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Exploring the Relationship Between Sustainability and Personal Finance Practices

Kenneth J. White, Jr.
University of Georgia

Megan McCoy
Kansas State University

Kimberly Watkins
University of Alabama

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Abstract
Society's awareness of sustainability has seen a substantial increase in recent years. There is a striking similarity between sustainability and personal finance practices. Both areas involve managing resources to provide optimal consumption today while ensuring resources are available for future generations. This study sought to examine how sustainability is associated with young adults' financial behaviors by (a) exploring how young adults' environmental attitudes translate to their attitudes and behaviors regarding their personal finance practices, and (b) examining the relationship that trust and confidence in leadership has on young adults' financial attitudes and behaviors. The results of this exploratory study suggest there are positive correlations between pro-environmental sustainability attitudes and personal financial attitudes and behaviors. Additionally, an inverse relationship between trust in organizations' leadership and financial attitudes and behaviors were found. Results from each of the models are useful in understanding relationships between attitudes toward sustainability and personal finance attitudes and provide implications for educators and financial services providers.

Keywords: financial attitudes, financial behaviors, personal finance, sustainability, trust, young adults

Exploring the relationship between sustainability and personal finance practices

"Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987, I.3.27). Sustainability is a future-oriented concept focusing on identifying basic human needs and realizing resource limitations in meeting those needs (Brundtland, 1987). Individuals with a sustainability mindset consider how consumption behaviors and choices today potentially impact our global resources in the future.

The global goals for sustainable development address three components to sustainability: environmental, social, and economic (Epstein, 2018). To curb the long-term impact of environmental and climate decay, individuals must examine their current consumption habits and behaviors (Welford, 2016). Given this view of environmental sustainability, the question arises: Does an individual's propensity toward pro-environmental behaviors surface in other future-oriented strategies such as achieving long-term financial goals through saving and financial resource management?

Confidence and trust are facilitating factors of sustainable consumer behavior. Consumers must have confidence and trust in information sources, labels, and organizations helpful in overcoming barriers such as lack of time and know-how to make sustainable consumption choices (Young, Hwang, McDonald, & Oates, 2010). Diminished consumer confidence and trust leads to diminished support of organizations that promote the sustainability lifestyle (Armstrong, Niinimäki, Kujala, Karell, & Lang, 2015). Furthermore, research has shown a link between the level of trust consumers have in providers of sustainability information and the consumers' change in behaviors those providers are attempting to promote (Gilg, Barr, & Ford, 2005).

Today's global society is complex and often filled with unique and difficult problems that require multifaceted perspectives to solve these issues. In an effort to address these complex and frequently changing concerns, universities and colleges have begun to cultivate interdisciplinary research and academic programs. Interdisciplinary work provides opportunities for students, faculty, and staff to work across multiple disciplines to create stronger learning experiences, increase collaboration, and facilitate creative and critical thinking skills needed to help solve society's unique challenges. The purpose of this research is to explore relationships between aspects of sustainability and personal finance because both areas are centered on the management of resources. The purpose is twofold: (a) explore the relationship between pro-environmental attitudes and personal finance attitudes and behaviors among young adults, and (b) explore the relationship between confidence and trust in the leadership of government, corporations, and higher education and personal financial attitudes and behaviors among young adults. Results from this study can be used to encourage sustainability-focused programs and

financial planning programs to consider interdisciplinary coursework because managing limited resources is essential to both environmental sustainability and personal finance.

Conceptual framework

Two conceptual frameworks were used to examine sustainability attitudes and financial management behaviors. First, sustainability concepts and global goals from the United Nations' Brundtland Report (1987) were used as a conceptual framework to define and explore relationships between sustainability and personal finance. One of the threats identified in the report as a global environmental risk and threat was climate change (Brundtland, 1987). This research uses climate change as a proxy for environmental sustainability. In this paper, an awareness of the impact of climate change will be used interchangeably with pro-environmental attitudes and behaviors.

The second conceptual framework was based on the concept of psychological contracts. This concept was used to explain the importance of the confidence individuals place in organizations. Having confidence in an individual or entity requires a level of vulnerability and an expectation that the other party will act responsibly and not abuse the relationship (Rousseau, 1989; Berndt & Tait, 2012). A psychological contract then occurs between the two parties rooted in obligations and reciprocity (Rubin, 2012). When an organization does not return the perceived promises to an individual, then the psychological contract was breached and creates fractures in the relationship. Once the relationship is fractured, the confidence and trust an individual has in the organization dwindles and results in behavioral changes (Rubin, 2012). Consumers rely on businesses and government to act responsibly in helping consumers live a sustainable lifestyle. If individuals have no confidence in the leaders of businesses and government, the lack of trust creates difficulty for the average consumer to maintain a lifestyle of sustainability.

Method

To enhance our understanding of sustainability attitudes in relation to a range of financial outcomes, the research was organized into two studies. The Model 1 study focuses on sustainability attitudes, and the Model 2 study explores confidence and trust in the leadership of U.S. organizations. Taken together, the results from each study may be useful in understanding relationships between attitudes toward sustainability and various financial attitudes and behaviors. The estimation method used was general linear regression (GLM) because there were categorical and numeric predictors in the model.

Data

Data for the present study comes from the Arizona Pathways to Life Success for University Students (APLUS) project. In 2013, the APLUS longitudinal panel study released Wave 3 survey data containing responses from 1,010 participants (Shim and Serido, 2007-2018). The young adults, ages 23 to 26, continued participation in the primarily online survey collected at a large, public university in the Southwest region of the United States. In Wave 3, the majority of the cohort had entered into their post-graduation life stage.

Model 1

The independent variables of interest were three questions regarding the future effects of climate change. These climate change questions were used as proxies for pro-environmental attitudes and behaviors. The questions asked how much (a) harm, (b) suffering, and (c) damage climate change will cause for Americans in 50 years. Responses were made using a 5-point scale (1 being "none at all" and 5 being "a whole lot"). A respondent's attitude towards the long-term effects of climate change indicated a participant's: (a) future-focused orientation, (b) feelings that their actions impact others and the greater good, (c) sense of community and belonging, (d) level of global thinking, and (e) attitude about resource management.

The three dependent scale variables measured three different financial outcomes. First, the Student Budgeting Behavior Scale ($\alpha = 0.775$) consists of three questions that ask how often respondents budgeted on a regular basis, tracked monthly expenses, or spent within budget in the past six months. Responses ranged from 1 being "never" to 5 being "very often." Second, the Student Objective Financial Knowledge Scale measured financial, economic, and numerical literacy using the percentage of correct responses to 15 true/false questions. The range was 1-5, where 1 = 0-20 percent to 5 = 80-100 percent. The third scale was Student Financial Intentions ($\alpha = 0.774$.) This was a 6-question scale (from 1 being "very unlikely" to 5 being "very likely") that asked how likely respondents were to engage in tracking expenses, spend within a budget, pay off credit card balances in full each month, save money each month for the future, invest regularly for long-term financial goals, or learn about money management. Control variables included age, GPA, race/ethnicity, and parental SES. Table 1 lists variables used in Model 1.

Table 1. Variables Used for Model 1

Independent Variable	**Measure**	**Scale**
The Future Effects of Climate Change	How much (a) harm, (b) suffering, and (c) damage climate change will cause for Americans	5-point scale: 1 being "none at all" to 5 being "a whole lot"
Dependent Variables		
Student Budgeting Behavior Scale	How often respondents budgeted on a regular basis, tracked monthly expenses, or spent within the budget within the past six months	5-point scale: 1 being "never" to 5 being "very often."
Objective Financial Knowledge Scale	Measures financial, economic, and numerical literacy	15 true/false questions
Student Financial Intentions	How likely respondents are to engage in tracking expenses, spending within the budget, paying off credit card balances in full each month, saving money each month for the future, investing regularly for long-term financial goals, or learning about money management.	6-point scale: 1 being "very unlikely" to 5 being "very likely"
Controls		
Age, GPA, race/ethnicity, and parental SES		

Results for Model 1

The GLM results for Model 1 produced statistically significant results between pro-environmental attitudes and financial intentions, budgeting behaviors, and objective financial knowledge. Positive relationships existed between respondents' pro-environmental attitudes and their increased intentions to use positive financial behaviors, as well as their actual budgeting behaviors. Respondents who have pro-environmental attitudes were significantly more likely to have higher intentions to track their monthly expenses, spend within their budget, pay off their

credit cards in full each month, save monthly to meet future goals, invest for the long term, and learn about financial management (β=1.3662, SE=0.5306, $p<0.05$). Similarly, pro-environmental individuals were significantly more likely to practice positive budgeting behaviors such as budgeting regularly, tracking monthly expenses, and spending within an established budget (β=0.7286, SE=0.3120, $p<0.05$). There was a negative relationship between pro-environmental attitudes and financial knowledge. Respondents with pro-environmental views were more likely to have lower objective financial knowledge scores (β=-0.1273, SE=0.0581, $p<0.05$).

Model 2

The independent variable used was a confidence and trust scale (α = 0.796) composed of eight items on a three-point scale (1 being "a great deal of confidence" to 3 being "hardly any confidence at all"). The scale measures the amount of confidence and trust the respondent has in the leadership of financial institutions, major companies, institutions of higher education, Congress, the Supreme Court, and the Executive Branch of the federal government. Confidence and trust are key factors in a consumer's perceived ability (but not necessarily willingness) to live a sustainable lifestyle and were included in this research as a proxy for a positive sustainability attitude. This research equates a greater deal of confidence and trust with greater consumer perception of being able to practice a sustainable lifestyle.

Five dependent variables were used in Model 2. First, the Student Financial Satisfaction Scale (α = 0.819) consisted of three questions on a 5-point scale (1 being "strongly disagree" to 5 being "strongly agree"), that measured the respondent's satisfaction with their current financial status, difficulty paying for things, and whether they are constantly worried about money. Second, the Student Financial Intention Scale (α = 0.774) was an indicator of the young adult's intention to use positive financial behaviors. Next, was the Student Saving Behaviors scale (α = 0.846) consisting of three questions on a 5-point scale (1 being "never" and 5 being "very often") that asks how often respondents saved monthly for the future, saved for emergencies, or invested for long-term financial goals. Fourth was the Student Financial Self-Efficacy Scale (α = 0.768), which consisted of three questions on a 5-point scale (1 being "strongly disagree" to 5 being "strongly agree"). This scale estimated respondents' satisfaction with the way they pay their bills, feelings about their money management ability, and feelings toward the way they manage their finances. The fifth measure asked, "How much personal control do you feel you have over managing your personal finances?" Possible answers range from 1 for "very little" to 7 for "complete control". Table 2 lists variables used in Model 2.

Table 2. Variables Used for Model 2

Independent Variable	**Measure**	**Scale**
Confidence and Trust Scale	The amount of confidence and trust the respondent has in the leadership of financial institutions, major companies, institutions of higher education, Congress, the Supreme Court, and the Executive Branch of the federal government.	3-point scale: 1 being "a great deal of confidence" to 3 being "hardly any confidence at all"
Dependent Variables		
Student Financial Satisfaction Scale	Respondent's satisfaction with his or her current financial status, difficulty paying for things, and whether he or she is constantly worried about money.	5-point scale: 1 being "strongly disagree" to 5 being "strongly agree"
Student Financial Intentions	How likely respondents are to engage in tracking expenses, spending within a budget, paying off credit card balances in full each month, saving money each month for the future, investing regularly for long-term financial goals, or learning about money management.	5-point scale: 1 being "very unlikely" to 5 being "very likely"
Student Saving Behaviors Scale	How often respondents saved monthly for the future, saved for emergencies, or invested for long-term financial goals.	5-point scale: 1 being "never" to 5 being "very often"

Student Financial Self-Efficacy Scale	Respondents' satisfaction with the way they pay their bills, feelings about their money management ability, and feelings toward the way they manage their finances	5-point scale: 1 being "strongly disagree" to 5 being "strongly agree"
Control Scale	How much personal control do you feel you have over managing your personal finances?	7-point scale: 1 for "very little" to 7 for "complete control"

Results for Model 2

The independent variable was reverse coded such that higher values represent less confidence and trust in the leadership of institutions and organizations. Therefore, a positive regression coefficient (β) represents an inverse relationship between confidence or trust and positive financial outcomes. Respondents who perceive themselves to have less ability to practice sustainability were significantly more likely to feel more financially satisfied, have less difficulty paying for things, and worry less about finances ($\beta=0.1024$, $SE=0.0279$, $p<0.001$). Respondents with a lower perception of their ability to practice sustainability because of lower confidence and trust in leadership were significantly more likely to intend to use positive financial behaviors (e.g., tracking monthly expenses, spending within budget, paying off credit cards, saving monthly, investing for long-term financial goals, committing to learn about financial management) ($\beta=0.1267$, $SE=0.0622$, $p<0.05$). This moves beyond intentions and carries over to actual behaviors. Individuals with a lesser perceived ability to practice sustainability were significantly more likely to perform positive saving behaviors such as setting aside money on a monthly basis for the future, saving for emergencies, and investing to meet long-term financial goals ($\beta=0.0855$, $SE=0.0408$, $p<0.05$).

In analyzing feelings of financial self-efficacy, regression results suggest that individuals with lower perceived ability to practice sustainability were more likely to possess higher financial self-efficacy such as feeling satisfied with the way they pay their bills, feeling good about their ability to manage money, and actually liking the way they manage their finances ($\beta=0.0621$, $SE=0.0291$, $p<0.05$). They were also more likely to feel more personal control when managing their finances ($\beta=0.0305$, $SE=0.0127$, $p<0.05$).

Discussion

The results of Model 1 suggest there are positive correlations between pro-environmental sustainability attitudes and personal financial attitudes and behaviors. Pro-environmental individuals are considered to be future-oriented, long-term thinkers who understand how to manage the consumption of limited resources. They believe their behaviors today impact the future and that being a good citizen means controlling current consumption as to not impede the resources of future generations (Brundtland, 1987). This attitude seems to show up in their own personal financial attitudes and behaviors. Not only do they intend to practice normative financial behaviors, but they actually budget, manage limited financial resources, and save and invest for the long-term. However, despite the inclination toward positive financial attitudes and behaviors, pro-environmental, pro-sustainability individuals are more likely to lack objective financial knowledge. This suggests that financial education might be needed to optimize and maximize the transfer of their natural inclinations into better overall financial well-being. Although the attitude and mind-set seem to transcend environmental consciousness and personal financial management, the lack of knowledge may hinder their financial decision-making.

The results of the second model suggest that there is an inverse relationship between trust in organizations and positive financial outcomes. Research has shown that trust is a facilitating factor of sustainable consumer behaviors and served as proxy for a positive sustainability attitude (Young et al., 2010). This research equates a greater deal of trust with greater consumer perception of being able to practice a sustainable lifestyle. Our findings support this claim, as Model 2 also showed, that respondents with a lower perception of their ability to practice sustainability because of lower trust in leadership are significantly more likely to intend to use positive financial behaviors. This moves beyond intentions and carries over to actual behaviors. Individuals with a lesser perceived ability to practice sustainability are significantly more likely to perform positive saving behaviors such as setting aside money on a monthly basis for the future, saving for emergencies, and investing to meet long-term financial goals.

Not only was there an inverse relationship between sustainability and financial behaviors, there was also an inverse relationship between sustainability and financial self-efficacy. Furthermore, participants who perceive a greater ability to practice sustainability are significantly more likely to feel more financially dissatisfied, have more difficulty paying for things, and worry more about finances. Overall, they had lower financial self-efficacy. This shows the unfortunate disconnect between financial health and sustainability that could be addressed through interdisciplinary coursework.

However, there are some limitations to note. To the authors' knowledge there has never been research completed in this area, so there was a lack of prior research to substantiate the models or findings. As a result, exploratory studies, such as this one, are prone to omitted variable bias

(Clarke, 2005). Therefore, this research should be used by other researchers to build a foundational knowledge base of the interconnectedness of sustainability and personal finance. In addition, the data used in this article were cross-sectional, so there can only be correlations derived rather than causations. Furthermore, self-reported measures of environmentalism were used. Respondents' scores could be inflated due to their desire to be viewed as environmentally conscious or because of a lack of introspective ability on their parts.

Financial and Extension educators responsible for outreach should keep in mind that among pro-environmental young adults, many may have an instinctive nature and desire to manage their limited financial resources. However, the proclivity to do so might not be enough. Our findings suggest that despite the instinctive nature and desire to manage their financial resources, pro-environmental young adults tended to have lower financial knowledge (Model 1) and financial self-efficacy (Model 2). The tendency to have a future-oriented, long-term perspective is helpful when planning to save and invest. However, creating and adhering to a plan could require some additional education for young adults to remedy their lack of financial knowledge. Financial educators who work with this group might find it beneficial to link how personal finance and environmental sustainability are similar. By building upon existing reference points related to the environment, young adults could experience better learning outcomes that result in better financial knowledge and behaviors and confidence in their personal finance decision-making.

Directors of sustainability certificate and degree programs might consider including a course in personal finance since both environmental sustainability and personal finance are in essence about managing limited resources. By incorporating personal finance courses in academic programs, directors could help students increase their financial well-being. Furthermore, students will be provided the knowledge and skills to make the best use of limited resources such as money. An increase in knowledge and skills could also result in higher levels of self-efficacy for these students. In addition, financial planning programs might find a new pool of potential students from majors like environmental sciences, environmental engineering, and ecology. Similarly, educational policy-makers charged with the responsibility of creating financial education curricula could consider introducing financial resource management lessons into environmental activities and lessons. Perhaps, by providing opportunities for students in sustainability disciplines to take financial courses, financial planning programs can create unconventional recruitment pools.

Financial professionals, such as advisors and planners, can also use this information. Given the similarities between sustainability and financial planning, financial services providers can market to niche sustainability subgroups of the population for client acquisition. Planners can also use the information to better understand clients' time horizons, goals, and tendencies when making financial decisions. For example, some financial professionals are using age-progression technology to help clients strengthen their future orientation (Hershfield et al., 2011). Planners

and advisors could help clients become more future-oriented by connecting their beliefs regarding sustainability to their financial behaviors or create simulations related to sustainability to create a stronger sense of future orientation. It is also important for financial services providers to know that this subpopulation may also need help in increasing their financial knowledge, behaviors, and self-efficacy. Knowledge, behaviors, and self-efficacy are all important components for clients to successfully implement financial plans. Planners and advisors could assess their clients' trust levels in organizational leadership to build more accurate client profiles and create better-tailored client communication techniques.

Study results suggest that respondents took more personal control of their financial lives, felt more responsible for their financial futures and were more confident in their abilities to manage their finances when they had less confidence and trust in the leadership of the major institutions and organizations in the U.S. This could be because of the realization that institutions are not equipped to take care of citizens on a ground level or an unwillingness to rely on institutions to influence their financial lives. The study also suggests that respondents with less confidence and trust in leadership were more likely to practice delayed gratification in their consumption through saving behaviors and have intentions on practicing financial behaviors beyond just saving to provide future financial stability. The combination may be influencing overall financial satisfaction, such that individuals with less confidence and trust in leadership are more financially satisfied and less worried about finances as a result of taking personal control over their financial life.

Despite the positive financial outcomes that are related to diminished confidence and trust in leadership, respondents admitted that sticking to their financial plan was not an easy feat. As confidence and trust in leadership wanes, respondents likely perceive less help from major U.S. institutions. Also, they are unwilling to rely on information or assistance from those institutions. Governments, policy-makers, and corporations either encourage or discourage sustainability through policies, laws, regulations, goods, and services. When the psychological contract between individuals and institutions fractures, individuals take more responsibility for managing their own financial resources. Financial professionals should realize a lack of confidence and trust among respondents might impact the financial services business as more people will feel empowered and responsible for taking ownership of their own financial lives. This empowerment can be a positive if it increases use of products and services provided by financial institutions and professionals. However, the risk remains that the number of do-it-yourselfers might increase and reduce use of financial products and services. Future research should expand pro-environmental behavior beyond climate change and consider social and economic components of sustainability. Also, future studies can analyze correlations among various demographics to better understand the connections between sustainability attitudes and personal finance behaviors across various groups of individuals.

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