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Article

Design of a behavioral economics measurement instrument for university students at the Technological Institute of Sonora

Diseño de un instrumento de medición de la economía conductual en jóvenes universitarios del Instituto Tecnológico de Sonora

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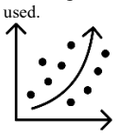
Abstract

Objective: To develop an instrument that measures the behavioral economics [Y1] of young university students through the variables of emotions, social context, and sociocognitive biases for a better understanding of their consumption habits. **The methodology** used is mixed, since descriptive and inferential statistics are intended to test the interrelationship between the dependent variable and the three independent variables. Multivariate linear regression will be used. **Contribution**: The behavioral economics of young university students has positive impacts when correlated with emotions and social context; that is, when individuals are more euphoric or have a budget, or have friends with similar tastes, their need to acquire different products will be greater. For future research, other tests could be performed to test significance; likewise, other variables that could contribute to the model could be incorporated

Design of a behavioral economics measurement instrument for university students at the Technological Institute of Sonora		
Objetive	**Metodology**	**Contribution**
To develop an instrument that measures the behavioral economics of university students through the variables of emotions, social context, and sociocognitive biases for a better understanding of their consumption habits 	is mixed, since descriptive and inferential statistics are intended to test the interrelationship between the dependent variable and the three independent variables. Multivariate linear regression will be used. 	The behavioral economics of young university students has positive impacts when correlated with emotions and social context; products will be greater. 

Behavioral Economics, Emotions, Social Context

Resumen

Objetivo: elaborar un instrumento que mida la economía conductual [Y1] de los jóvenes universitarios a través de las variables de las emociones, el contexto social y los sesgos sociocognitivos para la mejor comprensión de sus hábitos de consumo. **La metodología** empleada es mixta, ya que se desea utilizar estadística descriptiva e inferencial para probar interrelación entre la variable dependiente y las tres variables independientes. Se utilizará regresión lineal multivariante. **Contribución**: la economía conductual de los jóvenes universitarios, tiene impactos positivos al momento de correlacionarla con las emociones y el contexto social; es decir, cuando los individuos se encuentran con mayor euforia o presupuesto, o amigos con gustos similares, mayor será su necesidad de querer adquirir los distintos productos. Para futuras investigaciones se pudieran hacer otras pruebas, probar la significancia; así mismo se pueden incorporar otras variables que pudieran aportar al modelo.

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elaborar un instrumento que mida la economía conductual de los jóvenes universitarios a través de las variables de las emociones, el contexto social y los sesgos sociocognitivos para la mejor comprensión de sus hábitos de consumo 	Es mixta, ya que se desea utilizar estadística descriptiva e inferencial para probar interrelación entre la variable dependiente y las tres variables independientes. Se utilizará regresión lineal multivariante. 	La economía conductual de los jóvenes universitarios, tiene impactos positivos al momento de correlacionarla con las emociones y el contexto social. 

Economía Conductual, Emociones, Contexto Social

Area: Advocacy and attention to national problems

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Introduction

The diverse stimuli that university students possess have encouraged companies to use different methods to attract and capture their attention to the different range of products/services they wish to offer. Based on this premise, it is necessary to create mechanisms that allow for the design of behavioural economics measurement tools, in order to determine which variables are the most decisive in terms of their individual consumption decisions [Rodriguez, 2012].

Bringing so many external and internal benefits to a country, in the 17th and 18th centuries, the need arose to understand how societies manage their limited resources to meet growing demands. This gave rise to economic theory, with thinkers such as Adam Smith, who is considered the father of modern economics, helping to introduce key concepts such as the invisible hand and the free market in his great work entitled 'The Wealth of Nations [1776]'.

This was later extended to individual decision-making, giving rise to consumer theory, which emphasises rational choice seeking to maximise benefits within a limited budget. [Muñoz, 2021].

In publications by Kahneman and Tversky [2003], they point out that behavioural economics began to gain momentum in the mid-20th century, referring to the fact that people do not behave rationally in their consumption decisions, which is precisely where the interrelationship between psychology and economics comes into play. Emotions and previous experiences have an effect on purchasing habits.

At the end of the day, although companies can take action to influence consumer decisions, each consumer has the free will to select the products that suit their needs. Research published by Marcó [2010] criticised people's 'irrationality', but found insufficient evidence to conclude that purchasing decisions are measured solely through variables such as brand advertising. This research therefore seeks to incorporate other elements of study to determine how young university students behave in terms of their finances.

The main problem that this research aims to address is to develop a measurement tool to determine the extent to which elements such as cognitive biases, emotions, and social context influence the behavioural economics of university students, specifically those at the Technological Institute of Sonora.

The importance of this type of research lies in the fact that traditional economics states that consumers make rational decisions by comparing prices and quality, among other factors [Gallegos and Taddei, 2022], which is not necessarily true.

That said, evidence has been found of consumer irrationality, which is motivated by various factors such as individual tastes and preferences, market trends, and maximisation of utility and benefits [Padilla, 2021].

Similarly, cognitive biases also lead to poor decision-making [González, 2017], as overexposure to information can cause errors in choices.

Emotions measured through impulses affect purchasing habits by around 80%, according to data from Raiteri and Ocaña [2016], and this represents a challenge, as over time, the same consumer will experience changes in their tastes and needs, which are not determined solely by price.

Similarly, Narotzky [2007] points out that the social context influences people's customs, determining the ways in which they relate to each other and in which goods are produced and distributed. The objective of the research is to develop an instrument that measures the behavioural economics of university students through the variables of socio-cognitive biases, emotions and social context for a better understanding of their consumption habits. The general research hypothesis is that socio-cognitive biases, emotions and social context have a positive impact on the behavioural economics of university students at the Technological Institute of Sonora.

This article is structured in six sections. The first section begins with an introduction, discusses the background, presents the problem statement, the general research hypothesis to be tested, and the overall objective to be achieved through the research.

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The second part of the document develops the theoretical framework, presenting the study variables and the theoretical basis that other researchers have published over time.

Section three corresponds to the research methodology used; at this point, the subjects of the study, samples, and research process for testing the general hypothesis are specified. Subsequently, in section four, the main results obtained are listed, which may be useful for future decision-making.

Section five contains the main conclusions drawn from the research. This section also makes recommendations for future research, as well as possible opportunities for further study.

Finally, section six lists the main bibliographical references used in the development of the article.

Theoretical Framework

In this research, four variables were identified for study, classified as follows: the dependent variable [Y1] is behavioural economics, the first independent variable [X1] is emotions, the second independent variable [X2] is social context, and the last independent variable [X3] is cognitive bias. The classification of this model will be tested through the construction of a measurement instrument. This results in the following Figure 1:

Box 1

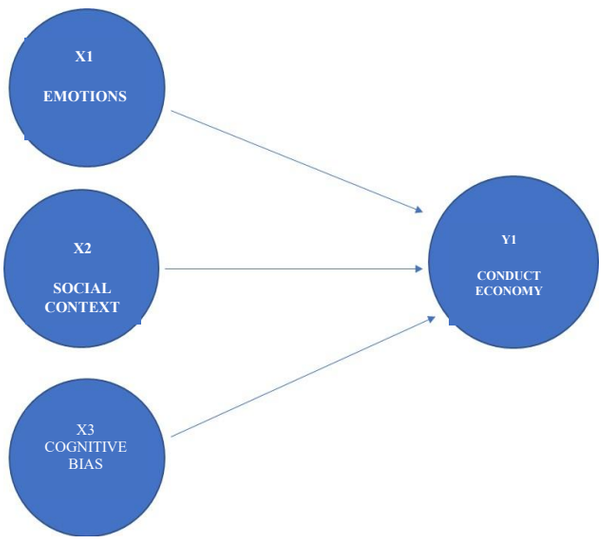

Figure 1
Graphical Model

X1- Emotions. In research conducted by Rodríguez, Arano, and Cruz [2019], they mention that people relate their consumption decisions to the emotions they feel at the moment they choose their products; someone feeling euphoric will tend to be more impulsive in their purchasing habits. They also analysed whether there was a gender difference, but found no statistically significant evidence to prove this. However, there is a slight distinction in that men tend to think a little more about their purchases than women.

One of the theories about the influence of emotions on purchasing decisions is the theory of hedonic adaptation, which states that people are not necessarily happier when they acquire long-term goods, but that there is a relationship between them [Ludeña, 2025].

Therefore, it can be said that emotions affect individuals' consumption behaviour, as many of their needs arise from their emotional states, such as acceptance, happiness, and confidence, among others [Xu Wei, 2023]. Each of these emotions triggers an impulse to consume different products.

X2 – Social context. This refers to the fact that social stimuli from different groups of people influence their consumption habits. In publications by Corredor and Mendivelso [2015], they found statistically significant evidence that the sociodemographic conditions of one group have different habits from those of other groups with other stimuli; that is, the social context has an influence on behavioural patterns.

Similarly, as time goes by, it has been shown that the social context is also affected by interaction on social media, which can use AI [artificial intelligence] to post opinions about certain products or mislead consumers with different technologies distributed through various platforms such as X, Facebook, YouTube, Pinterest, Instagram, among others. These stimuli also influence the context of the users who consume them [De Bordóns and González, 2021].

X3 - Cognitive biases. This variable refers to the fact that when an individual has an impulse to make a decision, several factors arise that affect the optimisation of that decision. Some of these are confidence itself, uncertainty, and consumer expectations [De Kohan, 2006].

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Similarly, evidence has been found that people randomly choose their levels of well-being, and this causes cognitive biases, since their interaction with the social environment and how they interpret personal happiness influence their personal choices [Concha, Ramírez, Cuadra, Rovira, and Rodríguez, 2012]. Several authors have attempted to demonstrate that events occurring in an uncertain environment are not affected by the number of times they are repeated. In other words, if a coin is tossed and eventually comes up heads five times and tails only three times, intuition would suggest that the next toss will be tails; however, this assumption is incorrect. This is known as the law of small numbers bias [Tversky and Kahneman, 1973], whereby as more events occur, the probabilities decrease.

Similarly, judgements of uncertainty, choice in the face of risk exposure, expectation theory, overconfidence, among others, have a biased effect on the information available for making appropriate choices [de Kohan, 2008].

Y1 – Behavioural Economics. This refers to how individuals try to make decisions in a rational manner, adding variables such as utility maximisation, the use of logic, emotions, cognitive biases, among others [Nacipucha and Bayón, 2024].

People try to base their consumption habits on information that allows them to decide between the different options available to them, but even so, they face cognitive limitations. According to publications by Kahneman [2003], Nobel Prize winner in Economics, individuals act more intuitively than rationally; similarly, if goods are more accessible, there is a greater predisposition towards consumption. A very important factor in behavioural economics is individual constraints, which can range from morality to monetary considerations. Taking the latter constraint, which has to do with the economic side, as a reference, these can be divided into three main categories: a] those related to income, b] those related to access to substitute goods, and c] those related to price level [Montgomery, 2011].

Methodology

The methodology used is mixed, as we wish to use descriptive statistics to characterise the subjects under study and inferential statistics to test the interrelationship between the dependent variable and the three independent variables.

The subjects of the study are university students from the Department of Accounting and Finance at the Technological Institute of Sonora. The information was collected through surveys conducted using Google Forms.

Various databases were used to collect the information sources, including EBSCO, Google Scholar, and Dialnet, among others. Excel spreadsheets were used to process the information. To verify the significance tests, a pilot study of thirty surveys was conducted in SMART PLS using multivariate regression.

Results

The main results of the instrument's development are as follows: A sample of 31 students was used for the pilot study, of which 65% were female and the rest were male. The ages of the respondents ranged from 18 to 25, as shown in the following.

Box 2

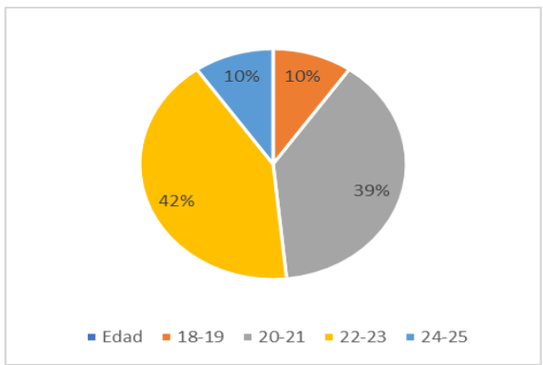

Figure 2
Age Range

Source: Own elaboration 2025

The SMARTPLS statistical software was used to determine the reliability tests of the constructs in which the following was found: from the dependent variable X1 Emotions, item two was eliminated; from the dependent variable X2 Social Context, items two and four were eliminated; from the dependent variable X3 Cognitive Biases, the entire variable was eliminated [since the Cronbach's Alpha value was less than 0.7], while from the independent variable Y1 Behavioural Economics, no construct was eliminated because it met the quality criteria of 0.7. 7], while from the independent variable Y1 Behavioural Economics no construct was dropped because it met the quality criteria of 0.7. The results are listed in Table 1 below.

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Box 3

Table 1

Cronbach's Alpha Reliability Test

Variable	Cronbach's alpha
X1 Emotions	0.8
X2 Social Context	0.7
X3 Cognitive Bias	Deleted
Y1 Behavioural Economics	0.8

Source: Own elaboration with *SMARTPLS 2025*

The R2 is 0.43, which indicates that it has a moderate predictive capacity, i.e. there are 57% of variables that are not included in the proposed model. The Betas for emotions [X1] are 0.5 and for social context 0.3. Given these results, it is expected that emotions influence behavioural economics more than social context.

As for the AVE test of Average Variance Extracted, the constructs meet the acceptance criterion as X1- Emotions had a value of 0.7; X2 - Social Context had a value of 0.6 and Y1 - Behavioural Economics 0.6. This means that each construct explains more than 50% of each variable under study.

Box 4

Table 2

Collinearity test [VIF]

Item	Vif
Consoc1	1.78
Consoc3	1.09
Consco5	1.07
Ecocon1	1.72
Ecocon2	1.91
Ecocon3	2.17
Ecocon4	2.52
Ecocon5	1.87
Emo1	2.43
Emo3	1.59
Emo4	1.67
Emo5	2.352

Source: Own elaboration with *SMARTPLS 2025*

Regarding the collinearity test, it was found that the instrument does not have this problem, since the value of each item is less than 5, as shown in the figure.

Conclusions

The research carried out led to certain preliminary conclusions derived from the pilot study for the development of the research.

First of all, it was found that the cognitive bias variable did not meet Cronbach's alpha quality criterion, so it was removed from the proposed model. In the same vein, evidence was found that the emotions variable has the greatest influence on behavioural economics, as it has a beta of 0.5 compared to the beta of the X2 variable.

Regarding the predictive capacity of the model, other variables should be incorporated, since the proposed model only predicts 43%. Although it is a good indicator for research purposes, other variables that could have a greater influence or expand the sample must be added.

The quality criterion of the Mean Extracted Variance was positive for the research, as all values were above 0.5, indicating that the measurement of constructs through Variance is adequate for the study. Similarly, with the Collinearity [VIF] statistics, it was found that the proposed model does not have this type of problem.

In conclusion, the behavioural economics of young university students has positive impacts when correlated with emotions and social context; that is, when individuals experience greater euphoria or have a larger budget, or have friends with similar tastes, their need to acquire different products will be greater. For future research, other tests could be carried out, expanding the sample to determine the significance of each variable; likewise, other variables that could contribute to the model could be incorporated.

Declarations

Conflict of interest

The authors declare that they have no conflict of interest. They have no known competing financial interests or personal relationships that could have appeared to influence the article reported in this article.

Authors' contribution

Ruiz-Perez, Roberto: Wrote 40% of the paper overall, López-Padilla, Frida Camila: Contributed 30% of the document, providing guidance on the Development themes, measurement strategies and interpretation of the results.

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Landazuri-Aguilera, Yara: Contributed 15% supporting the methodology.

Acosta-Mellado, Erika: Contributed 15% to the overall writing of the document and the discussion of the results obtained.

Availability of data and materials

The data obtained are kept on file. If you would like to see the pilot database, please send an email to roberto.ruiz@itson.edu.mx.

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Abbreviations

AVE	Average Variance Extracted
FIV	Variance Inflation Factor
ITSON	Sonora Institute of Technology

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