmer's market with organic food and grocery. This farmer's market is large, and Robert needs to walk a lot in the market. It is hard and time-consuming for him and he spends many hours shopping, going back home, and unpacking his groceries." For the low-cost monetary condition, participants read, "Robert found an organic food and grocery shop with local suppliers agreements. The prices of these organic products are similar to the non-organic counterparts." Participants in the high-cost monetary condition read, "Robert found an organic food and grocery shop with local suppliers agreements. On average, the prices of these organic products are 30% more expensive compared to non-organic counterparts."

After reading the description, all respondents rated the measures regarding the positive perception of the action. The perceived environmental contribution of the sustainable action was measured in two items: "this sustainable action contributes to the environment," and "this sustainable action is relevant to the environment" on a seven-point Likert scale (1 = 'Not at all' to 7 = 'A lot'), similar to Study 1. Following this measure, participants rated moral elevation, indicating how much they would feel inspired, awe, motivated, and admired by the action (1 = 'Strongly disagree' to 7 = 'Strongly agree'), adapted from Aquino et al. (2011) and Freeman et al. (2009). Next, morality was measured using four items (i.e., moral, ethical, caring, and kindhearted) based on Olson et al. (2016). In Study 1, morality was measured using a two items scale, based on Hoogendoorn et al. (2019). In this study, the measure proposed by Olson et al. (2016) was preferred due to the higher reliability index.

Similar to Study 1, the perceived socioeconomic status of the actor performing the sustainable action was measured based on Sekhon and Soule (2020). The perceived costs associated with the sustainable actions were measured for manipulation check, in two items: "This behavior would involve higher monetary costs for me" and "This behavior would be too time-consuming for me," adapted from Diekmann and Preisendorfer's (2003).

Additional measures were included to investigate the possible impact on the main predictions of the study. Therefore, social visibility, environmental motivation, greenness, and purchase frequency of organic food served as control measures. These variables are important predictors of pro-environmental behavior (Brick et al., 2017; Gershoff & Frels, 2015), and they may influence how individuals evaluate sustainable actions. Participants answered one item measuring social visibility, on a seven-point scale (1 = 'Not visible at all' to 7 = 'Extremely visible'), adapted from Brick et al. (2017). Environmental motivation was measured in one item, "How motivated by conscious consumption and benefits to the environment this person is", on a seven-point scale (1 = 'Not at all' to 7 = 'Extremely'). Greenness perception was measured in five items (i.e, 'Deserves to be labeled as environmentally friendly'), on a seven-point scale (1 = 'Not at all' to 7 = 'Extremely'), previously used by Gershoff and Frels (2015). Purchase frequency of the organic food was measured in one item — "Have you performed this behavior within the past six months or more?" — on a seven-point scale (1 = 'Certainly not' to 7 = 'Certainly yes').

Again, two attention check questions were measured, based on Peer et al. (2014). Finally, demographic questions were measured. After that, participants were thanked and debriefed.

Results

For the manipulation check of non-monetary costs, a two-way ANOVA was conducted with sustainable action and cost intensity as between-subject factors and the non-monetary cost associated with the action item as dependent variable. As expected, there was a significant effect of cost intensity ($F(1, 168) = 13.157$, $p < .00$, $\eta p^2 = .073$). Also, there was a significant interaction effect ($F(1, 168) = 10.143$, $p < .00$, $\eta p^2 = .057$). As expected, no main effect of sustainable action was found ($F(1, 168) = .685$, $p = .409$).

Participants in the high intensity condition rated shopping organic food and groceries as having higher non-monetary costs associated (i.e., time-consuming) when the non-monetary sustainable action was performed compared to when the monetary sustainable action was performed ($M_{non\text{-}monetary} = 5.12$, $SD = 1.59$; $M_{monetary} = 4.09$, $SD = 1.77$, $F(1,168) = 8.242$, $p < .00$ $\eta p^2 = .047$). Participants in the low intensity condition did not differ in their perception of non-monetary costs ($M_{non\text{-}monetary} = 3.37$, $SD = 1.64$; $M_{monetary} = 3.98$, $SD = 1.81$, $F(1, 168) = 2.715$, $p = .10$). Within the non-monetary sustainable condition, participants in high intensity of costs rated shopping organic food and groceries as having higher non-monetary costs associated than those in the low intensity condition ($F(1, 168) = 23.227$, $p < .00$, $\eta p^2 = .121$). Within the monetary sustainable action condition, no difference was found ($F(1, 168) = .098$, $p = .755$).

Another two-way ANOVA was conducted to test the manipulation check for the monetary costs associated with the sustainable action. Again, as expected, a significant effect was found ($F(1, 168) = 20.826$, $p < .00$, $\eta p^2 = .110$). There was a significant interaction effect ($F(1, 168) = 17.989$, $p < .00$, $\eta p^2 = .097$). As expected, no main effect of sustainable action was found ($F(1, 168) = .067$, $p = .796$).

Participants in the high intensity of costs condition rated shopping organic food and groceries as having higher monetary costs associated when the monetary sustainable action was performed compared to when the non-monetary sustainable action was performed ($M_{monetary} = 5.96$, $SD = 1.04$; $M_{non\text{-}monetary} = 5.09$, $SD = 1.32$, $F(1,168) = 8.121$, $p < .00$, $\eta p^2 = .046$). Participants in the low intensity condition rated monetary costs higher in the non-monetary condition compared to monetary condition ($M_{non\text{-}monetary} = 5.02$, $SD = 1.33$; $M_{monetary} = 4.05$, $SD = 1.88$, $F(1, 168) = 8.894$, $p = .00$). Within the monetary sustainable condition, participants in high intensity rated shopping organic food and groceries as having higher monetary costs associated than those in the low intensity condition ($F(1, 168) = 38.722$, $p < .00$, $\eta p^2 = .187$). Within the non-monetary sustainable action condition, no difference was found ($F(1, 168) = .052$, $p = .820$).

Additional analysis was run to check for social visibility, environmental motivation, greenness, and purchase frequency to control for possible additional influence on our predictions. For the social visibility item, the results showed no significant effects ($F_{intensity}(1, 168) = .406$, $p = .525$), ($F_{sustainableaction}(1,168) = .690$, $p = .407$), ($F_{interaction}(1,168) = .369$, $p = .544$). Same pattern was found for environmental motivation ($F_{intensity}(1, 168) = .884$, $p = .348$), ($F_{sustainable\ action}(1, 168) = .445$, $p = .506$), ($F_{interaction}(1, 168) = .242$, $p = .623$). For the greenness items index ($\alpha = .942$), no significant effects were found ($F_{intensity}(1, 168) = .225$, $p = .636$), ($F_{sustainable\ action}(1, 168) = .198$, $p = .657$), ($F_{interaction}(1, 168) = .125$, $p = .725$). Finally, for purchase frequency as an outcome, again no significant effects were found ($F_{intensity}(1, 168) = .921$, $p = .339$), ($F_{sustainableaction}(1,168) = .526$, $p = .469$), ($F_{interaction}(1,168) = 3.454$,

p = .065). Since we have not found any effects regarding these control variables, we will not consider them in further analyses.

Hypotheses tests

Environmental contribution: the two items of environmental contribution were also averaged to form an index (α = .861). However, no interaction or main effects were found ($F_{interaction}$(1, 168) = .055, p = .815), ($F_{sustainable\ action}$(1, 168) = .603, p = .438), ($F_{intensity}$(1, 168) = .014, p = .904). Pairwise analyses did not show any significant difference on mean's conditions (ps >.481).

These results show that consumers perceive no difference in the potential environmental contribution when shopping organic food and groceries is associated with monetary sustainable action (expensive or not), or when it is easy to perform (low non-monetary action). Therefore, H1a was not corroborated.

Moral elevation: the four items were averaged to form an index of moral elevation (α = .932). A two-way ANOVA revealed a significant interaction effect between sustainable action conditions and intensity of costs ($F_{interaction}$(1, 168) = 8.048, p < .00, ηp^2 = .046). No main effects were found ($F_{sustainable\ action}$(1, 168) = 2.716, p = .101; $F_{intensity}$(1, 168) = .183, p = .70).

Within the non-monetary sustainable actions, participants did not perceive the difference between the high and low intensity of cost conditions (F(1, 168) = 2.904, p= .09). However, within the monetary sustainable actions, participants in the high intensity of costs rated higher moral elevation than those in the low intensity of costs (F(1, 168) = 5.324, p < .02, ηp^2 = .031). See Figure 2.

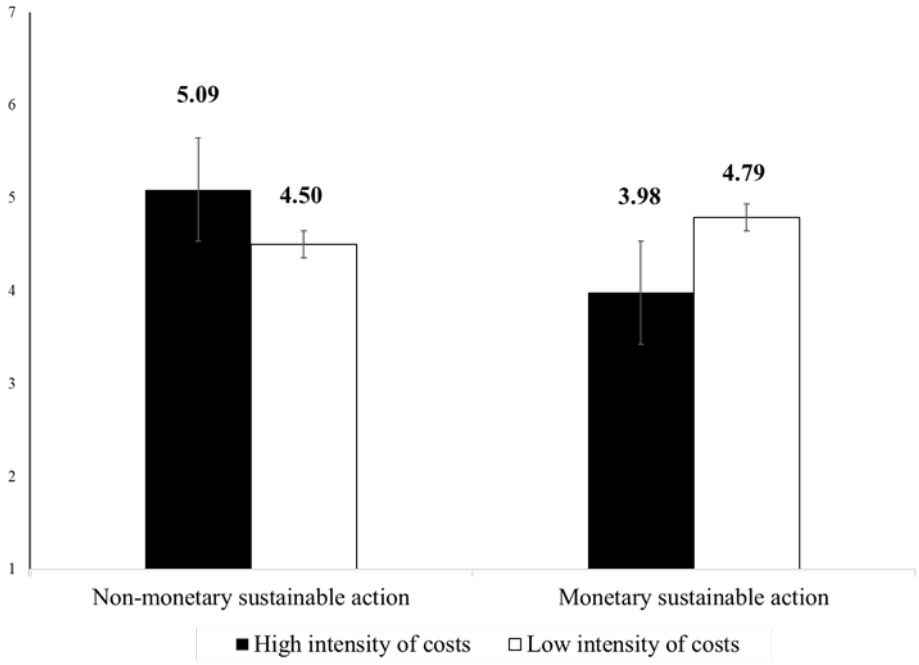

Figure 2. Moral elevation as a function of (non)monetary sustainable actions and intensity of costs (Study 2).

High costs associated with non-monetary sustainable action triggered higher moral elevation compared to the high monetary condition ($M_{non\text{-}monetary}$ = 5.09, SD = 1.55; $M_{monetary}$ = 3.98, SD = 1.171, F(1, 168) = 10.297, p < .00, ηp^2 = .058). There was no significant difference when low costs are associated with non-monetary compared to when low costs are associated with monetary conditions ($M_{non\text{-}monetary}$ = 4.50, SD = 1.64; $M_{monetary}$ = 4.79, SD = 1.52, F(1, 168) = .691, p = .407). Finally, these results confirm that compared to monetary sustainable actions, the higher non-monetary costs associated with sustainable action trigger more positive inferences about moral elevation. H1b is corroborated.

Mediation analyses

Morality: the four items measured were averaged to form an index of morality (α = .806). A two-way ANOVA revealed no interaction effect between sustainable action and intensity of costs ($F_{interaction}$(1, 168) = .741, p = .391). There is a significant main effect of sustainable action ($F_{sustainable\ action}$(1, 168) = 11.689, p < .00, ηp^2 = .065). No main effect of intensity of costs was found ($F_{intensity}$(1, 168) = .324, p = .570).

High costs associated with non-monetary sustainable action triggered higher morality compared to the high monetary sustainable action condition ($M_{non\text{-}monetary}$ = 5.87, SD = .83; $M_{monetary}$ = 5.21, SD = 1.14, F(1, 168) = 9.377, p < .00, ηp^2 = .053). There was no significant difference when low costs are associated with non-monetary compared to when low costs are associated with monetary conditions ($M_{non\text{-}monetary}$ = 5.65, SD = .95; $M_{monetary}$ = 5.25, SD = 1.08, F(1, 168) = 3.197, p = .08). Within the non-monetary sustainable actions, participants did not perceive difference in morality between high and low intensity of costs conditions (F(1, 168) = 1.024, p = .313). Non-significant difference was also found within the monetary sustainable actions, participants rated morality equally (F(1, 168) = .042, p = .837).

Socioeconomic status: the five items measured for socioeconomic status were averaged to form an index (α = .877). A two-way ANOVA revealed no interaction effect between sustainable action and intensity of costs ($F_{interaction}$(1, 168) = 1.106, p = .295). There was no significant main effect of sustainable action ($F_{sustainable\ action}$(1, 168) = .457, p = .500). The main effect of intensity of costs was significant ($F_{intensity}$(1, 168) = 8.854, p < .003, ηp^2 = .050).

Participants perceived socioeconomic status equally when the (non)sustainable actions were associated with high costs ($M_{non\text{-}monetary}$ = 4.95, SD = 1.41; $M_{monetary}$ = 4.26, SD = 1.02, F(1, 168) = 1.528, p = .218). There was no significant difference when low costs were associated with non-monetary compared to when low costs were associated with monetary conditions ($M_{non\text{-}monetary}$ = 4.60, SD = 1.13; $M_{monetary}$ = 4.53, SD = 1.14, F(1, 168) = .069, p = .793). Within the non-monetary sustainable actions, participants did not perceive any difference between high and low intensity of costs conditions (F(1, 168) = 1.853, p = .175). However, within the monetary sustainable actions, participants in the high intensity of costs rated higher socioeconomic status than those in the low intensity of costs (F(1, 168) = 8.100, p < .00, ηp^2 = .046).

Further, it was investigated if morality would mediate the impact of sustainable action on judgments about moral elevation and the perceived environmental contribution of the sustainable action. The mediation effect of morality was tested through the PROCESS macro on SPSS (model 4; 10,000 samples; Hayes, 2018, 95% confidence interval). Socioeconomic status was included as a mediator to investigate if monetary sustainable actions would trigger more positive judgments about the actor because of the more positive signaling associated with socioeconomic status. Previous analyses showed that there was no moderated mediation (model 8; 10,000 samples; Hayes, 2018, 95% confidence interval), therefore, model 4 was run to investigate when morality and/or status would mediate the intensity of (non)monetary costs.

First, the mediation model was conducted using only the high non-monetary and the high monetary sustainable action conditions. High non-monetary sustainable action was coded as 1, and high monetary sustainable action was coded as 0. The results are detailed in Table 4. For moral elevation as a dependent variable, the indirect effect of the mediation of morality was positive ($\beta_{morality}$ = .5152, CI = .1779 to .9535), thus confirming H2. For socioeconomic status as a mediator, the indirect effect of perceived social status was not significant (β_{status} = -.1087, CI = -.3949 to .0562), thus not confirming H3. For environmental contribution, the indirect effect of the mediation of morality was positive ($\beta_{morality}$ = .4173, CI = .1411 to .7261), again confirming H2. The indirect effect of perceived socioeconomic status was not significant (β_{status} = -.0914, CI = -.2796 to .0498), again not confirming H3. Please see Table 2 for detailed results.

These results reveal that morality shapes the positive perceptions formed by non-monetary sustainable actions. Interestingly, the indirect effect was significant for environmental contribution perception, although no direct effect was observed. Therefore, hypothesis H2 is confirmed.

Additional analysis was run to examine if the intensity of (non)monetary costs would influence consumers' evaluations. A mediation model was conducted using only the low non-monetary and the low monetary sustainable conditions. Low non-monetary sustainable action was coded as 1, and low monetary sustainable action was coded as 0. No indirect effects were found for morality or socioeconomic status (Moral elevation: $\beta_{morality}$ = .2498, CI = -.0113 to .6195; β_{status} = .0365, CI = -.2574 to .2827; Env. contribution: $\beta_{morality}$ = .3292, CI = -.0403 to .6715; β_{status} = .0084, CI = -.0561 to .1306) as mediators. These results demonstrate that when the disparity between non-monetary and monetary costs associated with a sustainable action is mitigated, consumers' positive inferences about (non)monetary sustainable action are weakened.

Table 2. Mediation model: High non-monetary vs. High monetary — Study 2 (N = 88).

Variable	Relation	Effect	LLCI	ULCI
Moral elevation	Total	1.1041	.4103	1.7980
	Direct	.6977	.0984	1.2970
	Indirect morality	**.5152**	**.1779**	**.9535**
	Indirect socioeconomic status	-.1087	-.3949	.0562
	IV — Morality	.6610	.2351	1.0869
	IV — Socioeconomic status	-.3132	-.8358	.2095
	Morality — DV	.7794	.4844	1.0743
	Socioeconomic status — DV	.3472	.1068	.5875
Environmental contribution	Total	.1109	-.4385	.66.02
	Direct	-.2150	-.6792	.2491
	Indirect morality	**.4173**	**.1411**	**.7261**
	Indirect socioeconomic status	-.0914	-.2796	.0498
	IV — Morality	.6610	.2351	1.0869
	IV — Socioeconomic status	-.3132	-.8358	.2095
	Morality — DV	.6314	.4030	.8598
	Socioeconomic status — DV	.2919	.1058	.4781

Note. Source: the authors.

Another mediation model using the non-monetary conditions was conducted. High non-monetary condition was coded as 1, and low non-monetary condition was coded as 0. Again, no indirect effects were found (Moral elevation: $\beta_{morality}$ = -.1287, CI = -.3710 to .0962; β_{status} = -.2076, CI = -.5576 to .1154; Env. contribution: $\beta_{morality}$ = -.2077, CI = -.5960 to .1339; β_{status} = -.0788, CI = -.1967 to .0566).

Finally, the mediation model using only the monetary sustainable conditions was conducted. Low monetary sustainable condition was coded as 1, and the high monetary sustainable condition was coded as 0. Once more, no indirect effects were found (Moral elevation: $\beta_{morality}$ = .0217, CI = -.2261 to .2267; β_{status} = -.0947, CI = -.2395 to .0077; Env. contribution: $\beta_{morality}$ = .0276, CI = -.2743 to .3353; β_{status} = -.1264, CI = -.3401 to .0271).

Overall, as expected, we only find an indirect effect when high non-monetary is contrasted with high monetary sustainable action.

Discussion

Study 2 reaffirms this research findings by showing that the results regarding positive inferences are contingent on the intensity of (non)monetary costs associated with sustainable actions. This study reveals that (non)monetary sustainable actions polarize moral judgments: whereas individuals performing high-cost monetary actions are perceived as less moral, those performing high-cost non-monetary actions are perceived as more moral. These judgments shape the more positive evaluations about the actor (moral elevation) and about the contribution of the sustainable action to the environment.

Overall, the findings of Study 2 replicate the results of Study 1. Study 1 shows that sustainable actions generate more positive inferences about the contribution of the action to the environment when associated with non-monetary (vs. monetary) actions (H1a). Study 2 also tests this prediction and investigates if these actions also impact the positive inference about the actor performing the sustainable action (H1b). Both studies found consistent evidence that morality judgments shape the positive evaluations people form from (non)monetary sustainable actions (H2). Both studies also demonstrate that socioeconomic status does not explain these positive evaluations (H3).

Besides these findings, it is important to note that when comparing the results of both studies, we observe that in Study 1 there was a stronger effect of the direct relationship (β = .7396, CI = .3193 to 1.1598) than the indirect relationship of morality judgment ($\beta_{morality}$ = .2372, CI = .0600 to .4490) for the dependent variable environmental contribution. However, in Study 2, the direct relationship was not significant (β = -.2150, CI = -.6792 to .2491), but the indirect effect of the mediation of morality was significant ($\beta_{morality}$ = .4173, CI = .1411 to .7261).

Furthermore, in Study 2, the results show a complete mediation of morality for the relationship between sustainable action and environmental contribution, but when testing for moral elevation as a dependent variable, the mediation of morality showed an effect very close to the direct relationship. Probably, the differences in the scenarios of the studies could contribute to these findings. Another possibility is that in Study 2, we control for the intensity of the costs associated with sustainable actions, focusing on high (non)monetary costs. Although we confirm the prediction that morality is an important mechanism that explains the proposed relationship, we cannot rule out the possibility that other variables may also account for these effects.

Together, these results contribute to previous research that investigated consumers' judgments about sustainable actions (Hoogendoorn et al., 2019; Nardo et al., 2017; Sekhon & Soule, 2020). This study shows that although high-cost monetary sustainable actions trigger higher socioeconomic status perception, the higher costs associated with non-monetary actions are more important to determine more positive evaluations because people associated higher moral behavior with non-monetary costs. Study 2 also demonstrates that the relationship between (non)monetary sustainable actions and positive inferences is contingent on the intensity of the costs associated with these actions. These results confirm past research showing that strength and meaning influence how observers interpret the signals of consumption (Dunham, 2011; Inzlicht et al., 2018; Langan & Kumar, 2019; McAndrew, 2019).

GENERAL DISCUSSION

Study 1 shows that sustainable actions generate more positive inferences about the contribution of the action to the environment (H1a). It also shows that morality mediates this effect (H2). Study 2 tests the same predictions and demonstrates that sustainable actions generate more positive inferences about the actor performing the sustainable action when associated with non-monetary (vs. monetary) actions (H1b). Study 2 also shows that these effects are contingent on the intensity of costs associated with sustainable actions. Besides that, both studies also rule out the possibility that socioeconomic status would mediate these effects (H3).

This research shows that (non)monetary costs associated with sustainable actions impact the observer's inferences about the action and about the actor (H1). Moreover, it shows that morality judgments shape these inferences (H2). When individuals perform a sustainable action associated with non-monetary costs, observers infer higher environmental contribution and higher moral elevation, compared to when the sustainable action is associated with monetary costs. Because non-monetary sustainable actions require more sacrifice and self-investment compared to monetary sustainable actions, they signal as more moral, which enhances more positive inferences about those who performed a non-monetary sustainable action.

Theoretical and managerial implications

Previous research on non-monetary sustainable actions or consumption reduction initiatives shows conflicting results regarding how these actions signal to others (Lee et al., 2020; Lee, 2022; Muncy & Iyer, 2020; Sekhon & Soule, 2020; Soule & Sekhon, 2022). Given that awareness about environmental issues has increased (Hüttel et al., 2018), the adoption of reducing-consumption practices and the preference for more sustainable options have become more frequent. By investigating how consumers make inferences about (non)monetary sustainable actions, this study contributes to the research on sustainable action, costly signaling, morality, and status brand positioning.

This research contributes to the sustainable consumption literature by providing support for positive inferences about non-monetary sustainable actions (i.e., reducing consumption actions). The study of the consequences of non-monetary sustainable consumption has been mostly overlooked in previous literature. This research shows that non-monetary sustainable practices have the potential to garner more positive consumer perceptions. Sustainable actions associated with non-monetary costs add positive value to the actor (moral elevation) and the action (perceived contribution of the sustainable action). Understanding which mechanisms shape positive impressions about reducing consumption practices contributes to sustainable consumption literature by showing that people might learn that self-investment and effort are valuable (Inzlicht et al., 2018), and become more willing to exert consumption-reducing practices.

This research also contributes to the discussion about the role of environmental concern and sustainable behavior practices. For instance, Nardo et al. (2017) found that consumers perceive green consumption as more motivated by environmental concerns than consumption reduction behaviors. This research shows that environmental concerns and motivations are equally perceived by observers, and do not impact positive evaluations about sustainable actions.

The literature on attribution and costly signaling theory can also benefit from this research. Past research focuses on consumers' status evaluations of green products (Athwal et al., 2019; Griskevicius et al., 2010). Nonetheless, this study shows that moral judgment is a fundamental outcome to delineate positive perceptions about sustainable actions. By showing that actions of sustainable consumption

reduction, compared to buying green and eco-efficient products, are associated with more positive signaling through self-investment perceptions, this research provides useful evidence for practitioners and policymakers to develop strategies to increase the adoption of sustainable actions that avoid the use of resources (Kropfeld et al., 2018; Scott & Weaver, 2018). Therefore, the awareness that current practices of consumption behavior are impracticable (Akenji, 2014; Hüttel et al., 2018) encourages morality judgments to rise in a way to help promote socially beneficial behaviors through consumption reduction practices.

Although past research shows that consumption reduction practices may generate a negative costly signal (Nardo et al., 2017; Sekhon & Soule, 2020), our study demonstrates that the morality associated with these sustainable actions may increase the positive inferences consumers make. Therefore, this research also highlights important public policy implications. For instance, practices of consumption reduction can be motivated by communicating the positive signaling these actions trigger. Brands can also support reduced consumption, by challenging the prevalent social paradigm around marketing and ever-increasing consumption (Soule & Sekhon, 2022). Many companies are making an effort in educating their consumers to make better choices and buy fewer products. For instance, Patagonia has successfully created the campaign "Don't buy this jacket" (Hepburn, 2013) and offers free repairs to reduce overconsumption.

Limitations and future research

Overall, the findings of Study 2 complement the results of Study 1 by testing the hypotheses in a different scenario and by focusing on high (non)monetary costs. However, some limitations emerged when comparing the findings of both studies. For instance, Study 2 shows that the results were more consistent with the morality mediation model. The direct effect between (non)monetary sustainable action and the perceived environmental contribution of the sustainable action did not show significant differences in Study 2.

Previous research has shown that although consumption reduction is objectively more sustainable than green consumption (Nepomuceno & Laroche, 2015; Sekhon & Soule, 2020), consumers have difficulties in estimating its environmental contribution (Boer et al., 2014). Therefore, the different scenarios used for each study might have influenced this difference in the perception about the contribution of the action to the environment. It would be interesting to investigate contingent factors that may impact positive perceptions of environmental contribution for non-monetary sustainable practices.

Further, moral elevation demonstrated to be a relevant outcome of (non)monetary sustainable actions, but it was only tested in Study 2. Thus, future studies could investigate the consistency of this effect and also examine other positive emotions such as awe and empathy. Previous studies show that consumers who adopt sustainable practices may feel licensed to spend more resources (Catlin & Wang, 2013) or that sustainable consumption leads to a leniency judgment (Prada et al., 2016). Future research could also test if, although inferring positive perception about non-monetary sustainable actions, observers feel licensed to spend more resources, or if they demonstrate biased judgments in unrelated dimensions of sustainable practices.

CONCLUSION

Understanding consumers' responses and inferences about (non)monetary sustainable actions is of great interest. The perceived costs associated with these actions differently impact the identity signals of morality and the judgments about the contribution of the action to the environment and about the actor. Although past research shows a strong relationship between sustainable behavior and status, as well as altruism, this research demonstrates that sustainable actions associated with higher non-monetary costs trigger higher morality signals, which positively impacts the inferences consumers make about these actions. Interestingly, status perception does not shape these inferences. Therefore, the current research contributes to a novel perspective on how (non)monetary sustainable actions are perceived by consumers. These results can be used to motivate consumers to adopt more sustainable behaviors in their routines.

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Funding

The authors thank the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (001) for the financial support for the research in this article.

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Authors' Contributions

1st author: conceptualization (equal); data curation (lead); formal analysis (lead); investigation (equal); methodology (equal); project administration (lead); supervision (equal); validation (equal); writing – original draft (equal); writing – review & editing (equal).

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Conflict of Interests

The authors have stated that there is no conflict of interest.

Data Availability

The authors claim that all data used in the research have been made publicly available through the Harvard Dataverse platform and can be accessed at:

Souto Maior, Cecília; Mantovani, Danielle, 2022, "Replication Data for: "(Non)Monetary behaviors: How morality and status shape consumers' perceptions about sustainable actions" published by RAC-Revista de Administração Contemporânea", Harvard Dataverse, V1.
https://doi.org/10.7910/DVN/CE1KZE

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