Meta-Psychology, 2026, vol 10, MP.2023.3960
https://doi.org/10.15626/MP.2023.3960
Article type: Replication Report

Open data: Yes
Open materials: Yes
Open and reproducible analysis: Yes
Open reviews and editorial process: Yes
Preregistration: Yes

Edited by: Rickard Carlsson
Reviewed by: Lukas Röseler, Rima-Maria Rahal
Analysis reproduced by: Natalie Hyltse, Rickard Carlsson
All supplementary files can be accessed at OSF:
https://doi.org/10.17605/OSF.IO/XK3SW

Inaction Inertia Effect: Foregoing Opportunities as a Consequence of an Initial Failure to Act – a Replication-Extension Study in the Brazilian Population

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The inaction inertia effect is a cognitive bias in which forgoing an attractive opportunity reduces the likelihood of accepting a subsequent, less attractive opportunity. This phenomenon was initially demonstrated by Tykocinski et al. (1995), and the present study aimed to replicate their findings and assess the effect in a Brazilian population. We used an online survey with a translated version of the original questionnaire, as well as an extension scenario. The final sample included 436 participants. We performed statistical analyses using the Kruskal-Wallis non-parametric test, comparing three conditions ("Small-Difference", "Large-Difference", and "Control") for the four original scenarios and one extension scenario. We also stratified the scenarios into two categories for a second extension investigation: those involving money (Hotel and Car) and those that did not (Frequent flyer and Fitness center), and evaluated them using linear mixed-effects analyses. We found evidence of the inaction inertia effect in 6 of the 12 comparisons between conditions conducted across the four original scenarios, indicating its presence in this Brazilian sample. All scenarios presented significant differences between conditions (p-values < 0.001; ϵ^2 ranging from 0.06 to 0.22), except for the Frequent flyer scenario (p-value $= 0.073$; $\epsilon^2 = 0.01$). We also observed support for the Inaction Inertia Effect in the extension scenario, providing further evidence of its presence in our sample (p-value $= 0.002$; $\epsilon^2 = 0.03$). Moreover, we found that money was a significant factor in participants' decisions (p-values $= 0.004$ and 0.002), suggesting that different decision-making processes are involved when money is at stake. This replication-extension study provides evidence of the inaction inertia effect in the Brazilian population, indicating that passage of time and cultural differences may not significantly affect this cognitive bias, first described almost 30 years ago. Materials, data, and code were made available at https://doi.org/10.17605/OSF.IO/62NXB

Keywords: Inaction Inertia Effect; Decision-making; Replication; Cognitive Bias; Psychology; Behavioral Economics

Introduction

The inaction inertia effect is a cognitive bias in which people, when faced with a foregone opportunity, are less likely to accept a subsequent less attractive opportunity (Tykocinski et al., 1995). This phenomenon occurs even if the second chance still offers a desired positive absolute value (Tykocinski & Pittman, 1998). This is because past experience serves as a benchmark against which current decisions are compared: an initial decision not to act (or being unable to act) increases the likelihood of subsequent decisions not to act, especially if the subsequent opportunity falls short of the value of the first lost opportunity.

Such bias can be seen in the following scenario: let's suppose a person walks by an appliance store on their way home and sees the following advertisement: "To-

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day only! Buy this television and win a set of portable speakers and an AirFryer!". This announcement seems very interesting; however, they decide to continue on their way home. Afterward, they change their mind and hush back to the appliance store to buy the TV and win both the portable speakers and the air fryer, but it is too late: the store is now closed. On the following day, the person goes back to the store, but now there is another advertisement: "Buy this television and win a movie theater ticket!". Frustrated, the person once again returns home without buying the television. As we can see, this new promotion still has an advantage, but not as much as compared with the former, reducing the probability of that person choosing it.

The inaction inertia effect has been used to explain other phenomena, such as product aversion following a missed opportunity (Tykocinski & Pittman, 2001), procrastination (Pittman et al., 2008), suboptimal decisions for retirement saving (Krijnen et al., 2020), negotiations on job offers (Foster & Diab, 2017), and international negotiations (Terris & Tykocinski, 2016). Such behaviors have been explained by a decrease in the individual's subjective value of the subsequent opportunity and by a desire to avoid regret for having missed the initial opportunity (Arkes et al., 2002; Tykocinski & Pittman, 2001). In the inaction inertia original study (Tykocinski et al., 1995), participants faced four scenarios with three different conditions (see Supplementary material, Tables S1 and S2), which differed in the magnitude of the difference between the opportunities presented: the "Large-Difference" condition presented an initial opportunity more advantageous than the subsequent, the "Small-Difference" condition presented an initial opportunity only slightly more advantageous than the subsequent, and finally, the "Control" condition only presented the subsequent opportunity. The study concluded that the inaction inertia effect is a cognitive bias that occurs across different scenarios, regardless of whether it involves price, the level of effort required, or the expected reward size. The results also indicated that the size of the difference in attractiveness between the opportunities presented (small or large) is an essential determinant of the inaction inertia effect: the larger the difference, the lower the likelihood of choosing the subsequent bid.

Although the indirect effect of inaction inertia has been investigated in previous studies (van Putten et al., 2008; Zeelenberg et al., 2006), only one direct replication of the original study has been published up to now (Chen et al., 2021). This replication found similar results when compared to the original study, and the inaction inertia effect was found only when the "Large-Difference" condition was compared with the other conditions. Such evidence suggested that the inaction inertia effect is stronger in situations involving foregone opportunities and is much more advantageous than the initial opportunity (results of the original and replication studies are summarized in Tables S3 and S4 in the Supplementary Material).

Up to now, no study of the inaction inertia effect has been conducted with the Latin American population. Therefore, this study aimed to conduct a direct replication study on a Brazilian sample to verify the presence of this effect, as originally described by Tykocinski et al. (1995). Additionally, our study included two preregistered extensions: 1) considering the increasing use of technological tools in everyday life throughout the years (Dscout, 2016; Statista, 2021), a new scenario involving an imaginary streaming platform created by the authors, named Pucflix, was proposed to investigate the inaction inertia effect in the acquisition of a digital service and 2) considering the importance of money in decision making and evidence that people respond differently when another unit (such as time) is provided as the outcome (Festjens et al., 2015), we conducted a specific analysis comparing scenarios that involved money in their outcomes and those without it, to investigate the role of financial decisions in the inaction inertia effect. According to these aims, we hypothesized: 1) the inaction inertia effect would be present in the Brazilian population, considering that the greater the difference between the initial offer (more advantageous) and the subsequent one (less advantageous), the lower the acceptance of the offer. Therefore, we expected to find support for the investigated effect, considering the results of the previous studies; 2) the inaction inertia effect would also be present in the extension scenario, and 3) the effect would be more pronounced in scenarios involving money. All analyses and hypotheses were preregistered before data collection, including the extension analyses.

Methods

Procedures

This is a replication of the inaction inertia effect from the original study of Tykocinski et al. (1995), adapted to Brazilian culture and with two pre-registered extensions: 1) a streaming platform scenario to suit our current time better, and 2) an analysis of the impact of money on decision-making in the Brazilian population. This research was approved by the research ethics committee of the Pontifícia Universidade Católica of São Paulo (PUC-SP) in 2021 (CAAE 44189021.5.0000.5482, approval number 4.592.619).

We adopted an experimental design with an online

questionnaire data collection. Participation in the study was voluntary and did not involve any financial aid. Inclusion criteria were (a) age greater than or equal to 18 years and (b) authorization granted through the Free and Informed Consent Form (ICF). If the participant did not complete all scenarios; their data was included only in the filled-out scenarios. A description of each scenario is displayed on the Open Science Framework (https://doi.org/10.17605/OSF.IO/62NXB).

A self-report questionnaire was developed using the Qualtrics XM platform, and the access link was distributed and shared through various social media platforms. Data collection took place online between December 2021 and February 2022.

Translation and cultural adaptation

The scenarios from the original study (Tykocinski et al., 1995) were translated into Brazilian Portuguese and adapted to the Brazilian context based on Beaton and Yasir's guidelines (Beaton et al., 2000; Yasir, 2016). The first stage was the initial translation of the original questionnaire (in English), divided between three researchers fluent in Brazilian Portuguese and English. In the second stage, each excerpt was revised by an independent researcher who had not translated it. In addition to translating the text from English to Brazilian Portuguese, minor changes were made to the questionnaire (as widely discussed by the researchers) to better adapt it to the Brazilian context.

In the present study, we made two changes to the original questionnaire: the Ski resort scenario of the original study was modified to a Farm hotel[1], a common vacation stay in Brazil, since no ski resorts exist in the country (see supplementary material for more details); also, a new scenario regarding an imaginary streaming platform was added, as explained in the first section of the present paper.

After reaching a consensus concerning all sections, the next stage was the expert committee review. The group's senior researchers (LS and MCB) revised the questionnaire, correcting any errors until consensus was reached that it was ready. Once the questionnaire was translated and adapted, the final stage was a pilot test, in which we obtained responses from 15 participants. The final version of the questionnaire was concluded after incorporating feedback and data from the pilot study (for the Portuguese version of the questionnaire, see the file 'Qualtrics_questionnaire.pdf' on the OSF). For more information about the scenarios, check the "Instruments" section below and the Supplementary material.

Instruments

First, we collected sociodemographic information, including age, gender, city of residence, education level, and family income. Then, the four replication scenarios and the extension scenario were presented in the same order for all participants. After reading each scenario, participants rated their likelihood of accepting an offer on an 11-point scale (0 = not likely at all, 10 = extremely likely). For each scenario, participants were randomly assigned to one of three conditions: 1) "Large-Difference"; 2) "Small-Difference", and 3) "Control" condition. In the "Large-Difference" condition, the subsequent opportunity was much less attractive than the foregone one (i.e., a price of $120.00 for the missed opportunity compared to $300.00 for the subsequent one). In the "Small-Difference" condition, the subsequent opportunity was slightly less attractive than the foregone one (i.e., $270.00 vs. $300.00). At the "Control" condition, only the second opportunity was presented. The monetary values from the original study were converted to Brazilian Reais, considering an exchange rate of 3 Reais per Dollar. Such currency conversion was the closest approximation to represent the last decade, given Brazil's relatively high recent variability in Dollar values (AASP, 2023). Verification questions were used to assess participants' understanding of each scenario (Table S5 in the Supplementary Material). Participants were excluded from the analysis of scenarios in which they failed verification questions.

Data analysis

All statistical analyses, R scripts, and databases are available on the OSF page. Power analyses were conducted using G*Power (version 3.1.9.6, 2020) to estimate the required sample size for each scenario (excluding the extension scenario, for which we had no prior effect size) (Faul et al., 2007). We adopted the effect sizes from the original study (Table 1) as calculated by Chen et al. (2021), with alpha = 0.05 and 1-beta = 0.95 for a two-tailed F test with three groups.

Statistical analyses were conducted using R [version 4.2.2] (R Core Team, 2022). The Jamovi software was used solely to generate visual representations of the data analysis, including histograms, violin plots, and

[1] A more familiar type of resort in Brazil is the Farm hotel (also known as Country hotels or Farm Stay - in Portuguese it's called "Hotel Fazenda"): a type of accommodation common in Brazil, in which guests pay to stay on vacation in a working farm. This substitution was due to a cultural adaptation, since there are no ski resorts in Brazil since the average snowfall is very low and exclusive to the extreme southern region.

Table 1

Effect Sizes and the estimated minimum sample size required for each scenario.

Scenario	Effect size*	Estimated minimum sample size required
Farm hotel	0.34	138
Car	0.27	216
Frequent flyer	0.31	165
Fitness center	0.26	234

*Cohen's f. Alpha values were set to .05 and beta to .95. The effect sizes used in the power analysis to calculate the sample size for the present study were extracted from Chen et al. (2021).

box plots (Jamovi, 2020 [version 2.2.5.0]). The analyses were performed on R using the packages `readxl` (Wickham & Bryan, 2022); `dplyr` (Wickham et al., 2022); `ggpubr` (Kassambara, 2022a); `rstatix` (Kassambara, 2022b); `stargazer` (Hlavac, 2022); `sjPlot` (Lüdecke, 2023); `jmv` (Selker et al., 2022); and `robustlmm` (Koller, 2016). In R, we first performed the descriptive analyses for each condition ("Large-Difference", "Small-Difference", "Control"). Normality checks were then conducted for each scenario and each condition using the Shapiro-Wilk test (`rstatix` package). The equality of variances was analyzed through Levene's Test (`rstatix` package), for each scenario. Analyses revealed non-normal distributions across all conditions in each scenario (Tables S6 and S7, for the normality check, and Table S8 for homogeneity of variance); therefore, differences between conditions were analyzed with the non-parametric Kruskal-Wallis test (`rstatix` package). When a significant difference was observed, post hoc pairwise comparisons were performed between conditions using the Dwass-Steel-Critchlow-Fligner test for multiple comparisons, with the `jmv` package (Selker et al., 2022).

To test the hypothesis about the impact of money on decision-making, scenarios involving money (Hotel and Car) and scenarios not involving money (Frequent flyer and Fitness center) were assigned to separate subgroups, as preregistered. We did not include the extension scenario (Pucflix) in this analysis. After running the assumption checks, we performed a robust mixed-effects analysis to compare the money vs. non-money scenarios (using the `rlmer` function from the `robustlmm` package in R). Two models were then fitted to investigate whether scenarios involving money and the conditions predicted participants' probability choices: in the first, participants were treated as random effects, whereas subgroups and conditions were treated as fixed effects, and in the second, participants and conditions were treated as random effects, whereas subgroups and conditions were treated as fixed effects. Q-Q plots for both models can be seen in the supplementary file (Figures S1 and S2 for raw data and S3 and S4 for the clean data). Finally, a Mann-Whitney U test was performed using the `asht` package (Fay, 2023) to investigate the presence of the inaction inertia effect within scenarios with and without money for comparisons between 1) "Large-Difference vs Small-Difference"; 2) "Small-Difference vs Control", and 3) "Large-Difference vs Control".

Open Science Framework

In accordance with reproducible research practices, the research and analysis plans were pre-registered (with their English translations also uploaded) on the Open Science Framework (OSF) before data collection (https://doi.org/10.17605/OSF.IO/9NZQG). Such practices support transparency and openness regarding the procedures and hypotheses described in the study, reducing bias and contributing to a more robust and reproducible study (Barch, 2021; Field et al., 2020; Strømland, 2019).

Results

Preregistration deviations

We acknowledge two deviations from the preregistration that were indicated in *Meta-Psychology* checklist (a document attached in the original submission of the manuscript): 1) we have extended our proposed sample (n = 250), with the rationale to increase even further our power to detect small effect sizes. This, in turn, would give us a better understanding of the cognitive bias we were studying, as replications in the Psychology field tend to show smaller effect sizes than the original studies. Thus our sample was larger than planned; 2a) we opted to use non-parametric analyses, since these were more adequate to our dataset, according to normal distribution and homogeneity of variance assumptions, and 2b) as a consequence of the previous point, the fact that we reported Cohen's d in our data analysis can be criticized, but it was a possible way of comparing our results with the previous replication by Chen et al. (2021). An Rmd file with exactly the same analyses reported here, but with N = 250, was added to the OSF files ("Analysis Material > R Code"), along with its knitted HTML file.

Replication

Socio-demographic data are shown in Table S9 in the supplementary material. In total, 456 participants re-

sponded to the survey. Of those, 19 abandoned the study before completing the first scenario, and one was excluded for being under 18, leaving 436 participants who completed at least the first scenario (the Farm hotel scenario). The total number of participants who completed all scenarios was 421. The sample was composed mostly of women (66%), with a mean age of 32 years (SD = 13.8), with complete or ongoing graduation (94%), and a monthly family income higher than R$15,675.01 (40%). Participants were from 19 of Brazil's 27 states, with the majority from São Paulo (82%) (Figure S1). Figure 1 shows the distribution of each condition across all scenarios, and the assumption checks (normality of distribution and homogeneity of variance) are presented in Tables S7 and S8. Table 2 shows the mean values for each condition and the comparisons between conditions in the replication and extension scenarios. All scenarios, except the Frequent flyer scenario (p-value = 0.073; ϵ^2 = 0.01), showed the inaction inertia effect. Of the five scenarios, the "Control" condition presented the highest mean value in three scenarios, while the "Small-Difference" condition presented the highest mean in two scenarios. Post-hoc comparisons between conditions were conducted using the Dwass-Steel-Critchlow-Fligner test to assess the likelihood of acting on a subsequent opportunity (Table 3). There was a significant difference between the "Large-Difference" and "Small-Difference" conditions in three scenarios (Table 3). When comparing the "Large-Difference" condition with the "Control" condition, the difference was significant only for the Car scenario. Notably, as opposed to previous findings, the mean of the "Control" condition was significantly smaller when compared with the "Large-Difference" condition in the Fitness center scenario, and the "Small-Difference" condition was significantly higher when compared with the "Control" condition in the Farm hotel scenario (Figure 1).

Overall, the present study yielded similar results in the between-condition comparisons in half of the analyses (6 out of 12 possibilities) as the original study (Tykocinski et al., 1995) (Table S10). Regarding the comparison with the replication study by Chen et al. (2021), we obtained "signal" according to LeBel's criteria (2019) in 9 out of 12 comparisons, with 11 out of 12 being classified as "consistent" (Table 4).

We also ran preregistered analyses for all scenarios after excluding the participants who failed the verification question. Table S11 in the supplementary material shows the rate of correct answers in each scenario. There was no major difference compared with the total sample: the inaction inertia effect was observed in three of the original four scenarios (Figure S6; Tables S12 and S13). Finally, there were also no main differences in the main results of the study when considering the initially proposed sample (N = 250).

Extensions

Tables 2 and 3 show comparisons across conditions in the Pucflix extension scenario. The only significant difference was between the "Large-Difference" and the "Control" ($p < 0.001$). Of all the conditions, the "Large-Difference" had the lowest average, indicating a lower probability of subscribing to the streaming service when the subsequent offer was farther from the initial offer.

Regarding the second extension, both models tested using the robust mixed linear effects analysis (with "condition" as a fixed or random effect) indicated that money was a predictor of the subjects' value estimates (p-values = 0.004 and = 0.002, Tables S14 and S15, respectively). In addition, within-group comparisons with the participants' average values across the different conditions for the grouping of scenarios "with money" (Farm hotel and Car) and "without money" (Frequent flyer and Fitness center) were performed. As shown in Table 5, all comparisons in the "with money" scenarios showed differences among conditions, whereas in the "without money" scenarios, only the "large-control" comparison did not show significant differences among conditions. The same analyses were conducted after excluding the participants who failed the verification question, and the results remained similar (Tables S16 and S17).

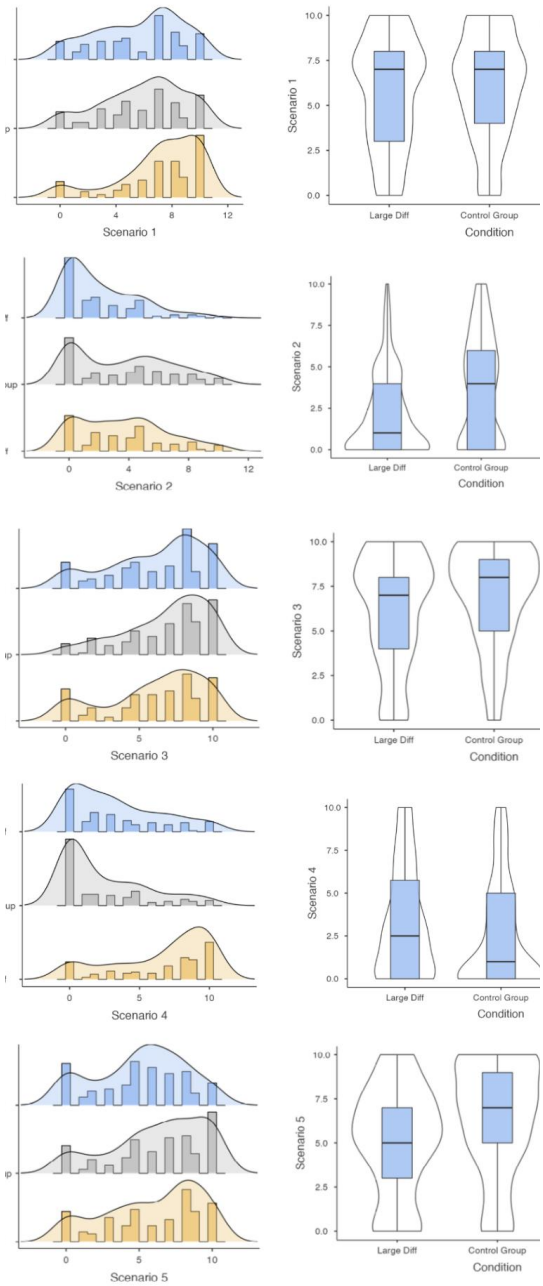
Discussion

Our study shows evidence of the inaction inertia effect in the Brazilian population, partially replicating the original study and replicating very closely the study of Chen et al. (2021): half of the results (6 of 12 possibilities) of the original study were replicated Tykocinski et al. (1995), as shown in Table S10, and almost all results were replicated in comparison with Chen et al. (2021), as shown in Table 4, with the only exception of the frequent flyer scenario (Large-Control condition). Therefore, our and previous studies may suggest that the inaction inertia effect occurs similarly in different cultural and geographical contexts and that it is possibly more susceptible to factors linked to the passage of time, such as: generational issues, the increased use of e-commerce, or the value of the products/services offered in the scenarios in the era in which they are presented. We further elaborate on possible explanations for the results in each scenario.

In the Farm hotel scenario, there were significant differences between the "Large-Difference" and

Figure 1

Histograms and violin boxplots of scores based on conditions.



Shapiro-Wilk normality assumption for the following distributions: A) Farm hotel, control condition W = 0.934; $p < 0.001$; small-difference condition W = 0.839; $p < 0.001$ and large-difference condition W = 0.933; $p < 0.001$; B: Car, control condition W = 0.891; $p < 0.001$; small-difference condition W = 0.921; $p < 0.001$ and large-difference condition W = 0.823; $p < 0.001$; C: Frequent flyer, control condition W = 0.891; $p < 0.001$; small-difference condition W = 0.891; $p < 0.001$ and large-difference condition W = 0.901; $p < 0.001$; D: Fitness center, control condition W = 0.792; $p < 0.001$; small-difference condition W = 0.843; $p < 0.001$ and large-difference condition W = 0.873; $p < 0.001$; E: Pucflix (extension) control condition W = 0.898; $p < 0.001$; small-difference condition W = 0.908; $p < 0.001$ and large-difference condition W = 0.933; $p < 0.001$.

Table 2

Non-parametric Kruskal-Wallis test for the probability of acting on each of the scenarios in the face of a subsequent opportunity (complete sample).

Scenario	N	Conditions			p-value*	df	X^2	ϵ^2
		Large-Difference	Small-Difference	Control				
Farm hotel	436	5.64	7.21	5.94	< .001	2	26.1	0.06
Car	433	2.06	3.56	3.60	< .001	2	24.0	0.05
Frequent flyer	425	6.13	6.11	6.89	.073	2	5.2	0.01
Fitness center	423	3.25	6.58	2.45	< .001	2	93.0	0.22
Pucflix (extension)	421	5.09	5.89	6.30	.002	2	12.4	0.02

*Kruskal-Wallis test

Table 3

Post-hoc comparisons between conditions of the Likelihood of Acting on Subsequent Opportunity (complete sample).

Scenario	N	Comparison	W	p-value
Farm hotel	436	Control vs. large	-1.055	.736
		Control vs. small	5.770	< .001
		Large vs. small	6.600	< .001
Car	433	Control vs. large	-5.598	< .001
		Control vs. small	0.029	1.000
		Large vs. small	6.422	< .001
Frequent flyer	425	Control vs. large	-2.775	.122
		Control vs. small	-2.814	.115
		Large vs. small	-0.034	1.000
Fitness center	423	Control vs. large	3.596	.030
		Control vs. small	12.513	< .001
		Large vs. small	10.466	< .001
Pucflix (extension)	421	Control vs. large	-4.859	.002
		Control vs. small	-1.542	.520
		Large vs. small	3.316	< .05+

Note: Dwass–Steel–Critchlow–Fligner W statistics.
+ – complete value: .0499100

"Small-Difference" conditions and between the "Small-Difference" and "Control" conditions. These results were also observed in the study by Chen et al. (2021). In contrast, in the original study (Tykocinski et al., 1995) the result was similar for the comparison between "Large-Difference" and "Small-Difference". Our main assumption for this outcome is the time frame in which each study was conducted; hence, the present replication results are remarkably close to the study by Chen et al. (2021) and partially close to the original study, conducted in 1995. The temporal proximity between our study and Chen's proved to be a more determining factor than the cultural adaptation made in the scenarios (changing the Ski resort to a Farm hotel), as well as the geographical location (and culture) of the analyzed samples.

In the Car scenario, the results also matched the study by Chen et al. (2021). On the other hand, compared to the original study, the same result was found only in the "Large-Difference" and "Control" comparison. Once again, this difference may suggest that the temporal proximity of the sample influences the effect, despite cultural differences between Brazilian and North American samples.

We did not find support for the inaction inertia effect in the Frequent flyer scenario, as occurred in the study by Chen et al. (2021). This result differed from the original study, which found an effect in the "Large-Difference" condition compared to the others. The low value of Frequent flyer programs may be because the number of miles offered no longer corresponds to the same exchange value for consumers as it did in the year of the original study. Moreover, using this score to purchase airline tickets was not available during the

Table 4

Comparison of effect sizes between ours and Chen et al. (2021) replications.

Scenario	Statistical Comparison	Present Replication (n = 436) effect size [95% CI]	Replication by Chen et al. (2021) (n = 1555[1]) effect size [95% CI]	Replication Summary[2]
1) Ski/Farm hotel	Large vs. small	-0.53 [-0.79, -0.29]	-0.67 [-0.80, -0.55]	Signal, consistent
	Large vs. control	-0.10 [-0.34, 0.13]	-0.18 [-0.37, 0.02]	No signal, consistent
	Small vs. control	0.44 [0.20, 0.69]	0.47 [0.25, 0.69]	Signal, consistent
2) Car	Large vs. small	-0.56 [-0.77, -0.31]	-0.68 [-0.93, -0.42]	Signal, consistent
	Large vs. control	-0.54 [-0.83, -0.33]	-0.57 [-0.77, -0.36]	Signal, consistent
	Small vs. control	-0.01 [-0.23, 0.24]	0.09 [-0.03, 0.21]	No signal, consistent
3) Frequent flyer	Large vs. small	-0.006 [-0.23, 0.24]	0.02 [-0.17, 0.21]	No signal, consistent
	Large vs. control	-0.25 [-0.49, -0.007]	-0.14 [-0.31, 0.03]	Signal, inconsistent
	Small vs. control	-0.26 [-0.50, -0.02]	-0.17 [-0.36, 0.02]	Signal, consistent
4) Fitness center	Large vs. small	-1.01 [-1.29, -0.73]	-0.62 [-0.74, -0.49]	Signal, consistent
	Large vs. control	0.26 [0.03, 0.52]	0.40 [0.28, 0.52]	Signal, consistent
	Small vs. control	1.27 [1.00, 1.64]	1.02 [0.89, 1.15]	Signal, consistent

[1]Subgroup including participants from all three experiments (n = 43; n = 309; n = 1203).
[2]Interpretation based on the criteria described in LeBel et al. (2019).
Note: All effect sizes are reported as Cohen's *d*.

Table 5

Comparisons between conditions in the "with money" and "without money" scenario groupings in the complete sample.

Scenario Group	Mean (SD)			Estimate [95% CI]	*p*
	Control	Large	Small		
With Money (n = 869)	–	3.84 (3.27)	5.44 (3.41)	0.63 [0.59, 0.68]	< .001
	4.76 (3.29)	3.84 (3.27)	–	0.42 [0.38, 0.47]	.001
	4.76 (3.29)	–	5.44 (3.41)	0.56 [0.51, 0.60]	.012
Without Money (n = 848)	–	4.69 (3.67)	6.34 (3.34)	0.64 [0.59, 0.68]	< .001
	4.69 (3.47)	4.69 (3.67)	–	0.50 [0.45, 0.55]	.967
	4.69 (3.47)	–	6.34 (3.34)	0.63 [0.58, 0.67]	< .001

Note: The values of *n* are doubled compared to the analysis of each scenario because each subject responded to 2 "with money" and 2 "without money" scenarios (subjects were considered in the analysis as fixed effects). Estimate [95% CI] and *p*-value are based on the Mann–Whitney *U* test.

COVID-19 pandemic (when the present study was conducted), due to the closure of international borders and restrictive movement restrictions.

In the Fitness center scenario, there were two significant differences between conditions: a larger difference between "Large-Difference" and "Small-Difference", replicating the original findings, and a higher acceptance of the "Small-Difference" condition relative to the "Control". Interestingly, the replication study by Chen et al. (2021) also showed the same unexpected result in the comparison between these conditions. We suggest at least two possible explanations to interpret such results: first, a temporal proximity with the other replication study, in comparison with the original one, and second, the hypothesis that the inaction inertia effect could be better observed and measured depending on the conditions that are being compared. In this sense, the effect seems to be stronger for the "Large" versus "Small" differences.

Finally, in the Pucflix extension scenario, there was a difference between the "Large-Difference" condition and control condition, also attesting to the inaction inertia effect in this new scenario with a contemporary theme. Notably, the verification question of this scenario obtained the highest hit rate (94.8%) (Table S11). It's important to note that all scenarios presented achieved verification question hit rates above 85%, indicating that participants were paying attention to the task. Importantly, there were no differences in results across subsamples of those who correctly answered the veri-

fication question (Table S12). Thus, it is possible to rule out a lack of understanding of the questions as a limiting factor for the comparisons. For more detailed information about the verification questions, see the Supplementary material.

Regarding the investigation of the effects of money on people's decision-making, our results suggest that money may be a determining variable, at least in the Brazilian population. This data aligns with the current literature, which indicates that throughout history, money has played a significant role in the lives of individuals and societies (Lauer-Leite et al., 2014). It is also indicated that money can be considered a guiding principle used by individuals as a criterion to justify their actions (Lins & Poeschl, 2015) and that, through purchasing power and thus money, decision-making power is materialized (Silva & Henriques, 2017). One possible explanation is that money can be considered an instrument that mediates the satisfaction of human needs (Lauer-Leite et al., 2014) and has extraordinarily high rewarding potential (Skinner, 1957).

This analysis, which evaluates the financial aspects of decision-making in the context of the inaction inertia effect, is innovative in our study. The influence of money on human behavior is relevant to both psychology and behavioral economics (Paixão, 2017). Future studies can further investigate the role of money in the inaction inertia effect and in human decision-making, especially by comparing scenarios with and without money.

It is worth noting that the economic differences between the samples of the original study and of the present replication are relevant, since there are scenarios directly involving money. In the United States in 1995, the site and year of the original study, the minimum wage was US$737.00 (Countryeconomy, 2023b) and the inflation rate was 2.81% (Triami Media, 2023), while in Brazil, in 2022, the minimum wage was R$1,212.0 (currently equivalent approximately to US$230.00) (Countryeconomy, 2023a) and the inflation rate was 5.79% (IBGE, 2023). Such discrepancies may be responsible for differences between the present study and the original one. Addressing this issue, it is worth remembering that 40% of the sample in this replication study had a family income above 15 minimum wages. Because of the high purchasing power of the sample, the discrepancy in the proportion of discounts across conditions may have had greater importance for the present sample than for the original study's sample.

This replication study has important limitations that need to be addressed. Regarding sociodemographic characteristics, we noted a certain degree of variability in participants' socioeconomic status, as measured by family income, which reflects a portion of the Brazilian population. This concentration of participants with high purchasing power and high educational levels in the sample, as is often seen in academic research in Psychology, is a limitation that has been previously criticized (Bloom, 2017). Additionally, our study's participants were mainly based in São Paulo, a Brazilian state, and were predominantly women (66%), which differs from the demographic distribution in Brazil (IBGE, 2023). Notably, inspection of Q-Q plots indicated deviations from normality for both models used in the second extension; we therefore used the "robustlmm" library, which is better suited to this scenario. Despite these limitations, the present study had an adequate sample size and used reliable methodologies in data collection and analysis.

Finally, this study assessed the inaction inertia effect through a hypothetical scenario: participants were asked to evaluate how they would respond to certain situations. Given that hypothetical situations often differ from real-world ones (Vlaev, 2012), future experiments should offer participants a certain amount of money (which could be symbolic) and present them with practical decision-making situations involving the inaction inertia effect. This would be a more ecological task, closer to a more practical, naturalistic, and reliable situation. Future studies should also examine whether individual differences in susceptibility to the inaction inertia effect are correlated across scenarios.

Conclusions

As in the original study (Tykocinski et al., 1995), the presence of the inaction inertia effect in decision-making was confirmed in the Brazilian population, especially in comparisons between the "Large-Difference" and "Small-Difference" conditions, and also appeared in comparisons of the "Large-Difference" condition and the "Control" condition. Of note, our study also replicated findings by Chen et al. (2021), which is contemporary to ours, with a different population (mainly Americans assessed via Amazon Mechanical Turk). Our first extension, the Pucflix scenario, also indicated the presence of the Inaction Inertia effect in our culture. Therefore, our results further expand the evidence on the influence of offer differences on the inaction inertia effect: the greater the difference in offer values, the lower the likelihood of accepting the subsequent offer. Finally, addressing the preregistered comparisons of the "With Money" versus "Without Money" scenario groups, we concluded that money was a determinant variable in the participants' decision-making, and therefore, that the Brazilian population (and possibly all human beings, generally in Western societies) may have differ-

ent decision-making processes when money is or isn't involved. However, since the residual analysis of the regression models indicated poor fit, caution is warranted in the interpretation of the results from the money extension, and future studies will have to deeply study the role and importance of financial stimuli when evaluating the inaction inertia effect.

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Conflict of Interest and Funding

GF coordinated and was a coauthor of the Chen et al. replication (2021). All other authors declare no conflicts of interest. RSB was supported by the Institutional Program of Scientific Research of Pontifical Catholic University of São Paulo (PIBIC-CEPE). MMF was supported by the National Council for Scientific and Technological Development (PIBIC-CNPq). LS was supported by the São Paulo Research Foundation (FAPESP), grant #2022/00342-8.

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