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**Article**

# Impact of Actor's Initial State of Engagement in a Course of Action on Judgements of Post-decisional Regret and Joy: Revisiting Kahneman and Tversky (1982)

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**Abstract**

According to the phenomenon commonly known as action effect and vastly replicated across the judgment and decision-making literature, more regret is associated with decisions resulting from action than inaction. Action vs. inaction, however, might either refer to change vs. no change or doing something vs. not doing something. The purpose of this study was to examine the effect of this variation in operationalization of action-inaction on the strength of action effect, for both positive and negative outcomes, across four different domains of employment, finance, education, and health. This was an experimental scenario-based study ($N$ = 215) with four between-subjects conditions varying in outcome valence and the actor's initial state as either engaged or non-engaged in a particular course of action. Action effect was found to be stronger with respect to the initially engaged than the initially non-engaged decision-maker ($\eta_p^2$ = .04), indicating that action as change results in a stronger action effect than action as doing something. The effect of the initial state was also moderated by domain. In addition, we both replicated and went beyond prior empirical literature regarding the effect of outcome valence and domain on action effect, with our findings being mostly consistent across joy and regret. Findings are discussed in light of the norm theory and its key concept of normality and contribute to the literature on moderators of action effect.

**Keywords:** action effect; counterfactual thinking; emotion; status quo bias

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"Maybe all one can do is hope to end up with the right regrets." (Miller, 1999, p. 29)

Since 1980s, a large body of studies in judgment and decision-making has addressed the action-inaction asymmetries, providing evidence for their various consequences in terms of cognition, emotion, preferences, or behavior (Feldman et al., 2020). Originally, Kahneman and Tversky (1982) observed the action-inaction asymmetry with respect to regret, and called the phenomenon *action effect*. In their now-classic paper, the action effect is described as the tendency to associate more regret with a negative outcome brought about by action than inaction. This effect turned out to become "one of the most well-known effects in the action-inaction literature" (Yeung & Feldman, 2022a, p. 4), replicated successfully ever since (e.g., Feldman & Albarracín, 2017; Feldman et al., 2020).

As conventionally operationalized, action denotes deviating from a prior decision or deciding to make a change, while inaction entails sticking with the initial decision or deciding not to make a change. The prominent scenario exemplifying this change vs. no change conceptualization of action-inaction (Kahneman & Tversky, 1982) depicted two stockholders, namely Paul and George, who own shares in two different companies. Later in the scenario, Paul decides to keep his stock in the same company, while George opts to switch to another company that Paul had originally invested in. In the end, both face a loss due to their decisions, but one as a result of change and the other as a result of no change in their invested company. As can be noticed within this early formulation of action and inaction, decision-makers are *initially engaged* in a course of action based on their own prior decision, i.e., already investing in a company, before finding themselves in a subsequent decision-making situation. An alternative way to operationalize action-inaction, however, would be "doing something vs. not doing something" (Yeung & Feldman, 2022a, 2022b). As indicated by these two definitions, then, the status quo might either refer to non-choice or engagement with the course of action linked to a former choice. But how does the action effect produced by doing something vs. not doing something compare to the action effect produced by change vs. no change?

The consequences of variation in the exact meaning of action-inaction have already been noted by Yeung and Feldman (2022b), who failed to replicate Gilovich and Medvec's (1994) Study 5 which was distinguished from the preceding four studies due to its reliance on free recall of real-life decisions and their corresponding felt regret instead of the scenario-based judgment situations. Yeung and Feldman speculated that the lack of evidence for action effect in their replication of this study was due to the difference in the

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meaning of action, specifically framing it as doing something as opposed to the conventional meaning of it as making a change. Despite the attention drawn to these two operationalizations of action-inaction and the preliminary evidence regarding their divergence, the two have not yet been compared against each other in a single study. Moreover, this has not been explored in the context of scenarios asking for regret judgments as attributed to the feelings of another rather than one's own. The present study seeks to fill in this gap.

Feldman et al. (2020) used norm theory (Kahneman & Miller, 1986) and its key concept of *normality* to describe and discern the various effects underlying action-inaction asymmetries. Normality may derive from distinct sources, including past behavior, expectations as relating to the context, and social norms (Feldman & Albarracín, 2017), and set the expectations for behavior as leaning toward either action or inaction in a particular setting with respect to a particular person. The higher the normality of inaction, the higher the cognitive availability of inaction and the counterfactuals representing inaction, which results in stronger regret for action than inaction due to the higher accessibility of counterfactuals representing inaction. Accordingly, the higher the normality of inaction in a particular situation the stronger the resulting action effect in that situation. Building upon the norm theory, we argue that inaction is more normal when action refers to change of a prior decision rather than simply doing something that has not been formerly done. Therefore, we expect a stronger action effect when action represents a change of decision (Hypothesis 2). Our argument for the higher normality of inaction in the case of action as change considers the difference in reference point between the two conditions and rests upon three accounts as presented below.

First, drawing on the concept of psychological commitment (Samuelson & Zeckhauser, 1988), investing resources in past decisions increases the likelihood of continuing commitment to them. The more the sunk cost associated with the initial status quo in terms of either time or effort, the harder it would become to deviate from it and change the decision. Second, not sticking with a prior personal choice endangers the decision-maker's reputation in the face of social norms for self-consistency. Third, switching to another choice might also become difficult due to ego involvement (Schweitzer, 1994), which incorporates the significance of issues and topics, such as past choices, to the self, as if the self is anchored in them (Sherif et al., 1965). Given the presence of a particular initial choice in the case of action as change and the more salience of this choice compared with the initial non-decision in the case of action as doing something, the three accounts collectively render inaction more normal, thus shifting normality away from action to inaction, further strengthening the action effect in the case of action as change.

Despite the large volume of studies focusing on regret from negative outcomes, few have investigated action effect as pertaining to the joy resulting from positive outcomes. Given that the norm theory-based argument for action effect (Feldman et al., 2020) makes no reference to outcome valence, we expect action effect to occur likewise for positive outcomes. However, findings have been mixed with regard to either replicability of the action effect for positive outcomes or the relative strength of the action effect resulting from negative and positive outcomes. More specifically, although Landman (1987) observed action effect for both negative and positive outcomes, Feldman (2020) and Fillon et al. (2022) found little or no action effect for a positive outcome. Moreover, while not differing from each other overall, the action effect associated with regret has been stronger than that of joy for scenarios concerning employment and education but not vacation (Landman, 1987). As argued by Gleicher et al. (1990), while counterfactuals are evoked spontaneously for a negative outcome, people are not particularly motivated to consider counterfactuals for positive outcomes. Their finding suggests that only when the counterfactual was made salient, the action effect for a positive outcome comparable to that of the negative outcome, while the non-salient counterfactual condition resulted in a weaker action effect for the positive than the negative outcome. Consistently, Landman (1987) found no difference between regret- and joy-related action effect for the counterfactual-salient vacation scenario, in contrast with the employment and education scenarios wherein counterfactuals were not mentioned. Considering the moderating role of counterfactual salience, we aim to examine and compare the action effect for positive and negative outcomes across four domains (Hypothesis 1) while controlling for the salience of the counterfactual through specifying it for both positive and negative conditions, following Gleicher et al.'s (1990) counterfactual-salient condition. We also go beyond the current literature by exploring the action effect related to positive outcomes in the context of the non-engaged initial state. With respect to the effect of initial engagement state on the action effect for positive outcomes, given that our argument for the effect of engagement state rested on the availability of counterfactuals, regardless of their valence, a similar effect may be expected with respect to joy.

The domain of life that the decision happens in might serve as another factor to moderate the action effect. Despite some variability in domains across studies, including health (Azarpanah et al., 2021; Shiloh et al., 2022), schoolwork (Landman, 1987; Chen et al., 2006), romantic and family relationships, friendship (Chen et al., 2006), education (Zeelenberg et al., 1998), sports (Zeelenberg et al., 2002), morality (Bostyn & Roets, 2016; Jamison et al., 2020), and management (Azar, 2021), very few (Landman, 1987; Chen et al., 2006) have included several of the domains in one study, with one (Landman, 1987) finding no difference in action effect between the three of them and the other (Chen et al., 2006) focusing on counterfactuals in the context of cross-cultural comparisons. Given the paucity of studies directly comparing the strength of action effect among domains, we aimed to include domain (employment, finance, education, and health) as a factor, seeking to also examine the generalizability of the effects of initial state and outcome valence across these domains.

To the extent that action-inaction norms differ across domains, action effect might be expected to differ among domains. Considering decisions for health behaviors (Brewer et al., 2016), including getting vaccinated (Shiloh et al., 2022), anticipated inaction-regret has been found to outweigh anticipated action-regret, a finding diverging from the renowned action effect (Kahneman & Tversky, 1982). Further, inaction-regret was a better predictor of health behaviors (Brewer et al., 2016) and vaccination intention (Shiloh et al., 2022) than action-regret. This has been explained by the higher condemn from medical authorities as well as self-blame elicited by inaction (not getting vaccinated) than action (Brewer et al., 2016). As stated in terms of norm theory (Feldman et al., 2020), situational and personal norms shifted inaction towards lower normality, thus making (inaction-)counterfactuals for action less accessible, an effect counteracting action effect. In our study, however, the particular health decision representing inaction (not attending a party/not switching to a new party), is of the social-distancing type, which leads to a reversed effect, rendering inaction highly normal, and resulting in intensified action effect as compared with other domains (Hypothesis 3).

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### Overview

The present study seeks to examine replicability of the action effect (Kahneman & Tversky, 1982) while varying the definition of action across two distinct operationalizations, i.e., action as change and action as doing something, a distinction also pointed out by Yeung and Feldman (2022a). More specifically, we aim to examine the effect of a decision-maker's initial state as already engaged or non-engaged in a course of action on action effect across four different life domains and with respect to both positive and negative decision outcomes. To this end, we followed the tradition of scenario-based studies (e.g., Gleicher et al., 1990; Kahneman & Tversky, 1982; Landman, 1987) to conduct an experimental study depicting two characters, one deciding for action and the other for inaction, followed by judgement of the perceived difference between the two characters in terms of their felt regret/joy. Hypotheses are as follows:

***Hypothesis 1:*** Initially engaged decision-makers are perceived as feeling more regret ($H_{1a}$)/joy ($H_{1b}$) in response to negative/positive outcome as a result of action than inaction.

***Hypothesis 2:*** The engaged initial state leads to higher action effect than the non-engaged initial state.

***Hypothesis 3:*** The health domain leads to higher action effect than finance, education, and employment.

## Method

### Participants

Participants were 215 Iranians who took part in this study via an online survey service (EPOLL) on a voluntarily basis. Respondents who failed to provide correct answers to the comprehension checks were excluded. This left us with 162 participants ($M_{age}$= 24.52, $SD$ = 7.37; 119 female) for the domain-aggregated analysis, followed by 202 (finance), 185 (education), 198 (employment), and 196 (health) participants for single-domain analyses after excluding participants who responded incorrectly to comprehension checks of that specific domain only. The final sample size for the domain-aggregated analysis enables us to detect fixed-effect omnibus effects as small as .15 (equivalent to .02 partial eta square) with 80.81% power. With regard to education level, 5% of the aggregated sample were pursuing or holding a high school diploma, 61.9% bachelor's, 21.8% master's, and 10.9% doctoral or medical degrees.

### Materials

*Decision-making scenarios.* Each scenario began by describing the initial state of a hypothetical person. The person then made a decision either to act or not to act. Scenarios were presented in pairs, with one character deciding to act (change the status quo) and the other deciding not to act (maintain the status quo). Their decision resulted in either a loss (negative outcome) or a gain (positive outcome) similar for both characters. Further, following Gleicher et al. (1990), we specified the decision outcome, be it a loss or a gain, in counterfactual terms, i.e., what would have been the outcome if the decision-maker had opted for the other option. Scenarios for education and employment were adapted from Landman (1987), with minor modifications to make them consistent with universities' common practices in our country; finance scenarios were adapted from Kahneman and Tversky (1982); and health scenarios were designed for this study which depicted a decision-making situation concerning COVID.

Scenarios representing the non-engaged initial state condition described the initial state of both characters as not investing anywhere (finance), selecting no courses (education), working for no company (employment), or attending no parties in the midst of COVID (health), while the engaged initial state scenarios described both characters as initially investing in a particular company (finance), selecting a particular course (education), working for a particular company (employment), or attending a particular party in the midst of COVID (health). For scenarios in the initially engaged condition, action refers to switching from one investment company (finance), course (education), employed-in company (employment), or party (health) to another, while in the initially non-engaged scenarios, action referred to investing in a company (finance), selecting a course (education), accepting a job offer from a company (employment), and going to a party (health). The complete set of scenarios may be found in supplementary materials.

The pair of finance scenarios representing initially-engaged actors whose decision led to a loss was identical to Kahneman and Tversky's (1982) investment scenario and follows as:

*Parsa owns shares in company A. During the past year, he considered switching to stock in company B, but he decided against it. He now finds out that he would have been better off by $1,200 if he had switched to the stock of company B.*
*Javid owned shares in company B. During the past year, he switched to stock in company A. He now finds that he would have been better off by $1,200 if he had kept his stock in company B.*

As can be seen, within the initially-engaged scenarios, the characters are initially engaged in a particular course of action, e.g., owning shares in a company. Conversely, within the initially non-engaged scenarios presented next, characters are not initially involved in a course of action:

*Parsa had no shares in any company. During the past year, he considered investing in company A, but he decided against it. He now finds out that he would have been better off by $1,200 if he had invested in company A.*
*Javid had no shares in any company. During the past year, he considered investing in company B. Eventually, he invested in it. He now finds out that he would have been better off by $1,200 if he had not invested in company B.*

*Perceived action-inaction difference in emotion.* Respondents were asked to rate the degree of regret/joy felt by the two characters following their decision in comparison with each other. The five Likert response set included 1 = [Person A] feels much more regret/joy than [Person B], 2 = [Person A] feels slightly more regret/joy than [Person B], 3 = [Person A] and [Person B] feel the same amount of regret/joy, 4 = [Person B] feels slightly more regret/joy than [Person A], and 5 = [Person B] feels much more regret/joy than [Person A].

*Comprehension checks.* There were four comprehension checks after each pair of scenarios which asked about the final decision of the characters depicted in the scenarios. Two of the questions asked this in terms of action/inaction, while the other two asked about the name of the final entity, e.g., the company, chosen. We used the former two questions to determine participant exclusions. These two questions had similar response options, consisting of the two different decisions made by characters. For example, for the financial scenario, the two response options included changing/not changing the company that they owned shares in.

### Procedure

We employed a 2 (actor's initial engagement state: Engaged or non-engaged) × 2 (outcome valence: Positive or negative) × 4 (life

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domain: Finance, education, employment, health) experimental design. Actor's initial engagement state and outcome valence were between-subjects factors, while life domain was the within-subjects factor. Perceived action-inaction difference in emotion served as the dependent variable with higher scores representing more regret/joy for action than inaction. Participants were randomly assigned to one of the four conditions differing in actor's initial state and outcome valence. Scenarios concerning the four domains, namely, finance, education, employment, and health, were presented in random order. Following each scenario, participants answered to the comprehension checks and the question on perceived action-inaction difference in emotion. Finally, they reported their demographic attributes, including sex, age, education level, and academic field. Informed consent was obtained from all participants in the study.

## Results

### *The Effect of Initial State, Outcome Valence, and Domain on Post-Decisional Emotion Judgment*

We used the domain-aggregated sample to examine the effect of initial engagement state, outcome valence, and domain on perceived action-inaction difference in emotion. Table 1 presents means and standard deviations for perceived action-inaction difference in emotion according to the four experimental conditions and the four domains. Participants in the four experimental conditions did not differ from each other with respect to age, $F(3, 160) = 0.49$, $p = .688$, or sex, $\chi^2(3, N = 162) = 4.78$, $p = .189$. One-sample $t$-tests were conducted to compare the mean of perceived action-inaction difference in emotion with the Likert midpoint, i.e., 3. More regret was reported in response to action than inaction only in the engaged, $t(36) = 3.55$, $p = .001$, $d = 0.58$, but not in the non-engaged, $t(42) = 1.02$, $p = .314$, $d = 0.16$, condition. However, more joy was reported in response to action than inaction in both the engaged, $t(30) = 3.99$, $p < .001$, $d = 0.72$, and the non-engaged, $t(50) = 3.51$, $p = .001$, $d = 0.49$, conditions. Accordingly, we found support for hypotheses $H_{1a}$ and $H_{1b}$, indicating action effect for both regret and joy in the initially engaged condition.

A mixed three-way ANOVA was performed with perceived action-inaction difference in emotion as the dependent variable, actor's initial state (engaged, non-engaged) and outcome valence (positive, negative) as the between-subjects factors, and domain (employment, education, health, finance) as the within-subjects factor. Results revealed a significant main effect of actor's initial state on perceived action-inaction difference in emotion, $F(1, 158) = 6.66$, $p = .011$, $\eta_p^2 = .04$, such that the perceived difference in emotion was lower for the non-engaged ($M = 3.21$, $SD = 0.69$) than the engaged initial state ($M = 3.51$, $SD = 0.77$). Moreover, the interaction of actor's initial engagement state and outcome valence was not significant, $F(1, 158) = 0.45$, $p = .505$, $\eta_p^2 = .00$. Accordingly, Hypothesis $H_2$ received support, indicating a higher action effect for the engaged than the non-engaged condition regardless of outcome valence.

The main effect of outcome valence on perceived action-inaction difference in emotion was not significant, $F(1, 158) = 1.03$, $p = .311$, $\eta_p^2 = .01$. However, the main effect of domain on perceived action-inaction difference in emotion was significant, $F(3, 474) = 5.34$, $p = .001$, $\eta_p^2 = .33$. Post-hoc tests using Bonferroni correction were used to further examine the differences among domains, and showed that perceived action-inaction difference in emotion was lower in employment ($M = 3.16$, $SD = 1.10$) than both finance ($M = 3.53$, $SD = 1.13$), $p = .001$, and health ($M = 3.43$, $SD = 0.99$), $p = .029$. However, we found no significant difference between education ($M = 3.35$, $SD = 0.98$) and finance, $p = .380$, finance and health, $p = 1.000$, education and employment, $p = .393$ or education and health, $p = 1.000$. The higher mean of perceived action-inaction difference in emotion for health compared to employment is in line with Hypothesis $H_3$ anticipating a higher action effect for health. Proceeding with ANOVA results, the interaction of outcome valence and domain, $F(3, 474) = 1.54$, $p = .202$, $\eta_p^2 = .01$, was non-significant, suggesting that the differences reported above among domains, holds across both positive and negative outcome conditions.

The interaction of the actor's initial engagement state and domain was significant, $F(3, 474) = 7.47$, $p < .001$, $\eta_p^2 = .04$. To inspect this significant interaction, simple effects were examined using independent $t$-tests comparing perceived action-inaction difference in emotion between the engaged and non-engaged conditions separately for each domain. Results revealed that the perceived action-inaction difference in emotion was higher in the engaged ($M = 3.54$, $SD = 1.00$) than the non-engaged condition ($M = 2.81$, $SD = 1.10$) for employment, $t(160) = -4.36$, $p < .001$, $d = 0.69$, also higher in the engaged ($M = 3.54$, $SD = 0.92$) than the non-engaged condition ($M = 3.15$, $SD = 1.07$) for education, $t(160) = -2.45$, $p = .016$, $d = 0.39$, while engaged and non-engaged conditions did not differ for the remaining two domains, i.e., finance, $t(160) = -1.07$, $p = .285$, $d = 0.16$, and health, $t(160) = 0.80$, $p = .427$, $d = 0.13$. This indicates that action effect was higher for the engaged than the non-engaged condition in employment and education, but not differing from each other in health and finance. Given that the three-way interaction between the actor's initial state, outcome valence and the domain was not significant, $F(3, 3.09) = 1.40$, $p = .243$, $\eta_p^2 = .01$, this finding holds across both regret and joy.

**Table 1.** Means and Standard Deviations of Perceived Action-Inaction Difference in Emotion according to Initial State, Outcome Valence, and Domain for the Domain-Aggregated Sample

| | Initially Engaged | | | | Initially Non-engaged | | | |
|---|---|---|---|---|---|---|---|---|
| | Negative outcome ($N = 37$) | | Positive outcome ($N = 31$) | | Negative outcome ($N = 43$) | | Positive outcome ($N = 51$) | |
| Domain | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Finance | 3.65 | 1.32 | 3.61 | 0.88 | 3.37 | 1.20 | 3.49 | 1.14 |
| Education | 3.51 | 1.02 | 3.58 | 0.88 | 3.09 | 1.21 | 3.20 | 0.96 |
| Employment | 3.51 | 1.10 | 3.58 | 0.89 | 2.44 | 1.08 | 3.12 | 1.03 |
| Health | 3.35 | 0.89 | 3.42 | 1.02 | 3.56 | 1.20 | 3.47 | 0.92 |

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### Domain-Specific Analyses

We used the four domain-specific samples to examine the effect of initial engagement state and outcome valence on perceived action-inaction difference in emotion separately for each domain. Table 2 presents means and standard deviations for perceived action-inaction difference in emotion according to different experimental conditions for domain-specific samples. Participants in the four experimental conditions did not differ from each other with respect to age, $Fs > 0.06$, $ps > .88$, or gender, $\chi^2$s > 6.20, $ps > .07$, within the four domains. One-sample *t*-tests for the initially engaged condition of each domain showed that action resulted in higher regret than inaction within all domains, $ts > 3.58$, $ps < .001$., $ds > 0.47$. Likewise, action resulted in higher joy than inaction within all domains, $ts > 3.03$, $ps < .004$. $ds > 0.47$. Thus, we found domain-specific support for both $H_{1a}$ and $H_{1b}$. However, findings were not consistent for the not-engaged condition. We found that action resulted in higher regret than inaction in employment, $t(47) = -3.12$, $p < .001$, $d = 0.45$, and health, $t(44) = 3.44$, $p = .001$, $d = 0.51$ but not finance, $t(44) = 1.88$, $p = .066$, $d = 0.28$, or education, $t(46) = 1.09$, $p = .283$, $d = 0.16$. Regarding joy, action resulted in higher joy than inaction in finance, $t(52) = 2.70$, $p = .009$, $d = 0.37$, and health, $t(50) = 3.64$, $p = .001$, $d = 0.51$ but not education, $t(52) = 1.43$, $p = .159$, $d = 0.20$, or employment, $t(51) = .81$, $p = .420$, $d = 0.11$.

According to domain-specific initial state × outcome valence ANOVAs, the main effect of outcome valence was non-significant for finance, education, and health, $Fs > 0.02$. The only exception was employment, wherein more action-inaction difference in joy than regret was perceived, $F(1, 194) = 4.69$, $p = .031$, $\eta_p^2 = .02$. The main effect of initial state of engagement was non-significant for finance and health, $Fs > 0.63$, while the initially engaged state resulted in higher perceived action-inaction difference in emotion than the initially non-engaged for both employment, $F(1, 194) = 22.76$, $p < .001$, $\eta_p^2 = .10$, and education, $F(1, 181) = 6.10$, $p = .014$, $\eta_p^2 = .03$. Therefore, hypothesis $H_2$ was supported with respect to education and employment, indicating a higher action effect for the engaged than the non-engaged condition in these two but not the other two domains.

Finally, the interaction effect of outcome valence and initial state was only significant for employment, $F(1, 194) = 3.99$, $p = .047$, $\eta_p^2 = .02$, but not the remaining three domains, $Fs > 0.2$, suggesting that the effect of initial state on perceived action-inaction difference in emotion was similar across regret and joy within all domains except employment. Examining simple effects within the employment domain revealed that the engaged state led to higher perceived action-inaction difference in emotion than the non-engaged state for both joy, $t(90) = -2.02$, $p = .046$, $d = 0.43$, and regret, $t(104) = -4.72$, $p < .001$, $d = 0.90$, but the effect was larger in the case of regret (see Figure 1).

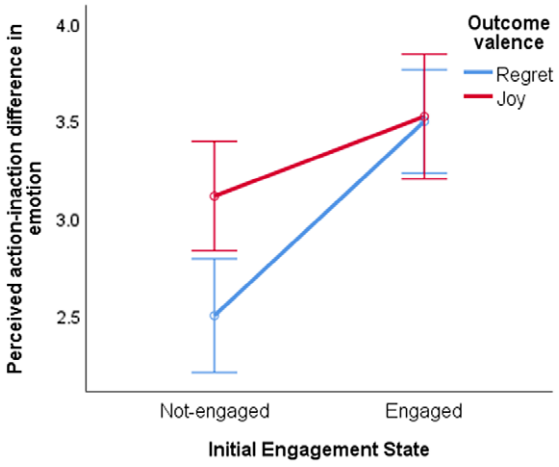


**Figure 1.** . Perceived Action-Inaction Difference in Emotion according to Outcome Valence and Initial State for the Employment Domain (Error bars represent +/- 1 *SE*).

## Discussion

We set out to replicate and extend the classic action effect paradigm (Kahneman & Tversky, 1982) by comparing action effect as resulting from two distinct operationalizations of action (Yeung & Feldman, 2022a), namely, action as change (e.g., Kahneman & Tversky, 1982) and action as doing something (e.g., Gilovich & Medvec, 1994). As predicted, we found robust evidence for the occurrence of action effect with respect to the initially engaged decision-maker (action as change) in relation to positive and negative outcomes across four life domains, suggesting successful replication of the phenomenon. However, the action effect tended to emerge more sparsely with regard to the initially non-engaged decision-maker (action as doing something) across different outcomes and domains. By including a novel COVID-related health scenario, besides the more traditional domains of finance, education, and employment, and particularly concerned with a social-distancing rather than vaccination decision, our findings also speak to the recent emergent literature regarding affect, cognition, and behavior in the context of a pathogen pandemic.

### Initial Engagement State and Outcome Valence

As a novel finding, yet consistent with our hypothesis, action effect varied in strength between the two definitions of action. More specifically, the perceived action-inaction difference in the judgment of decision-maker's emotion was lower for the non-engaged initial state (action as doing something) than the engaged initial

**Table 2.** Means and Standard Deviations of Perceived Action-Inaction Difference in Emotion according to Initial State and Outcome Valence for Domain-Specific Samples

| | Initially Engaged | | | | | | Initially Non-engaged | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Negative outcome | | | Positive outcome | | | Negative outcome | | | Positive outcome | | |
| Domain | *M* | *SD* | *N* | *M* | *SD* | *N* | *M* | *SD* | *N* | *M* | *SD* | *N* |
| Finance | 3.75 | 1.21 | 61 | 3.56 | 0.85 | 43 | 3.33 | 1.19 | 45 | 3.43 | 1.17 | 53 |
| Education | 3.53 | 0.95 | 47 | 3.58 | 0.79 | 38 | 3.19 | 1.21 | 47 | 3.19 | 0.96 | 53 |
| Employment | 3.50 | 1.06 | 58 | 3.53 | 0.88 | 40 | 2.50 | 1.11 | 48 | 3.12 | 1.02 | 52 |
| Health | 3.41 | 0.89 | 58 | 3.45 | 1.02 | 42 | 3.62 | 1.20 | 45 | 3.47 | 0.92 | 51 |

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state (action as change). This provides support for our norm theory-based account of the effect of the decision-maker's initial state on the action effect. Decision-makers who are initially engaged in a particular course of action receive reputational benefits from others (Dorison et al., 2022; Fillon et al., 2022), and these social grants strengthen the injunctive norms associated with sticking to one's decision, thus rendering inaction highly normal. Given the salience of deviation from norms (Feldman et al., 2020), the emotional reaction to losses or gains due to it, i.e., action in this case, becomes more intensified. Also, as anticipated, considering the observed independence of this effect from outcome valence, the way action is defined had implications in terms of the strength of action effect for regret and joy, likewise.

Turning to the effect of outcome valence, except for one domain, i.e., employment, wherein joy both outweighed regret in action effect and led to a smaller effect of initial state on action effect, no overall or interactive effect involving outcome valence was observed. This is consistent with prior studies who found no difference between positive and negative outcome in terms of action effect (e.g., Landman, 1987). Moreover, given that we controlled for the salience of counterfactuals, our findings also replicate previous evidence regarding the role of counterfactual salience as a moderator of the positive-negative difference (e.g., Gleicher et al., 1990).

### *Domains of Life: Finance, Education, Employment, and Health*

Although we expected health to surpass all domains with respect to action effect, this turned out to be the case only in comparison with employment, therefore providing partial support for our hypothesis. Moreover, despite an overall effect of the initial state on action effect, this effect was also moderated by domain, such that the higher action effect for the initially engaged than the initially non-engaged decision-maker was limited to education and employment. These differences may be explained by taking into account the influence of distinctive norms in a certain context.

Every context involves several, possibly contradicting, norms that exert influence on judgments and decisions. Thus, it might not always be possible to predict a priori which particular norm would prevail in a particular context. Diverging effects of different norm categories (Feldman et al., 2020) on the perceived normality of action vs. inaction, may weaken the overall action effect. Lack of support for the stronger action effect with respect to health than either finance or education may be attributed to the conflict between social, role/situation, and past behavior norms, or even different norms in a single category. For example, even though authority guidelines regarding behaviors during the COVID pandemic were against going to social gatherings, particularly a number of them during a short period, to prevent the spread of the disease, the norm originating from friends and families regarding the importance of social relationships to combat isolation and depression may counteract effect of the latter norm. Consequently, even a domain involving prominent authority norms may turn out not to differ from other domains in terms of the emotional reaction evoked by action vs. inaction. A similar explanation may be offered for the moderation of the effect of the initial state by domain, arguing that distinctive norms across different domains render either action as change or action as doing something more or less normal.

We witnessed two distinctive findings with regard to employment, both of which may be explained by considering the importance of the context in which norms exert their influence (Fillon et al., 2022). The first finding is that the employment domain had an overall weaker action effect than two other domains (finance and health). Second, only in this domain, outcome valence moderated the effect of initial state on action effect, such that the initial state had a larger impact on action effect in the case of regret than joy, representing an instance of "bad as stronger than good" effect (Baumeister et al., 2001). Explanations based on norm theory (Feldman et al., 2020) may be offered for these effects. Occurrence of the first effect, i.e., smaller action effect in the employment domain, requires inaction to have less normality in employment compared with the two other domains. This can be explained by considering the context of economic problems in our country, particularly the rather high rate of unemployment in recent years, which make it plausible to assume that inaction (not changing one's employment state) is more normal than action, due to the effect of social norms that favor keeping one's current job rather than switching to another in a largely unstable and economically unsafe environment. The second effect, i.e., the moderation of the effect of initial state by outcome valence, requires deciding not to act to avoid negative outcomes to be more normal than deciding not to act to avoid loss of positive outcomes. This one may also be conceived by considering the specified economic circumstances under which avoiding negative outcomes takes more precedence than achieving positive outcomes.

The current study is subject to several limitations that may direct future research. First, in the context of the scenarios, it is not specified whether the actor's initial state was chosen or not. We did not make it explicit whether the decision-maker's initial lack of engagement in a particular course of action was self-opted or mandated by other. As such, the initial state may refer to the state caused by the person's former choice or even a default set by an authority. If we assume that the person has *chosen* this initial state, for instance, unemployment, then action would mean to change the prior decision, thus entailing the consequences and effects associated with changing a decision. Conversely, if unemployment has not been a particularly personal choice, the difference between action and inaction in terms of changing a decision becomes weaker. Future studies may address this by systematically varying the degree of autonomy over the initial state, even including set defaults, and thus, involve the default bias (Johnson & Goldstein, 2003). A second limitation concerns merely speculating about rather than measuring different norms assumed to influence judgments of emotional reactions following a decision. Future research may help to disentangle the effect of several norms, as inferred from norm theory (Feldman et al., 2020) in a certain situation by actually assessing and testing them as a mediating mechanism. Third, scenarios of different domains differed from each other in terms of the time span between the decision and its outcome. In the health domain, the outcome was revealed after a few days, while in education, it took up to the end of the semester, i.e., about thirteen weeks, and in employment and finance, the duration is not definite. This might have consequences in terms of judged emotions. Future studies may wish to consider this as a factor.

Another possible future direction may be to examine the effect of initial engagement state within different novel contexts in order to evaluate the replicability of present findings. Mix-and-match vaccination (getting vaccinated by different vaccines across multiple doses; Borobia et al., 2021; Shaw et al., 2021) may serve as one such context. A non-vaccinated actor represents the initially non-engaged condition, while a formerly vaccinated actor pondering vaccine switching represents the initially engaged. Our findings predict that vaccine-switching (action as change) will be perceived as resulting in more regret/joy than getting vaccinated for the first

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time (action as doing something) when they result in similar outcomes, e.g., vaccine side effects.

Action effect indicates that under identically negative outcomes, decisions that are due to action result in more regret than those due to inaction. This study focused first and foremost on actor's initial state of engagement in a particular course of action as one possible moderator of the well-established action effect. More specifically, we built upon the previously identified distinction between two meanings of action, i.e., action as change and action as doing something, and examined the replicability of action effect across these two conditions as well as positive and negative outcomes, within the context of four different life domains. Our results suggested that compared with the initially engaged state, the non-engaged initial state is associated with diminished emotional reaction judged to occur following the decision. This sets a higher action effect for action as change compared to action as doing something, with respect to both regret and joy. Results were generally similar regarding positive and negative outcomes. Lastly, the particular domain of life within which decisions happen emerged as a determinant of the strength of action effect, both on its own and as the moderator of the effect of the initial state. Taken together, findings suggest the importance of contextual factors in determining differential regret or joy for action vs. inaction. It has implications regarding the particular context within which a decision happens and contributes to the literature examining the replicability of action effect across different situations.

**Competing interest.** None.

**Data sharing.** All data and material that support findings of this study are openly available at https://osf.io/fduq5/?view_only=37cc6a1820cf4d84810662027d685816

**Authorship credit.** M. S.: Conceptualization, Methodology, Investigation, Formal Analysis, Writing–original draft, Writing–review & editing. P.N.: Conceptualization, Supervision, Methodology, Resources, Writing–review & editing R.B.: Conceptualization, Methodology, Investigation, Formal Analysis, Writing–original draft.

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