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Beliefs that provide a foundation for heuristics and biases in financial decision-making

Creencias que fundamentan heurísticas y sesgos en la toma de decisiones financieras

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ABSTRACT

Heuristics and biases are the result of intuitive thinking, which is shaped starting from intuitions, feelings, and impressions, which later emerge as beliefs once processed through analytical thinking. In this study, we examine beliefs that provide a foundation for heuristics and biases in financial decision-making through in-depth interviews with 31 upper-class Mexican emerging adults. We found feelings of mistrust that provide a foundation for foreign bias, non-herding behavior and reliance on professional advice, as well as lower-risk investing beliefs that then drive sustainable investing. We also found reflection that their money, in light of their narrative is either saved or invested regardless of its source and that lenders were framed as investors to avoid the shame they associate with borrowing. Implications for future research, educational interventions and providers of financial services are discussed.

Keywords: Heuristics, Herding, Foreign-bias, Sustainable investing, Expert advice, Mexico.

RESUMEN

La heurística y los sesgos son resultado del pensamiento intuitivo que, a partir de intuiciones, sentimientos e impresiones, surgen como creencias una vez que son procesados a través del pensamiento analítico. En el presente trabajo examinamos las creencias que fundamentan heurísticas y sesgos en la toma de decisiones financieras, a través de 31 entrevistas a jóvenes mexicanos de clase socio-económica alta. Encontramos que la desconfianza es la causa común de decisiones como: invertir en otro país, evitar el comportamiento de manada y solo escuchar a asesores profesionales de su contexto social. Prefieren las inversiones sustentables, no por congruencia con sus valores, sino por la creencia de que son menos riesgosas. Ahorran o invierten su dinero independientemente de su fuente. Dado que consideran que pedir prestado es vergonzoso, etiquetan a los prestamistas como inversionistas. Finalmente, presentamos opciones para futuras investigaciones, así como implicaciones para intervenciones educativas y proveedores de servicios financieros.

Palabras clave: Heurísticas, Comportamiento de manada, Sesgo extranjero, Inversión sostenible, Asesores profesionales, México.

1. INTRODUCTION

Heuristics and biases are the result of intuitive thinking, which is shaped from intuitions, feelings, and impressions that later emerge as beliefs once processed through analytical thinking (Kahneman, 2011). Nevertheless, those beliefs, if unaddressed, may prevent individuals from applying acquired financial knowledge (García, 2013), e.g., individuals may know that saving is important but may choose not to do so (Ramalho & Forte, 2019). Identifying that "these stem from common sense, implicit beliefs […mostly established] via financial socialization" (Drever *et al.*, 2015, p. 30) may result in bad financial decisions (Thaler & Sunstein, 2008) that call for better intervention design (Datta & Mullainathan, 2014).

Research on heuristics and biases in financial decisions has largely focused on adult investors and aimed to explain market anomalies (e.g., Cooper *et al.*, 2018), as well as to identify specific biases behind irrational behavior (e.g., Mushinada & Veluri, 2019). Although the value of such studies is undeniable, most have a quantitative approach that does not provide sufficient insight to address the beliefs that provide a foundation for heuristics and biases. Moreover, very few studies focus on upper-class emerging adults, even though they are more likely to own investments (Peng *et al.*, 2007) and present higher saving rates (Furnham, 1999) than emerging adults from other socioeconomic contexts. Upper-class emerging adults are also expected to lead in a financial environment characterized by the growing complexity of financial products (Mandell & Klein, 2009) and the emergence of financial technology-based firms, i.e., fintech (Morgan & Long, 2019). A financial context with increased complexity demands more complex decision-making (Lusardi *et al.*, 2010). Failing to address potential negative financial habits at an age when individuals are beginning to make financial decisions represents an opportunity cost for making poor financial decisions that will impact decision-makers financial well-being during subsequent decades (Stolper & Walter, 2017).

This study aims to examine the beliefs that provide a foundation for heuristics and biases in financial decisions made by Mexican upper-class emerging adults (18 to 25 years old). It must be noted that the aim here is not to identify if participants' decisions were biased or resulted from heuristics, but rather to elicit beliefs at the base of specific heuristics or biases, so that they can later be considered when designing interventions. Due to the degree of depth needed to reach the aims of the study, a qualitative approach was taken and semi-structured, in-depth interviews were conducted. Participants were asked to make decisions regarding investments, borrowing, and savings, and then elaborate in terms of why they believed their decision was right.

Results suggest mistrust as a common feeling among participants, driving the belief that only people from their social circle or people/countries with a good reputation can be trusted. This was a recurrent belief behind decisions, thus denoting foreign bias, avoiding herd behavior, and relying on professional advice from family and friends. Sustainable investing was mainly driven by lower-risk investing beliefs, rather than social or ethical considerations. Borrowing was seen as shameful; thus, participants framed actual lenders as business partners. Lastly, they reported that their money is either saved or invested regardless of its source, since participants feel compelled to do something productive with their money.

This study is relevant for various reasons. First, it fills a gap in the literature by addressing upper-class emerging adults whose financial decisions may have greater impact when deciding where to invest as compared to individuals from other socioeconomic contexts. Second, results from the study provide a contrasting and complementary view to research on heuristics and biases in financial decision-making. Finally, study results provide input for behavioral change interventions aimed at similar populations and designed by academics and financial services professionals.

This paper is structured as follows: we first provide a literature review on heuristics and biases in financial decisions. Afterwards, research findings are drawn out and considered, followed by a discussion of implications for practitioners and future research.

2. LITERATURE REVIEW

According to economic theory, people's judgements and decisions are ruled by normative premises for cognition that mark off how individuals ideally should think, make judgements, and decide. For this theory, rationality is a mental state that helps individuals achieve certain goals. However, people normally fail to follow these premises, especially when acting in light of their individual goals (Koehler & Harvey, 2008). This is called instrumental rationality, a pursuit of any means necessary to achieve a specific goal. However, criticism of this alternative focuses on the fact that it poorly evaluates the rationality of goals, particularly of primary goals.

Another part of the literature focuses on behavioral organization theory (Augier, 2004), behavioral decision theory (Slovic *et al.*, 1997), survey research and experimental economics (Roth, 1995), all of which assert that the deficiency of an individual's rational choice can be explained through a descriptive model of human behavior; therefore, this does not mean that the individual in question is irrational. Accordingly, bounded rationality claims that decision makers are intendedly rational (Jones, 1999), specifically in view of complex or excessive amounts of information. Bounded rationality describes the way that humans make decisions when departing from economic rationality. An individual's rationality is limited by three elements, namely his or her thinking capacity, the information that is available, and time. Therefore, instead of making the "best" choices, people often make choices that are satisfactory. These behaviors are often seen in financial decision-making processes where there is a reasonable compromise between accuracy of outputs (financial returns) and the difficulties involved in deciding in light of a significant set of alternatives (Lipman, 1995).

According to the above, an "adaptive toolbox" to promote a better vision of bounded rationality considers that individuals normally take *short cuts*, i.e., heuristics and biases (Gigerenzer, 1999). Heuristics, on the one hand, explain how individuals make judgments and decisions without calculating probabilities and utilities. Biases, on the other hand, are often used to describe deviations from a norm, but can also explain the tendency to

see things from another point of view instead of the one decreed by the norm (Koehler & Harvey, 2008). Nevertheless, relying on heuristics and biases may result in poor financial decisions (Barberis & Thaler, 2003). For instance, overconfident people ignore valuable available information, which results in over-investing (Pikulina *et al.*, 2017). Those exhibiting present bias —i.e., over-pursuing immediate gratification (O'Donoghue & Rabin, 2015)— may know that saving is important from financial education, but might choose not to save (Ramalho & Forte, 2019).

Additionally, heuristics and biases can misstate how knowledge of decision-making evolves when an explanation is omitted to support preconceived beliefs. Beliefs are socio-psychological influences that support heuristics and biases. When beliefs support heuristics and biases, people tend to understand only the evidence that connects them with their preconceived notion of how the world functions. For instance, beliefs are path dependent, meaning that they might emerge in accordance with any given individual's previous lived experience (Baddeley, 2010).

Heuristics cannot be avoided since reality cannot provide the conditions for optimal decision-making (Teigen & Keren, 2007); without heuristics, humans would be paralyzed to inaction (Larrick, 2008). Thus, when addressing flawed heuristics and biases, educational programs often work better when designed in a way that considers how people make decisions (Datta & Mullainathan, 2014). The more aware individuals are of how they use heuristics and biases, the more they can decide to change them (Kleka *et al.*, 2019). After finding empirical evidence that financial literacy programs only explain 0.1% of the variance in financial behavior, Fernandes *et al.* (2014) suggested that financial interventions should focus on providing awareness and understanding of how to acquire information for financial decision-making.

Most studies on awareness and understanding of cognitive phenomena, i.e., metacognition, focus on individuals under 18. However, literature suggests that metacognition in emerging adults (18 years old to mid-20s) is important since cognitive complexity and self-understanding increase during this period (King & Kitchener, 2015), and self-reflection processes become more accurate and focused (Vukman, 2005). Therefore, self-awareness on the use of heuristics and biases can be crucial in a period during which individuals are beginning to gain independence and make financial decisions. Poorly understanding young adults' use of heuristics and biases could translate into an opportunity cost towards poor decision-making in matters such as investing (Hanson & Kalthoff, 2019) and saving (Jappelli & Padula, 2013), decisions that may affect their financial well-being during subsequent decades (Stolper & Walter, 2017).

Since human judgements and decision-making capabilities are prone to systematic error, this study can serve as a framework to explain how, and in light of which beliefs, a variety of heuristics and biases may operate with regard to financial decisions among emerging young adults.

2.1. Heuristics and biases in financial decisions

The literature on heuristics and biases regarding investments, borrowing, and saving primarily focuses on income source accounting, loss aversion, risk aversion, home bias, herding behavior, relying on expert bias, and, more recently, on sustainable investing. Feelings and beliefs regarding risk aversion and loss aversion have been extensively studied, so those biases will not be discussed in this work.

Home bias is the tendency to focus more heavily on domestic securities in investment portfolios, leading to suboptimal portfolio allocation by limiting the benefits of diversification (Kellner & Rösch, 2019). Empirical evidence suggests home bias is a persistent phenomenon, despite the considerable growth of international capital flows (Karolyi, 2016). As a result, it has been suggested that home bias resilience can be explained by the presence of bounded rational decision rules (Geranio & Lazzari, 2019). In this line or research, home bias has been attributed to investors prioritizing more visible or familiar stocks (Bailey *et al.*, 2008; Sahi *et al.*, 2013), combined with the perception that unfamiliar assets are riskier (Dodd & Frijns, 2015). In foreign bias, the opposite phenomena, investors rely on a country's good reputation for governance (Cooper *et al.*, 2018), cultural links or geographic proximity (Beugelsdijk & Frijns, 2010). The lack of empirical evidence regarding developing economies suggests that investor's home bias is greater in developing countries than in developed countries (Horenstein & Snir, 2017; Mischra, 2015), whilst aversion to countries that are physically distant, unfamiliar or that have dissimilar tax and capital control structures is lower or near to zero in more developed markets (Cooper *et al.*, 2018). Nevertheless, these studies use macro data from fully adult investors, which obscures the underlying beliefs supporting either home or foreign bias in upper-class emerging adults. Therefore, we inquire into whether upper-class emerging adults exhibit home bias due to familiarity, or if they do in fact invest in foreign securities (i.e., foreign bias) from countries with a reputation for good governance or geographic/cultural proximity.

Herding behavior means mimicking others' financial decisions expecting to receive higher returns (Baddeley, 2010); it explains financial bubbles, financial crashes (Corbet *et al.*, 2018) and volatility in financial markets (Bouri *et al.*, 2019). It has been suggested that herding behavior is driven by social conventions (Spyrou, 2013), professional inexperience, young age, dependence on socially constructed opinions (Bouri *et al.*, 2019) or higher levels of cultural masculinity, i.e., when assertiveness and competitiveness are regarded as valuable (Blasco *et al.*, 2017). Regarding herding in emerging markets, empirical evidence is mixed: while some found that herding behavior is present in emerging markets (Loang & Ahmand, 2021), others have found that Argentine and Mexican investors only herd during financial crisis (Chiang & Zheng, 2010) and that Chilean and Mexican investors herd adversely during lower market regimes (Kabir & Shakur, 2018). Although the existing literature suggests that emerging adults would herd, findings regarding herding in emerging markets are not entirely consistent, and empirical evidence regarding upper-class emerging adults from emerging markets is ostensibly missing. Thus, we must ask whether upper-class emerging adults incur in herding behavior, and, if so, which beliefs underlie that herding.

Expert bias involves about delegating financial decisions to a financial expert (Sahi *et al.*, 2013); it is a form of "authority bias" that leads to blindly or unquestioningly following authority

figures' opinions (Howard, 2019). Empirical evidence suggests that expert bias explains why investors pay attention to or buy certain stocks, i.e., because someone they consider knowledgeable or famous recommended or invested in that stock (Bondia *et al.*, 2021); why they blindly follow advice form financial experts they believe to be the best judges regarding investing (Sahi *et al.*, 2013); or why they perceive it as less risky to have their money managed by a trusted advisor (Gennaioli *et al.*, 2012). This leads to suboptimal portfolio performance when professional advisors are driven by social competition (Kirchler *et al.*, 2020) or advice regardless of investor profile (Foerster *et al.*, 2017). Nevertheless, the existing literature does not properly characterize upper-class emerging adults regarding expert bias. Therefore, we ask if they blindly follow expert advice. If so, is it because they perceive investment as less risky when it involves a trustworthy advisor or are there any other beliefs behind this bias?

Sustainable investing is the tendency to incorporate social, ethical, or environmental issues when deciding where to invest (Sandberg *et al.*, 2009). Here, individuals seek to invest in accordance with personal values (Pasewark & Riley, 2010), personal satisfaction and a desire for social change (Beal *et al.*, 2005), or to avoid risk (Gevlin, 2007) and harmful companies (Sahi *et al.*, 2013). Sustainable investing is considered a bias since sustainability and social responsibility variables are not financial variables that might impact expected returns (Chan & Kim, 2020). Sustainable investing is more common in younger, unsophisticated individuals (McLachlan & Gardner, 2004; Williams, 2007) and in those with an above-average income and educational attainments (Sparkes, 2003). Therefore, upper-class emerging adults can be expected to have investment preferences in line with sustainable investing. However, the existing literature does not shed light on whether upper-class emerging adults would engage in sustainable investing or not. If they would, it is necessary to ask which belief is predominant: avoiding risk or harmful companies, investing in line with personal values, or are there other reasons behind this choice?

Income source accounting, a Mental Accounting Process, is the tendency to spend money depending on how sources of funds are labeled (O'Curry, 2001): money labeled as "easy" (e.g., windfalls) is spent on frivolous items, whilst money labeled as "serious" (e.g., regular income) is spent on utilitarian items (Thaler & Shefrin, 1981). Sahi *et al.* (2013) found empirical evidence of such behavior among Indian investors. Tykocinski and Pittman (2013) suggested that inherited money is spent depending on closeness with the deceased, and how frugal the latter was perceived. Nevertheless, most research on income source accounting focuses on how individuals treat earned versus gifted money. To the best of our knowledge, research on how emerging adults, who are entirely economically dependent on their parents, treat their money is lacking. Therefore, we ask herein: how do upper-class emerging adults, who are still economically dependent on their parents, label their money, and what beliefs lie behind that labeling?

Relative to heuristics towards borrowing and saving, empirical research suggests that excessive borrowing is related to cumulative cost neglect, unrealistic optimism, and idiosyncratic tastes, whilst borrowing is also related to fear of borrowing (Sunstein, 2005). Regarding the source of borrowing, younger, less educated individuals rely more on financing from friends and family, while older, more sophisticated adults rely on outside debt (Robinson & Robb, 2014). Regarding savings, young people have less precautionary savings while exhibiting biases such as present-bias temporal discounting or myopia (Labroo & Pochetsova, 2017; Weyman *et al.*, 2012), lack of self-control (Hofmann *et al.*, 2012), or seeing the future self as another person (Hershfield *et al.*, 2011). The literature on college students regarding borrowing and savings mainly focuses on their habits and how they are influenced by financial socialization from their parents (Sam *et al.*, 2012). However, these studies neither focus on heuristics nor on the beliefs behind those heuristics. Also, they do not focus on upper-class college students. Moreover, most studies use data from the U.S. and Europe, where graduates are largely expected to pay their student loans, whereas in some social contexts from emerging economies, e.g., Mexico, student loans are mostly paid by parents. Therefore, we ask after the heuristics towards borrowing and saving among upper-class emerging adults, and the beliefs providing foundation for those heuristics.

Some of the studies mentioned have identified beliefs that may constitute potential behavioral stress points that prevent individuals from applying financial knowledge. Nevertheless, none focus primarily on upper-class emerging adults, who are more likely to own investments (Peng *et al.*, 2007), present higher saving rates (Furnham, 1999), and are expected to lead in an increasingly complex financial environment (Mandell & Klein, 2009). Moreover, most studies use samples from the U.S. and Europe, and these results cannot always be generalized to all contexts (Bapat, 2019). Since heuristics and biases can become behavioral bottlenecks in educational interventions, it is important to address all the research questions that emerged from the literature gaps highlighted above.

3. METHOD

To answer the research question, we implemented a qualitative approach with in-depth, semi-structured personal interviews. This format offers the depth needed for proper identification of beliefs that provide a foundation for heuristics and biases. Individually conducted in-depth interviews allowed us to dig into personal opinions and inquire into hidden issues, without invading participants' privacy, which is vital when discussing personal finances and to ensure that participants do not feel social pressure to conform to specific views (Kvale & Brinkmann, 2018).

3.1. Data collection

We interviewed 31 undergraduate students from a Mexican private university. This university charges fees that are only affordable to the wealthiest 1% of the country. According to AMAI (Mexican Association of Market Intelligence and Opinion Agencies, for its initials in Spanish), upper-class individuals have at least 205 out of 300 possible points on an index that segments socio-economic groups (AMAI, 2021); students from this university obtained between 242 and 300 points.

Each interview lasted between forty-five minutes to one hour and fifteen minutes. Interviews were conducted in Spanish, recorded, and transcribed verbatim. The interview approach followed was response-guided (Thomas, 2003) where participants were presented with questions designed to trigger the use of biases in financial decision-making (e.g., If you were to invest in treasury bonds or company-yielded bonds, from which countries would you buy such bonds? Would you invest in a company that uses non-renewable energy sources but yields a return of 10%, or in a company that uses renewable energy sources but yields a return of 5%?) Biases targeted included home bias, herding behavior, relying on expert advice, and sustainable bias. Questions also targeted heuristics for borrowing and savings, including income source accounting (e.g., How do you usually get money from …? When you have money to spare, what do you do with it?). Follow-up questions were posed using the laddering technique and probes (Reynolds & Gutman, 1988) to better understand the beliefs behind a given decision. Close-ended questions were only asked for demographic info, entrepreneurial and investing background (see Table 1). Questions regarding student loans were not included since they are not common in the Mexican context and, when used, are usually paid for by parents or guardians.

Table 1
Investing and entrepreneurial background

Age	18-19	20-21	22-23	24-25	Total
Men	6	7	5	1	19
Women	1	9	2	0	12
Real life investing experience	1	1	1	0	3
Experience with investing simulators	2	10	6	1	19
No investing experience	4	3	0	0	7
Entrepreneurs	0	1	1	0	2
Entrepreneurs in family	5	11	4	1	21
No entrepreneurs in family	2	5	3	0	10
Has work experience	3	13	7	7	23

Only students from business programs were recruited to ensure a minimum level of knowledge on the topics covered in the interview; financial literacy was not measured as it goes outside of the scope of this study. Participation was voluntary; students were recruited by e-mail with an attached letter explaining the aims of the study, as well as how data would be collected and used. Apart from a brief diagnosis of their biases, no additional reward or payment was given.

In order to analyze the interview transcripts, we developed coding categories. We then searched for patterns such as frequency of codes, code combinations, insights, or concepts based on beliefs found behind participants' heuristics and biases. Finally, findings were interpreted by contrasting them with the literature reviewed. Basic coding categories developed included distrust in home country, non-herding, caring or trusted advisors, sustainability trend, productive use of money, borrowing is shameful, and saving to achieve goals. Figure 1 details the research path.

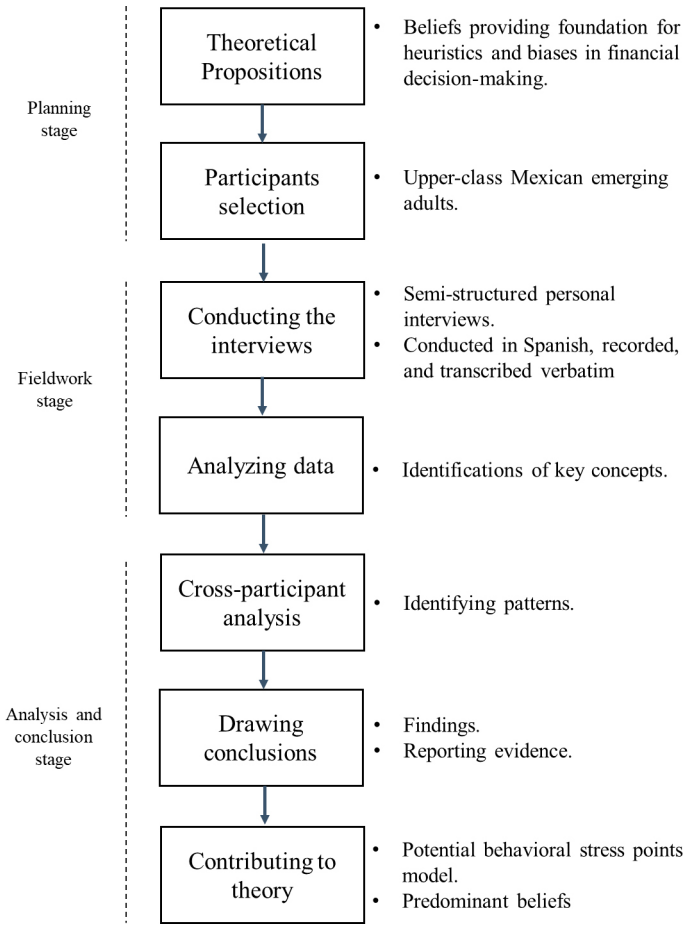

Figure 1
Research path

Source: adapted from Wiencke *et al.* (2019).

4. FINDINGS AND DISCUSSION

Findings for each of the coding categories will now be discussed and analyzed in accordance with the aims of this study. Additionally, behavioral stress points are addressed since they were identified during the course of the analysis stage.

4.1. Foreign bias: Safer investments abroad

Participants were asked about where (in which country) to invest their money. Most participants made declarations along the following lines:

> "AMLO [Mexico's President] has socialist tendencies.... I don't feel confident when investing in Mexico."

> "I prefer to invest in another country where you know what they are doing with your money."

> "Investors can no longer trust in Mexico because they don't know if they are going to cancel projects like the [Texcoco] airport."

This reveals participants' general belief that investing in their home country is not a good option due to a lack of trust in Mexico's government. When participants were asked to assign a per-

centage to what they would invest in Mexico versus the United States, they responded with 30% on average.

Most mentioned China, Germany, and the United States (in that order) as countries to invest in, basing their decision on beliefs like the following:

> "China and Germany are economic powerhouses and are less risky."

> "It is better to invest in developed countries for their economic power; they are more stable [and] there is no corruption."

> "I feel that, in developed countries, it is less likely for something bad to happen; something that would make you lose money."

This suggests that participants believe that a country's reputation for stability or economic growth means safer investments. Findings are consistent with previous claims that investors consider a country's reputation for good governance and sophistication when deciding to invest abroad (Cooper *et al.*, 2018), but inconsistent with studies suggesting that foreign bias is driven by linguistic or cultural proximity (Beugelsdijk & Frijns, 2010). Regarding the research question of whether upper-class emerging adults exhibit home bias due to familiarity, or would they invest in foreign securities from countries with good governance reputation or geographic/cultural closeness, findings suggest that participants tend toward foreign bias due to a reputation for bad governance and lack of trust in their home-country government.

4.2. Non-herding behavior and relying on one's own analysis

Participants were asked about the extent to which they pay attention to rumors regarding investments (e.g., cryptocurrencies) allegedly yielding substantial gains. Most participants made declarations like the following:

> "I would first look into the past and present performance of a sector, as well as their prospects, and thus decide whether to invest or not."

> "I corroborate any rumor by looking into the sector and seeing if what I have heard makes sense with what is expected to happen in the sector."

This reveals that most participants would corroborate the information or ignore it completely, instead of herding. When asked why they would not just follow the tip, some confessed they did herd once in a business simulator and that results were not always positive, others alluded to fundamental and/or chart (technical) analysis as better options to herding.

Some would only listen to rumors if the information came from a "trusted" source and, even so, they would corroborate the information received.

> "It depends on who said it… if that person has experience or not. I wouldn't just listen to anyone."

> "Maybe… if I trusted the person who gave me the tip…even so I would check."

> "If I heard it from someone on the news, like CNN, or from someone important, then I would listen."

All this suggests that participants feel it is best to do their own analysis and only, if ever, corroborate rumors from trusted sources. Thus, regarding the research question of whether upper-class emerging adults incur in herding behavior and, if so, which beliefs underlie it, participants do not herd and the underlying belief is lack of trust in the source. Non-herding behavior found among participants in this study is partially consistent with empirical evidence of Mexican investors herding adversely in lower market regimes (Kabir & Shakur, 2018), but not consistent with previous claims that younger inexperienced people are more susceptible to herding (Bouri *et al.*, 2019). However, regarding Spyrou's (2013) claim that herding behavior is driven by social conventions (Spyrou, 2013), empirical evidence suggests that distrust may be a social convention behind herding based only on "trusted" sources since Mexico is a low-trust culture (Layton & Moreno, 2014), particularly among high income Mexicans (Layton & Mossel, 2015). This would explain why some participants claim they "wouldn't just listen to anyone," and instead would only follow "someone from the news… someone important." Further research is needed to explore this possibility.

4.3. Trusted professional advisors within one's social circle

Participants were asked if they would seek advice regarding investments and from whom they would seek it. All participants declared that they would seek professional advice since they recognize that they are not experts on the subject. However, that advice could only come from a professional advisor or an experienced investor among their family or acquaintances (e.g., professors or friends' parents who are professional advisors). When asked to elaborate, most made declarations along the following lines:

> "Professional advisors have their own agendas."

> "I don't trust professional advisors; their aim is not what is best for me."

> "I would rather hire a friend or a relative that knows about investments than a professional advisor totally unknown to me."

This shows that participants trust professional advice, but only from people they believe cares for them. It also reveals a complete distrust in people who do not belong to their social circle, regardless of their proven experience as financial advisors. Moreover, none of them mentioned asking for advice from just any relative or friend, but rather only from friends that know about investments, which implies that potential advisors should not only care about them, but also need proven experience in investing. This is consistent with empirical evidence suggesting that expert bias explains why investors pay attention to investments recommended by someone they consider knowledgeable (Bondia *et al.*, 2021) or look for someone they trust to manage their investments (Gennaioli *et al.*, 2012). However, nothing that participants said suggests that they follow advice blindly or unquestionably; indeed, most participants made comments like the following:

> "If I look for advice from someone close to me, I feel it will be easier for me to understand."

> "I don't play with my money, least of all on my own if I don't feel I know how to do it [investing]…If I were confident that I knew how to do it, if I had training, maybe I would [make my own investing decisions]."

> "If I have no choice but to hire someone I don't know, I would do my own research to make sure this person isn't cheating me."

Therefore, regarding the research question of whether upper-class emerging adults are expert biased, participants' comments suggest that they do not have expert bias in terms of blindly following advice or fully delegating financial decisions to an expert. Instead, they seek financial advice since they are aware that they are not experts, as suggested by Alyousif and Kalenkoski (2017), or use such advice as a complement to their own financial knowledge, as suggested by Collins (2012). Nevertheless, such advising would only be followed or sought among their social circle, and they fully distrust advice from outsiders. Future research is needed to explore this relationship further.

4.4. Sustainable investing: Safer long-term investment

Participants were asked to choose between two investment options: one from a polluting company that yields higher returns and another from sustainable businesses that yield lower returns. Most chose the latter, arguing that:

> "Clean energies are the future; thus, they may yield better returns later."

> "If future regulation demands sustainable businesses to be the rule, today's unsustainable businesses will have a hard time complying [with future regulation]."

> "[Today's] good returns may later be adversely impacted when facing consequences from polluting or for having poor labor practices."

This suggests that participants' main reason for engaging in sustainable investing is the belief that most businesses will have to become sustainable sooner or later. Some participants even mentioned "*future legal reforms*" or "*more sustainable standards for businesses in the future.*" Statements such as the ones quoted above, imply beliefs related to lower-risk investing, which are consistent with the literature that suggests that environmental, social, and governance (ESG) activities are less exposed to economic losses and risk factors (Hoepner *et al.*, 2018). Additionally, costs of not being a sustainable company are rising in terms of image, fines, and penalties (Lacalle, 2020). Nevertheless, participants' opinions are not consistent with empirical evidence suggesting that individuals engage in sustainable investing to favor investments that meet their personal values (Hummels & Timmer, 2004), desire for social change or personal satisfaction (Beal *et al.*, 2005).

Regarding the latter, comments about how sustainable investing would make them feel personally were also made, but only after being directly asked. Some participants declared:

> "A company harming the environment harms us all in the end."

> "I am not going to earn money through something that harms quality of life."

> "I am not going to encourage something that is not good."

These opinions suggest that participants feel that, by investing in certain companies they are endorsing their positions for or against sustainability, and that such endorsement has consequences. This is partially consistent with Sahi *et al.* (2013), who claimed that investors engage in sustainable investment to avoid harmful companies.

Regarding research questions about sustainable investing (Would emerging adults engage in sustainable investing? If they would, which belief is predominant: avoiding risk or harmful companies, investing in line with personal values, or are other reasons behind their choice?), participants' comments suggest that their predominant belief is that sustainable business is a business model that will become the rule in the future, thus yielding better future results and less risk than non-sustainable companies. Avoiding harmful companies and investing in line with personal values is also important, but not the predominant belief.

4.5. Income source accounting: Save it or invest it-the productive use of money

Participants were asked what they would do with money that comes from three different sources, namely a bank balance bigger than anticipated, a bonus earned, or inherited money. In the first scenario, most made declarations like the following:

> "Spend it just like that is not an option; just because you have some money doesn't mean you have to spend it…I would save it while I think about what to do with it."

> "What I do with that money shows who I am, so I would use that money to earn more money."

> *"I would first pay debts, then save it or spend it, in that order."*

For participants who work or have worked in the past, when asked what they would do if they received a bonus, most made declarations like the following:

> "I would give myself a gift and save the rest."

> "First, I would check my account balance and assess if I have enough money for the trip I want to go on, or else, put it in my savings account."

> "Invest it, put my money to work…go beyond just buying things!"

In a hypothetical situation where they would inherit or receive money from a relative, all of them would invest it or save it. This is because participants believe that

> "My relative would expect me to put that money towards something productive, so I would invest it or save it to start a business."

> "If someone gives you money it is because that person loves you, so it is as if you're being told: 'this is for you, do something useful with it.'"

Regarding the research question related to income source accounting (How do upper-class emerging adults -who are still economically dependent on their parents-, label their money, and what are beliefs can be found behind that labeling?), these upper-class emerging adults, who neither deal with student loans nor need to work (other than for gaining experience), seem to believe that money is "serious" regardless of its source, and thus must be used for serious things: save or invest it. Phrases such as "*put my money to work,*" "*use the money to earn more money,*" or "*to have some money doesn't mean you have to spend it*" de-

note the belief that money must be put to good use and that they must "*go beyond buying things,*" as if spending just for the sake of spending were a form of misbehaving.

In the case of inherited money, participants seem to feel a moral obligation to do something productive with the money received, thus they would either save it or invest it. This is inconsistent with the income source accounting literature (O'Curry, 2001; Thaler & Shefrin, 1981) because participants, even those with work experience, treat extra money as "serious money." The obligation to do something productive with money rises if money is given or inherited; this is partly consistent with Tykocinski and Pittman (2013) who claimed that inherited money is spent depending on the nature of the relationship between the recipient and the deceased. All the above suggests that upper-class emerging adults label their money as serious i.e., focus on the productive use of money.

4.6. Borrowing is shameful: Framing lenders as partners

All participants rejected the idea of borrowing, except for starting a new business or buying a house; in the case of the former, most would only borrow from close family, but not from friends. Feelings towards borrowing are seen in the following statements:

> "You end up paying more with a bank loan, and although a friend does not charge interest, the relationship is not the same anymore."

> "I would rather have family or friends as partners than as creditors."

> "It's embarrassing to owe money."

Regarding the research question about heuristics towards borrowing in upper-class emerging adults, and the beliefs behind those heuristics, participants' remarks suggest an aversion to indebtedness since they believe that borrowing is "*shameful*" or *"embarrassing,*" as if borrowing resulted from misbehaving and/or were a way of exposing the debtor's poverty. This, next to other common claims regarding relationships between friends and family that "*are not the same anymore,*" suggests that participants see borrowing as creating a setting in which the previous relationship between equals is forfeited. All this suggests that participants tend to borrow too little due to fear of borrowing, as suggested by Sunstein (2005), and to fear of embarrassment and diminished relationships with friends.

When digging into the conditions of funding, participants talked about receiving interest free funding, which they would repay after some time and with no "investor" involvement in the business; ownership equity was seldom mentioned. This situation, in other words, constitutes a loan. Participants label *de facto* lenders as private investors to avoid the "shame" of borrowing, e.g., "*I would rather have family or friends as partners than as creditors*." This can be a case of idiosyncratic tastes towards borrowing, (Sunstein, 2005) or a form of hedonic framing or editing (Thaler, 1999) to avoid the emotional burden of engaging in an activity labeled as shameful, or the pain of damaging relationships with friends and family. Further research is needed to explore this possible form of hedonic editing.

Participants did not mention financing sources such as crowdfunding or business angels. When asked about the latter, most claimed not to know what they were. This is inconsistent with Coronel-Pangol *et al.* (2022) who suggest business angels are among the main financing sources for entrepreneurs. Those who knew, made declarations like the following: *"I don't like being told what to do with my idea, unless I'm looking for advice*". When inquiring about who they would ask for advice, we received feedback indicating they would only seek advice from trusted professional advisors within their social circle.

4.7. Heuristics for saving: Save to achieve goals

Although most participants have job experience (see Table 1), their main source of money is a monthly stipend from their parents. When managing their money, most have rules from their parents like the following:

> "Apply the 50/50 rule…spend 50%, save 50%."

> "Each month I save ¾ of what I have and try to cover all my expenses with the remaining ¼. If what I plan to spend exceeds the ¼, then I take form the ¾, but I almost always save at least ¼."

> "My father gave me the rule 10-40-50; 10% for charity, 40% for saving, and the rest for my expenses."

Regarding the research question about heuristics towards savings in upper-class emerging adults, and the beliefs behind those heuristics, participants' remarks suggest that they follow money management rules from their parents. This is consistent with the literature on college students, which suggests that their savings habits are influenced by financial socialization from their parents (Sam *et al.*, 2012). Moreover, those rules are a form of mental accounting since they provide a way to organize and evaluate their finances (Thaler, 1999).

In most cases, they only receive a monthly stipend from their parents. Most suggested that any possible money mismanagement would lead to something like the following:

> "If I spend more than I should, I will have to take form my savings and then replace it."

> "If I run out of money, I tell my dad, he gives me the money and deduces it from what he'd give me next month."

> "When I came to this city to study, my father told me: 'this money is enough to pay for school fees and all you need, if you spend more…that is not my problem.'"

This illustrates that most participants are aware that overspending has negative consequences, which most had experienced at some point. They are also aware of opportunity costs:

> "I'm planning to go to work in Canada next summer and I have to save for the plane ticket…I won't be able to do if I spend my money buying coffee at Starbucks, instead of bringing coffee from home."

> "I spend the small change in the vending machines…I could put that money to better use if I saved it."

Only one of the participants declared she could spend with no limits, and even she acknowledged that she was misbehaving. Some participants even commented on their use of budget

sheets in Excel or finance apps to manage their expenses and plan for their future. Their rules for saving and spending suggest that participants believe that money has a purpose and that spending without measure is a poor use of resources. They consider money a tool for achieving goals that must be used wisely.

When asked what they plan to do with the money they have saved, most mentioned travel, having money while being an exchange student, buying a car, starting a business, or even gaining a little independence, e.g., not asking their parents for money. Saving is a tool to mitigate "punishment," e.g., paying back a loan from a relative, a car repair, or a failed course at the university. This elicits the recurrent belief that saving is a means to achieving goals. It denotes low levels of present-bias or myopia, which is consistent with research from Weyman *et al.* (2012) and Labroo and Pochetsova (2017), who argue that low savings levels are driven by high levels of present-bias or myopia.

4.8. Behavioral stress points: Common beliefs across biases and heuristics

Throughout the course of our analysis, we identified common beliefs across biases and heuristics that may become behavioral stress points during educational interventions. They include mistrust, uncertainty avoidance and injunctive norms (see Figure 2).

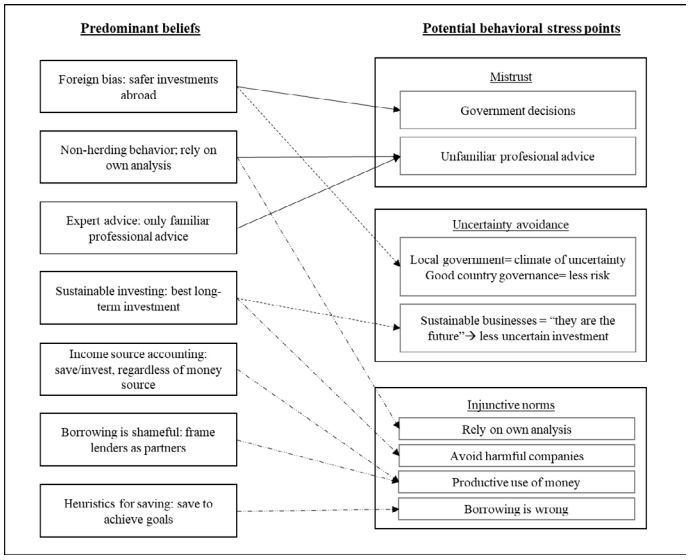

Figure 2
Potential behavioral stress points model

Source: Authors' elaboration with data from participants.

Mistrust is a predominant belief that provides a foundation for foreign bias, non-herding behavior, and expert advice. Participants mistrust their home country government's decisions, thus undermining investor confidence; they wouldn't herd due to mistrust in the source and only trust financial advisors "*from the news*" or from among family and friends. This is consistent with empirical evidence suggesting that Mexico is a low-trust culture (Layton & Moreno, 2014), particularly among high income Mexicans (Layton & Mossel, 2015). In the particular case of herding and expert advice, participants stressed that they would not listen to just any friend or family member, but only those who "*know about investments.*" This suggests that trust not only comes from familiarity, but also from proven knowledge, as suggested by Gennaioli *et al.* (2012).

Participants' foreign bias is either motivated by a perceived climate of uncertainty for investments in Mexico, or by less risk associated with a given foreign country's stability, regulation regime or economic power. Similarly, participants that prefer sustainable investing are certain sustainable businesses *"are the future*" and their arguments against unsustainable investing imply more risk due to the *"consequences of polluting"* or having *"a hard time complying"* with sustainable norms. This is consistent with empirical evidence that suggests that Mexico scores high on the cultural dimension of uncertainty avoidance (Hofstede *et al.*, 2010; Topor, 2020), meaning participants keep rigid codes of beliefs and behaviors, used as rules.

Injunctive norms (what individuals perceive as appropriate behavior) are acquired through strong financial socializing agents, e.g., parents and teachers. They are implied in participant's remarks regarding non-herding, sustainable investing, savings, fear of borrowing, and spending heuristics (Rimal & Real, 2005). Participants may perceive that they are expected to rely on their own analysis instead of mimicking others (i.e., non-herding), avoid risky investments (i.e., unsustainable business), unproductive use of money (i.e., save it or invest it), and borrowing (because it is shameful). Although some of these norms may lead to positive financial habits, they could become a barrier when participants are challenged by opposite norms, e.g., when discovering the benefits of borrowing.

These potential behavioral stress points, if unaddressed, may prevent Mexican upper-class emerging adults from achieving financial knowledge during educational interventions. Participants may be reluctant to accept new knowledge and change what they believe, or discard what they perceive as appropriate behavior when coming from someone they mistrust.

5. CONCLUSIONS AND PRACTICAL IMPLICATIONS

This study aimed to elicit the beliefs that provide a foundation for heuristics and biases used by upper-class emerging adults in financial decision-making. It focused on some of the most studied heuristics and biases in financial decisions, i.e., home bias, herding behavior, expert bias, sustainable investing, income source accounting and heuristics regarding savings and borrowing. The questions focused not on whether participants use heuristics or make biased decisions (indeed, we expected them to exhibit most of the biases and heuristics found in financial decisions around the world), but rather on identifying the beliefs behind them. This was done so to (1) help prevent behavioral stress points during educational interventions and (2) to provide a complementary or contrasting view with findings from previous research.

Behavioral stress points to be addressed during educational intervention designs that target Mexican upper-class emerg-

ing adults were identified. They include only trusting familiar, proven experts, uncertainty avoidance, and injunctive norms. Participants who only trust familiar/recognized experts, may not listen to advisors from financial institutions, the government, or anyone unknown to them. Thus, interventions should aim to help them recognize the benefits of receiving advice from someone with a proven reputation in their field. It may also help to provide participants with reasons to question the validity of beliefs and norms they consider important in order to avoid uncertainty and meet behavioral standards, e.g., awareness of their heuristics and biases and how they can lead to poor financial results.

One relevant practical implication of this study includes findings that contrast with previous research; they stress the importance of considering context-specific sources in heuristics and biases for future intervention design. Moreover, beliefs and feelings elicited in this study constitute behavioral stress points, which are inputs for future intervention designs, particularly for researchers and practitioners in the financial intervention field.

Another practical implication emerges for providers of financial services, especially financial advisors, who should consider the degree of mistrust that upper-class young adults may harbor towards financial advisors outside of their social circle. Reputation is important for participants in the study, therefore, it seems reasonable to suggest that similar populations in Mexico may only be using financial advisors from traditional financial institutions since financial products though service innovations, such as fintech startups, are not yet as popular and may still lack a reputation. Therefore, the same applies to fintech platform owners or marketers, who should focus on building a positive reputation and seeking renowned financial experts to recommend their services to this market segment. The same implication applies to decreasing borrowing aversion, i.e., by building trust with non-traditional financing options, such as crowdfunding or peer-to-peer lending. Beliefs elicited can also help researchers and professors identify the source of flawed heuristics and biases presented to students through unconscious learning or explicit social habits.

Since the present study only included upper-class participants from a single Mexican university, possible future research directions include comparative studies with upper-class emerging adults from other countries, or between emerging adults from different socio-economic backgrounds. Beliefs and feelings elicited could also be contrasted among individuals with different IQ ranges. Regarding borrowing tendencies, future research would do well to explore beliefs that provide a foundation for biases for or against financing projects through crowdfunding, peer-to-peer lending and other fintech lending options.

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