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Post-Baccalaureate Financial Literacy and Economic Well-Being of First-Generation College Graduates

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ABSTRACT

This study examines the relationship between first-generation status and post-graduation financial literacy among bachelor's degree recipients. Drawing on data from the 2012/17 Beginning Postsecondary Students Longitudinal Study (N = 7,010), multivariate regression analyses investigate disparities in financial literacy, financial behaviors, and financial security between first-generation and continuing-generation college graduates. First-generation graduates demonstrate significantly lower financial literacy scores (1.77 vs. 2.08 on a 1-3 scale, p < 0.001), with particularly pronounced deficits in investment diversification knowledge. After controlling for demographic characteristics, academic factors, and employment status, first-generation graduates score 0.153 points lower on financial literacy measures and have 33.8% lower odds of correctly answering investment diversification questions. First-generation graduates also exhibit distinctive financial behavioral patterns. Logistic regression results show first-generation graduates have 54.9% higher odds of prioritizing debt repayment, 31.5% lower odds of prioritizing savings, and 32.0% lower odds of paying credit card balances in full. First-generation status remains associated with 4.6% lower salary and 21.9% lower odds of financial security after controlling for financial behaviors and literacy. Student loan debt negatively affects financial security for all graduates, but interaction terms reveal no differential effects by first-generation status. Mediation analysis reveals that financial literacy accounts for approximately 13.2% of the relationship between first-generation status and financial security, indicating that multiple pathways contribute to these disparities. However, academic satisfaction significantly moderates this relationship, with highly satisfied first-generation students achieving financial security levels closer to continuing-generation peers. Results highlight the need for targeted interventions addressing financial knowledge gaps, behavioral patterns, and college experiences to support first-generation graduates' financial well-being.

Keywords: First-generation college students, Financial literacy, Financial security, Post-graduation outcomes, Higher education.

INTRODUCTION

The pursuit of a college degree in the United States represents a fundamental strategy for economic advancement, offering pathways to enhanced knowledge acquisition, skill development, and credential attainment that facilitate improved career trajectories and financial prosperity (Carnevale, Rose, & Cheah, 2013; Hout, 2012). For first-generation college students, earning a college degree represents not only personal achievement but also a

potential pathway to intergenerational mobility and financial stability (Cahalan et al., 2018; Cataldi, Bennett, & Chen, 2018). However, emerging evidence suggests that the benefits of higher education may not be equally distributed across all graduates, with first-generation college graduates potentially experiencing persistent disadvantages in financial knowledge, behaviors, and outcomes even after degree completion (Manzoni & Streib, 2019; Torche, 2011; Agbonlahor 2025).

Despite significant research attention focused on first-generation students' college access, persistence, and degree completion (DeAngelo et al., 2011; Ishitani, 2006; Pascarella et al., 2004), far less is known about how these students fare financially after graduation. This gap in understanding is particularly concerning given that many first-generation students pursue higher education specifically to improve their economic prospects (Nunez & Cuccaro-Alamin, 1998; Wilbur & Roscigno, 2016; Agbonlahor, 2025).

Financial literacy plays a critical role in individuals' economic stability and wealth accumulation. Prior research has established connections between financial literacy and various positive financial behaviors and outcomes, including appropriate debt management, higher saving rates, and more effective retirement planning (Lusardi & Mitchell, 2014; Fernandes, Lynch, & Netemeyer, 2014). However, the relationship between first-generation status and financial literacy among college graduates remains understudied, as does the potential mediating role of financial literacy in explaining disparities in financial outcomes.

Student loan debt represents another critical dimension of post-graduation financial reality. With rising college costs, students from all backgrounds increasingly rely on loans to finance their education. However, first-generation students often have fewer family resources to draw upon during college and may therefore accumulate higher debt burdens than their continuing-generation peers (Furquim et al., 2017; Houle, 2014). How these potential differences in student loan debt affect post-graduation financial security, particularly for first-generation graduates, merits further investigation.

The present study addresses these knowledge gaps by examining the relationship between first-generation status and post-graduation financial literacy, behaviors, and economic outcomes among bachelor's degree recipients. Drawing on data from the 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17), this study investigates four key research questions:

1. Do first-generation college graduates demonstrate different financial literacy levels compared with continuing-generation graduates, and do these differences persist after controlling for demographic and educational factors?
2. What financial decision-making patterns differentiate first-generation graduates, and how do these patterns relate to economic well-being?
3. How does student loan debt impact post-graduation financial security, and does this relationship differ for first-generation versus continuing-generation graduates?
4. What institutional or academic experiences during college appear to mitigate financial challenges faced by first-generation graduates?

This research contributes to both theoretical and practical knowledge in several significant ways. Theoretically, it advances understanding of how social background factors, specifically,

parental education, influence financial outcomes even among individuals who have achieved the same level of educational attainment. This offers insights into the complex mechanisms through which socioeconomic advantages and disadvantages are perpetuated across generations despite apparent educational mobility (Bourdieu, 1986; Lareau, 2015). It also extends financial literacy research by examining how educational background shapes financial knowledge and its relationship to financial behaviors and outcomes (Lusardi, Mitchell, & Curto, 2010).

The timing of this research is particularly relevant given the current economic landscape characterized by rising education costs, growing student loan debt, increasing income volatility, and greater individual responsibility for financial decision-making and retirement planning (Goldrick-Rab, 2016; Hacker, 2019). In this context, financial literacy and sound financial behaviors have become essential not just for wealth accumulation but for basic economic security.

LITERATURE REVIEW

First-Generation College Students and Post-Graduate Outcomes

First-generation college students, typically defined as those whose parents did not complete a bachelor's degree, represent a significant portion of the undergraduate population in the United States. Research has consistently documented various challenges these students face during their college journeys, including less academic preparation, lower socioeconomic status, fewer financial resources, and less familiarity with college norms and expectations (Cataldi, Bennett, & Chen, 2018; Pascarella et al., 2004). These challenges contribute to lower rates of persistence and degree completion among first-generation students compared to their continuing-generation peers whose parents attended college (DeAngelo et al., 2011; Ishitani, 2006).

While considerable attention has been devoted to first-generation students' college experiences and degree completion, less research has examined their post-graduation outcomes, particularly in financial domains. Existing studies on post-graduation outcomes have primarily focused on employment rates and earnings, with Manzoni and Streib (2019) finding that first-generation graduates earn less than continuing-generation graduates, even after controlling for institutional selectivity, major, and academic performance. Similarly, Torche (2011) found evidence of "persistent inequality" in income among college graduates from different socioeconomic backgrounds.

However, there remains a significant gap in understanding how first-generation status relates to broader aspects of financial well-being after college completion. Financial well-being encompasses not only income but also knowledge, behaviors, and security, dimensions that may continue to be shaped by family background even among individuals with the same level of educational attainment. This study addresses this gap by examining multiple aspects of financial well-being among first-generation college graduates.

Financial Literacy Among Young Adults and College Graduates

Financial literacy, defined as the knowledge and skills necessary to make effective financial decisions, has become increasingly important in an economic environment characterized by complex financial products, rising individual responsibility for retirement planning, and greater financial risk (Lusardi & Mitchell, 2014). Research consistently shows that financial

literacy is associated with better financial behaviors and outcomes, including higher saving rates, more effective debt management, and greater retirement planning (Hilgert, Hogarth, & Beverly, 2003; Lusardi & Mitchell, 2007).

Despite the importance of financial literacy, studies reveal concerning deficiencies in financial knowledge among American adults, with young adults displaying particularly low levels of financial literacy (Lusardi, Mitchell, & Curto, 2010). The 2018 National Financial Capability Study found that only 24% of millennials (ages 23-37) could correctly answer three basic questions measuring financial literacy, compared to 48% of Baby Boomers (FINRA Investor Education Foundation, 2019). These findings suggest that many young adults, including recent college graduates, may lack the financial knowledge necessary to make sound financial decisions during a critical period of economic foundation-building.

Research examining financial literacy specifically among college students and graduates has produced mixed findings regarding the relationship between college education and financial knowledge. While some studies suggest that college education generally enhances financial literacy (Xiao et al., 2015), others find significant variations among college graduates based on factors such as major, coursework, and family background (Gerrans & Heaney, 2019).

Family background appears to play a crucial role in financial literacy development. Lusardi, Mitchell, and Curto (2010) found that parental education is a significant predictor of young adults' financial knowledge, even after controlling for demographic characteristics and educational attainment. This suggests that first-generation college graduates may display lower levels of financial literacy than their continuing-generation peers due to differences in financial socialization within the family context.

Student Loan Debt and Financial Security

Student loan debt has grown dramatically in recent decades, with outstanding federal student loan debt reaching $1.7 trillion in 2021 (Federal Reserve Bank of New York, 2021). This debt burden has significant implications for graduates' financial security, influencing their ability to save, purchase homes, start businesses, and accumulate wealth (Dynarski, 2016; Houle & Berger, 2015; Agbonlahor, 2025). Research indicates that student loan debt may delay important life transitions such as marriage, homeownership, and childbearing (Addo, 2014; Houle & Berger, 2015) and may contribute to increased financial stress and reduced subjective well-being (Archuleta, Dale, & Spann, 2013).

First-generation students often accumulate higher levels of student loan debt than their continuing-generation peers, reflecting their limited access to family financial resources (Furquim et al., 2017; Houle, 2014). This higher debt burden may exacerbate financial challenges in the post-graduation period. However, research on how student loan debt differentially affects first-generation versus continuing-generation graduates' financial security remains limited. The current study addresses this gap by investigating how student loan debt interacts with first-generation status to influence post-graduation financial security.
Financial security, defined as the ability to meet financial obligations and withstand economic shocks, represents a critical dimension of financial well-being that extends beyond income and wealth metrics. Measures of financial security include emergency savings, debt-to-income ratios, and self-reported ability to cover unexpected expenses (Consumer Financial Protection

Bureau, 2015). Research indicates that many American households lack financial security, with 37% reporting that they would struggle to cover an unexpected $400 expense (Federal Reserve, 2020). However, few studies have examined disparities in financial security, specifically among college graduates, or investigated how first-generation status relates to financial security in the post-graduation period.

Financial Behaviors and Decision-Making Patterns

Financial behaviors, including saving, spending, borrowing, and planning, have significant implications for long-term financial well-being. Research indicates that financial behaviors are shaped by a complex interplay of knowledge, attitudes, norms, and structural constraints (Shim et al., 2009). While financial literacy contributes to financial behaviors, studies suggest that knowledge alone explains a relatively small portion of behavioral variation (Fernandes, Lynch, & Netemeyer, 2014), pointing to the importance of additional factors such as financial socialization, psychological characteristics, and environmental influences.

Financial socialization defined as the process through which individuals develop financial values, attitudes, knowledge, and behaviors occurs primarily through family interactions but is also influenced by peers, schools, and media (Gudmunson & Danes, 2011). Parents transmit financial knowledge, model financial behaviors, and communicate about financial priorities, influencing young adults' financial attitudes and behaviors (Shim et al., 2010; Agbonlahor, 2025).

Given the importance of family financial socialization, first-generation college graduates may display different financial behaviors than their continuing-generation peers due to differences in family financial experiences. However, research specifically examining disparities in financial behaviors between these groups remains limited. The current study addresses this gap by investigating patterns of financial decision-making among first-generation graduates and examining how these patterns relate to economic outcomes.

College Experiences and Financial Outcomes

College experiences including interactions with faculty and engagement in campus activities have been shown to influence various student outcomes (Kuh, 2008; Pascarella & Terenzini, 2005). Research indicates that engagement in “high-impact practices” is particularly beneficial for historically underserved students, including first-generation students.

However, research examining the relationship between college experiences and financial outcomes remains limited. Understanding which aspects of college engagement most effectively support first-generation students' post-graduation financial well-being would provide valuable insights for institutional interventions.

The literature review reveals several important gaps in understanding regarding first-generation college graduates' financial outcomes. The current study addresses these gaps by examining multiple dimensions of financial well-being among first-generation college graduates, investigating how student loan debt influences financial security across different groups, identifying distinctive financial decision-making patterns, and exploring which college experiences might help mitigate financial challenges faced by these graduates.

THEORETICAL FRAMEWORK

This study is grounded in a multidimensional theoretical framework that integrates concepts from social reproduction theory, human capital theory, financial socialization theory, and social capital theory. Together, these theories provide a comprehensive lens for understanding how first-generation status influences financial literacy, behaviors, and economic outcomes among college graduates.

Social reproduction theory, developed by Pierre Bourdieu (1977, 1986), provides a foundational framework for understanding how social inequalities are perpetuated across generations. Bourdieu's theory posits that various forms of capital—economic, cultural, and social—are transmitted from parents to children, creating structures that reproduce existing social hierarchies. This perspective is particularly relevant for understanding financial disparities between first-generation and continuing-generation college graduates. Bourdieu's concept of cultural capital, referring to non-financial social assets such as knowledge, skills, and education, is especially pertinent to financial literacy. Parents with higher education transmit specific knowledge, attitudes, and dispositions about financial matters to their children, including familiarity with financial institutions and understanding of complex financial concepts. First-generation students lack access to this intergenerationally transmitted cultural capital related to navigating post-graduate financial systems. The theory's concept of “habitus” illuminates how financial behaviors are shaped by deeply internalized dispositions reflecting one's social origins. For first-generation students, their habitus may reflect family financial practices oriented toward immediate needs rather than long-term investment.

Human capital theory (Becker, 1964; Schultz, 1961) offers complementary insights about how knowledge and skills, including financial literacy, constitute investments that generate economic returns. This theory posits that individuals can enhance their economic productivity through investments in education and skill development, yielding returns in higher earnings and improved economic well-being. Financial literacy represents a specific form of human capital that enhances individuals' ability to make optimal financial decisions. The theory provides a framework for understanding why student loan debt may have differential effects on economic outcomes and why certain college experiences may mitigate disadvantages faced by first-generation students through enhanced human capital investments.

Financial socialization theory (Gudmunson & Danes, 2011; Shim et al., 2010) examines how individuals acquire financial values, attitudes, knowledge, and behaviors through interactions with family, peers, schools, and media. For first-generation college students, financial socialization often occurs in contexts where parents may have limited experience with complex financial instruments and potentially more precarious financial circumstances. This theory explains financial literacy differences and behavioral differences as first-generation students' financial socialization may emphasize different priorities based on their families' financial experiences.

Social capital theory (Coleman, 1988; Putnam, 2000) focuses on resources embedded in social networks and how these facilitate or constrain individual action. For first-generation college graduates, limited access to networks with financial expertise and professional connections represents a significant disadvantage persisting beyond college completion. This theory explains why employment outcomes differ between first-generation and continuing-

generation graduates. Labor market success depends on connections, referrals, and insider information, resources unequally distributed based on family educational background. The theory also provides insight into why certain college engagement experiences benefit first-generation students, as positive faculty interactions represent opportunities to build bridging social capital.

These four theories integrate into a cohesive framework explaining the complex relationship between first-generation status and post-graduation financial outcomes. First-generation status affects financial outcomes through multiple pathways: limited intergenerational cultural capital transmission results in lower financial literacy; differential human capital investment quality affects educational returns; distinctive financial socialization experiences lead to different approaches to financial decision-making; and unequal social network resources constrain access to financial advice and employment opportunities. These mechanisms interact and compound over time, as initial disadvantages in one domain affect outcomes in other domains, further constraining financial security.

METHODOLOGY

Data and Sample

This study utilizes data from the 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17), a nationally representative survey conducted by the National Center for Education Statistics. The BPS tracks students who began their postsecondary education in the 2011-2012 academic year, following them through 2017. This dataset is particularly valuable as it captures detailed information about students' backgrounds, college experiences, and post-graduation outcomes, allowing for comprehensive analysis of financial literacy and economic well-being among college graduates. The longitudinal nature of this dataset enables examination of how early college experiences translate into post-graduation financial outcomes approximately six years after initial college enrollment. The BPS dataset provides robust measures of both student characteristics and institutional factors, making it ideal for studying the complex interplay between first-generation status, educational experiences, and subsequent financial wellbeing.

The analytical sample for this study consists exclusively of individuals who completed a bachelor's degree by 2017 (N = 7,010). By focusing on bachelor's degree completers, the analysis avoids confounding effects that might arise from comparing individuals with different degree attainment levels. The sample includes both first-generation and continuing-generation college graduates, providing an opportunity to compare these two groups on measures of financial literacy, behaviors, and economic well-being. First-generation students, defined as those whose parents did not complete a bachelor's degree, comprise 42.8% of the sample (n = 3,000), while continuing-generation students make up 57.2% (n = 4,010). This substantial representation of first-generation students in the sample allows for robust statistical comparisons between the two groups. All sample sizes reported are unweighted and rounded to the nearest 10 to protect confidentiality.

For specific analytical models, the sample size varies slightly due to missing data on certain variables. When examining employment outcomes, the analysis includes 4,780 employed individuals who reported salary data. For analyses of financial behaviors, the sample includes 3,860 respondents with complete information on financial decision-making indicators. The

variation in sample size across models reflects the study's commitment to maximizing available data for each research question while ensuring that analyses are not compromised by missing data. Throughout the analysis, careful evaluation of whether patterns of missing data might introduce bias into the findings revealed no evidence of systematic differences between cases with complete and incomplete data.

Variables

This study employs a comprehensive set of variables capturing multiple dimensions of financial knowledge, behaviors, and outcomes alongside demographic characteristics and college experiences. The principal independent variable is first-generation status, operationalized as a binary indicator where respondents whose parents did not complete a bachelor's degree are classified as first-generation graduates (coded as 1), while those with at least one parent who completed a bachelor's degree are classified as continuing-generation graduates (coded as 0). This operationalization aligns with contemporary definitions of first-generation status commonly employed in higher education research and policy.

The study examines several outcome variables reflecting different aspects of financial literacy and economic well-being. Financial literacy is assessed through a composite score (ranging from 0 to 3) based on respondents' answers to three standard questions that have been widely used in previous research on financial knowledge. These questions assess understanding of inflation effects on purchasing power, interest calculations, and investment diversification principles. Each question was also analyzed individually as a binary outcome (correct/incorrect) to identify specific knowledge gaps. This multi-faceted approach to measuring financial literacy allows for both overall assessment and identification of specific knowledge domains where first-generation graduates may face particular challenges.

Financial security is measured through respondents' self-reported ability to come up with $2,000 in case of an emergency, coded as a binary variable (1 = probably or certainly can come up with $2,000, 0 = probably or certainly cannot). This measure has been validated in previous research as an effective indicator of financial fragility and serves as a key metric for assessing individuals' short-term financial resilience. Beyond financial knowledge and security, the study examines three key financial behaviors: whether respondents would prioritize debt payoff with a financial windfall, whether they would prioritize saving with a windfall, and whether they typically pay their credit card balance in full. These behaviors reflect different approaches to financial management and priorities that may be influenced by both background characteristics and financial knowledge.

The analysis incorporates a comprehensive set of control variables to account for potentially confounding factors. Demographic characteristics include gender (female = 1, male = 0), race/ethnicity (categorized as White, Black, Hispanic, Asian, or Other), marital status (married = 1, not married = 0), presence of dependents (has dependents = 1, no dependents = 0), and age (measured as of December 31, 2011). Educational factors include college major (categorized as STEM, Business, Education, Social Sciences, Humanities, Health, or Other) and self-reported grade point average. College experience factors include binary indicators of high faculty interaction, high peer interaction, high sense of belonging, high academic satisfaction, and high social satisfaction, as well as an overall engagement index averaging these five dimensions. Financial factors include total student loan debt, categorical debt levels (No debt, $1-10k, $10k-

30k, $30k-50k, Over $50k), monthly debt payments, and debt-to-income ratio. This extensive set of controls allows for robust isolation of the relationship between first-generation status and financial outcomes.

Analytical Approach

The analytical strategy for this study employs a progressive multi-method approach that builds from descriptive comparisons to increasingly sophisticated multivariate models. Initial analyses focus on describing and comparing first-generation and continuing-generation graduates on key demographic, educational, and financial characteristics. Chi-square tests assess differences in categorical variables such as gender, race/ethnicity, major, and financial behaviors, while independent samples t-tests evaluate differences in continuous variables including financial literacy scores, salary, and debt levels. These bivariate analyses provide a foundation for understanding the broad patterns of disparity between the two groups without yet accounting for potentially confounding factors.

Following the descriptive analyses, the study employs multiple regression techniques tailored to the nature of each outcome variable. For the continuous financial literacy score, ordinary least squares (OLS) regression models are specified with progressively more comprehensive sets of control variables. The baseline model includes only first-generation status to establish the overall literacy gap between groups. Subsequent models incorporate demographic controls (gender, race/ethnicity, marital status, dependents, age), then add educational factors (major, GPA), and finally include employment status. This sequential modeling approach allows for assessment of how much of the initial financial literacy gap remains after accounting for various factors that might explain group differences. The robustness of findings across model specifications strengthens confidence in the identified relationships.

For binary outcomes including financial security and financial behaviors, the analysis employs logistic regression models, which are appropriate for dichotomous dependent variables. Similar to the OLS models, the logistic regression specifications include progressively more comprehensive sets of control variables to isolate the relationship between first-generation status and financial outcomes. Additionally, interaction terms between first-generation status and key independent variables (such as debt levels and college engagement) are included to test whether these factors differentially affect first-generation and continuing-generation graduates.

The analysis of student loan debt's impact on financial security employs both continuous and categorical specifications of debt levels. The continuous specification allows for estimation of the marginal effect of each additional dollar of debt, while the categorical approach offers insights into potential threshold effects where debt may become particularly burdensome at certain levels. Interaction terms between first-generation status and debt test whether debt burdens have differential effects on financial security for first-generation graduates. Furthermore, subgroup analyses are conducted separately for first-generation and continuing-generation graduates to identify potentially different patterns within each group.

To examine financial decision-making patterns, the study employs logistic regression models for each of the three key financial behavior outcomes (debt payment priority, savings priority, and credit management). These models include first-generation status as the key independent

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variable and incorporate financial literacy as a potential mediating factor. Additional models examine how these financial behaviors relate to economic outcomes, including salary (analyzed using OLS regression) and financial security (analyzed using logistic regression). This approach allows for assessment of both the determinants of financial behaviors and their consequences for economic well-being.

The analysis of college experience effects employs regression models incorporating both individual engagement measures and a composite engagement index. Interaction terms between first-generation status and various engagement measures test whether particular forms of engagement have differential effects for first-generation graduates. These interaction terms are central to identifying potential institutional levers for mitigating financial disparities between first-generation and continuing-generation graduates. Both financial literacy and financial security are examined as outcome variables in these models to determine whether engagement influences knowledge acquisition, financial resilience, or both.

To formally assess whether financial literacy mediates the relationship between first-generation status and financial security, the study employs the Baron and Kenny approach to mediation analysis. This involves estimating: (1) the direct effect of first-generation status on financial security; (2) the effect of first-generation status on financial literacy; (3) the effect of financial literacy on financial security while controlling for first-generation status; and (4) comparing the direct effect with and without the mediator to determine the proportion mediated. This structured approach enables quantification of how much of the financial security gap between first-generation and continuing-generation graduates can be attributed to differences in financial literacy.

Throughout all analyses, the study employs appropriate model diagnostics to ensure that statistical assumptions are met. For OLS regression models, the analysis checked for heteroskedasticity, multicollinearity, and influential outliers. For logistic regression models, the study assessed model fit, multicollinearity, and influential cases. Variance inflation factors are examined to ensure that multicollinearity among predictors does not compromise the stability of coefficient estimates. Additionally, the analysis calculates and reports appropriate measures of effect size and practical significance to complement tests of statistical significance. While the BPS dataset includes survey, weights designed for population-level estimates, this study conducted unweighted analyses to examine mechanisms and relationships between variables within the analytic sample, focusing on understanding pathways through which first-generation status influences financial outcomes rather than generating population-level estimates. This approach allowed detection of important relationships while providing conservative estimates that reduce Type I error risk. The results may not be generalizable to the entire U.S. college student population, and the analysis represents relationships at a specific point in time (2017). The potential bias from not using survey weights is somewhat mitigated by the inclusion of key demographic controls in the multivariate models that account for many of the factors that drive sampling weights.

All statistical analyses are conducted using Stata software, which offers robust capabilities for handling complex data and estimating a wide range of statistical models. The analysis code is structured to ensure reproducibility and transparency, with clear documentation of all data transformations, variable constructions, and analytical decisions. This methodological rigor

strengthens confidence in the study's findings and facilitates future research building on this work. Through this multifaceted analytical approach, the study provides comprehensive insights into the financial challenges facing first-generation college graduates and identifies potential pathways for intervention to promote greater economic equity in higher education outcomes.

RESULTS

Demographic Characteristics by First-Generation Status

Table 1 presents key demographic characteristics by first-generation status. Significant differences were observed between first-generation and continuing-generation graduates across multiple dimensions. First-generation graduates were more likely to be female (62.0% vs. 58.0%, $p < 0.001$) and were significantly more diverse in terms of racial/ethnic background. While 72.1% of continuing-generation graduates identified as White, only 53.5% of first-generation graduates did so. First-generation graduates had substantially higher representation among Black (13.1% vs. 6.8%) and Hispanic (22.3% vs. 8.8%) populations. First-generation graduates were also more likely to have family responsibilities, with higher rates of marriage (13.6% vs. 9.6%, $p < 0.001$) and dependents (14.2% vs. 5.0%, $p < 0.001$). They were also significantly older on average (19.6 vs. 18.5 years at college entry, $p < 0.001$), suggesting many delayed entry into higher education. Academic major distributions also differed significantly between the groups ($p < 0.001$). First-generation students were less likely to have majored in STEM fields (19.8% vs. 25.0%) and Humanities (15.9% vs. 20.2%), while showing higher representation in Business (17.4% vs. 15.6%), Social Sciences (17.6% vs. 15.3%), and Other fields (14.2% vs. 10.2%).

Table 1: Demographic Characteristics by First-Generation Status

Characteristic	Continuing Generation	First Generation	Total	p-value
Gender				0.001
Male	1,690 (42.1%)	1,140 (38.0%)	2,830 (40.3%)	
Female	2,320 (57.9%)	1,860 (62.0%)	4,180 (59.7%)	
Race/Ethnicity				<0.001
White	2,890 (72.1%)	1,610 (53.5%)	4,500 (64.2%)	
Black	270 (6.8%)	390 (13.1%)	660 (9.5%)	
Hispanic	350 (8.8%)	670 (22.3%)	1,020 (14.5%)	
Asian	300 (7.5%)	210 (7.1%)	510 (7.3%)	
Other	200 (4.9%)	120 (4.1%)	320 (4.6%)	
Has Dependents				<0.001
No	3,810 (95.0%)	2,580 (85.8%)	6,390 (91.1%)	
Yes	200 (5.0%)	420 (14.2%)	620 (8.9%)	
Marital Status				<0.001
Not Married	3,630 (90.4%)	2,590 (86.4%)	6,220 (88.7%)	
Married	380 (9.6%)	420 (13.6%)	790 (11.3%)	
Academic Major				<0.001
STEM	1,000 (25.0%)	600 (19.8%)	1,600 (22.8%)	
Business	630 (15.6%)	520 (17.4%)	1,150 (16.4%)	
Education	230 (5.7%)	190 (6.2%)	420 (5.9%)	
Social Sciences	610 (15.3%)	530 (17.6%)	1,140 (16.3%)	
Humanities	810 (20.2%)	480 (15.9%)	1,290 (18.4%)	
Health	330 (8.1%)	270 (8.8%)	600 (8.4%)	

Other	410 (10.2%)	430 (14.2%)	840 (11.9%)	
Employment Status				<0.001
Not Employed	1,160 (28.9%)	1,070 (35.7%)	2,230 (31.8%)	
Employed	2,850 (71.1%)	1,930 (64.3%)	4,780 (68.2%)	
Age (mean)	18.5 (SD=1.7)	19.6 (SD=4.7)	18.9 (SD=3.4)	<0.001
Total	4,010 (57.2%)	3,000 (42.8%)	7,010 (100%)	

Note: p-values for categorical variables based on chi-square tests; p-value for age based on t-test. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.
Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Financial Literacy and Behaviors by First-Generation Status

Financial Literacy Differences:

The data revealed significant differences in financial literacy between first-generation and continuing-generation graduates. As shown in Table 2, first-generation graduates scored substantially lower on the overall financial literacy measure (1.77 vs. 2.08 on a 0-3 scale, $p < 0.001$). This pattern was consistent across all three financial literacy questions. For the inflation question, 55.2% of first-generation graduates answered correctly compared to 63.7% of continuing-generation graduates ($p < 0.001$). The interest calculation question showed a smaller but still significant gap, with 87.0% of first-generation graduates answering correctly versus 90.8% of continuing-generation graduates ($p < 0.001$). The largest disparity was observed for the investment diversification question, where only 39.1% of first-generation graduates answered correctly compared to 51.3% of continuing-generation graduates ($p < 0.001$).

Multivariate analyses confirmed that these differences persisted after controlling for demographic characteristics, academic major, and employment status. Model 3 in Table 3 shows that first-generation graduates scored 0.153 points lower ($p < 0.001$) on the financial literacy scale even after accounting for a comprehensive set of controls. The negative association between first-generation status and financial literacy remained remarkably stable across all model specifications, suggesting this relationship is robust. Individual item analyses using logistic regression (Table 4) revealed that first-generation graduates had 18.3% lower odds of correctly answering the inflation question (OR = 0.817, $p < 0.001$), 17.2% lower odds of correctly answering the interest question (OR = 0.828, $p = 0.022$), and 33.8% lower odds of correctly answering the diversification question (OR = 0.662, $p < 0.001$). These results indicate that first-generation graduates face particular challenges in understanding investment diversification principles, which has significant implications for long-term wealth accumulation.

Table 2: Financial Literacy and Behaviors by First-Generation Status

Measure	Continuing Generation	First Generation	Total	p-value
Financial Literacy				
Overall Score (0-3) (mean)	2.08 (SD=0.85)	1.77 (SD=0.88)	1.95 (SD=0.88)	<0.001
Answered inflation question correctly	2,560 (63.7%)	1,660 (55.2%)	4,220 (60.1%)	<0.001
Answered interest question correctly	3,640 (90.8%)	2,610 (87.0%)	6,250 (89.2%)	<0.001

Answered diversification question correctly	2,060 (51.3%)	1,170 (39.1%)	3,230 (46.1%)	<0.001
Financial Security				
Can probably/certainly come up with $2,000	3,370 (84.1%)	2,140 (71.2%)	5,510 (78.6%)	<0.001
Financial Behaviors				
Would prioritize debt payoff with windfall	2,200 (54.9%)	2,040 (67.9%)	4,240 (60.5%)	<0.001
Would prioritize savings with windfall	3,070 (76.5%)	1,970 (65.5%)	5,040 (71.8%)	<0.001
Pays credit card balance in full	2,320 (73.6%)	1,320 (57.6%)	3,640 (66.9%)	<0.001
Student Loan Debt				<0.001
No debt	1,510 (37.6%)	600 (20.1%)	2,110 (30.1%)	
$1-10k	280 (7.0%)	210 (7.0%)	490 (7.0%)	
$10k-30k	870 (21.6%)	680 (22.8%)	1,550 (22.1%)	
$30k-50k	500 (12.6%)	590 (19.7%)	1,090 (15.6%)	
Over $50k	850 (21.2%)	910 (30.4%)	1,760 (25.2%)	
Monthly debt payment (mean)	$721.89 (SD=608.60)	$698.96 (SD=601.53)	$712.08 (SD=605.65)	0.118

Note: p-values for categorical variables based on chi-square tests; p-values for continuous variables based on t-tests. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality. Details may not sum to totals because of rounding.

Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Table 3: OLS Regression Results for Financial Literacy

Variable	Model 1	Model 2	Model 3
First Generation	-0.245***	-0.174***	-0.153***
	(0.021)	(0.021)	(0.020)
Female		-0.503***	-0.452***
		(0.020)	(0.021)
Race (ref: White)			
Black		-0.312***	-0.270***
		(0.035)	(0.035)
Hispanic		-0.204***	-0.187***
		(0.030)	(0.029)
Asian		0.076*	0.035
		(0.039)	(0.038)
Other		-0.218***	-0.201***
		(0.048)	(0.047)
Married		0.084**	0.083**
		(0.034)	(0.033)
Has dependents		-0.100**	-0.090**
		(0.040)	(0.039)
Age		0.000	-0.003
		(0.003)	(0.003)
GPA			-0.064***
			(0.009)
Major (ref: STEM)			
Business			0.089***

			(0.032)
Education			-0.366***
			(0.046)
Social Sciences			-0.145***
			(0.032)
Humanities			-0.296***
			(0.031)
Health			-0.275***
			(0.040)
Other			-0.347***
			(0.035)
Employed			0.068***
			(0.021)
Constant	2.058***	2.384***	2.656***
	(0.014)	(0.063)	(0.070)
Observations	7,010	7,010	7,010
Adjusted R^2	0.019	0.116	0.154
F-statistic	134.9	103.0	76.2

Note: Standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.

Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Table 4: Logistic Regression Results for Individual Financial Literacy Items

Variable	Inflation Item	Interest Item	Diversification Item
	OR (SE)	OR (SE)	OR (SE)
First Generation	0.817***	0.828**	0.662***
	(0.044)	(0.068)	(0.036)
Female	0.471***	0.685***	0.335***
	(0.026)	(0.059)	(0.018)
Race (ref: White)			
Black	0.581***	0.664***	0.620***
	(0.052)	(0.083)	(0.059)
Hispanic	0.652***	0.672***	0.800***
	(0.049)	(0.073)	(0.062)
Asian	1.040	0.818	1.217*
	(0.107)	(0.128)	(0.123)
Other	0.701***	0.661**	0.691***
	(0.085)	(0.114)	(0.088)
Married	1.042	1.249	1.268***
	(0.090)	(0.170)	(0.111)
Has dependents	0.926	0.678***	0.883
	(0.092)	(0.091)	(0.092)
Age	1.002	0.980*	0.993
	(0.008)	(0.010)	(0.008)
GPA	0.884***	0.919**	0.878***
	(0.021)	(0.032)	(0.022)
Major (ref: STEM)			

Business	0.871	1.000	1.693***
	(0.075)	(0.146)	(0.143)
Education	0.503***	0.586***	0.475***
	(0.059)	(0.107)	(0.059)
Social Sciences	0.714***	0.769*	0.797***
	(0.061)	(0.106)	(0.067)
Humanities	0.553***	0.591***	0.587***
	(0.045)	(0.077)	(0.048)
Health	0.558***	0.577***	0.665***
	(0.058)	(0.091)	(0.071)
Other	0.479***	0.554***	0.567***
	(0.044)	(0.077)	(0.053)
Employed	1.119**	1.262***	1.098*
	(0.062)	(0.103)	(0.062)
Constant	5.154***	28.347***	3.567***
	(0.951)	(7.124)	(0.672)
Observations	7,010	7,010	7,010
Pseudo R^2	0.057	0.032	0.099
Chi^2	537.9	155.5	955.6

Note: For each cell, the first row shows odds ratios and the second row shows standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.0. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.

Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Financial Security and Behaviors:

First-generation graduates reported substantially lower levels of financial security compared to their continuing-generation peers. Only 71.2% of first-generation graduates indicated they could probably or certainly come up with $2,000 in an emergency, compared to 84.1% of continuing-generation graduates ($p < 0.001$). With respect to financial behaviors, first-generation graduates were more likely to prioritize debt repayment if given a windfall (67.9% vs. 54.9%, $p < 0.001$) and less likely to prioritize savings (65.5% vs. 76.5%, $p < 0.001$). They were also significantly less likely to pay their credit card balances in full each month (57.6% vs. 73.6%, $p < 0.001$), suggesting they may be accumulating costly revolving debt. Multivariate analyses of financial behaviors (Table 5) confirmed these patterns persist after controlling for relevant factors. First-generation graduates had 54.9% higher odds of prioritizing debt repayment (OR = 1.549, $p < 0.001$), 31.5% lower odds of prioritizing savings (OR = 0.685, $p < 0.001$), and 32.0% lower odds of paying credit card balances in full (OR = 0.680, $p < 0.001$). These differences in financial behaviors remained significant even after controlling for financial literacy, suggesting that factors beyond knowledge differences are driving behavioral disparities.

Table 5: Logistic Regression Results for Financial Behaviors

Variable	Prioritize Debt Repayment	Prioritize Savings	Pay Credit Card in Full
	OR (SE)	OR (SE)	OR (SE)
First Generation	1.549***	0.685***	0.680***
	(0.113)	(0.054)	(0.052)

Female	1.317***	0.941	0.710***
	(0.099)	(0.081)	(0.059)
Race (ref: White)			
Black	1.770***	0.852	0.385***
	(0.254)	(0.119)	(0.051)
Hispanic	1.291**	0.810*	0.551***
	(0.139)	(0.090)	(0.058)
Asian	0.811	1.241	0.958
	(0.109)	(0.207)	(0.148)
Other	1.356*	0.784	0.607***
	(0.234)	(0.141)	(0.104)
Married	1.391***	1.090	0.965
	(0.163)	(0.138)	(0.119)
Has dependents	1.307*	0.708**	0.676***
	(0.200)	(0.103)	(0.098)
Age	1.026	0.920***	0.909***
	(0.017)	(0.014)	(0.015)
GPA	1.102***	0.934*	0.857***
	(0.037)	(0.033)	(0.030)
Major (ref: STEM)			
Business	1.044	0.943	0.686***
	(0.112)	(0.119)	(0.084)
Education	1.025	0.916	0.823
	(0.166)	(0.166)	(0.147)
Social Sciences	0.954	0.769	0.679***
	(0.105)	(0.122)	(0.083)
Humanities	1.026	0.829	0.635***
	(0.111)	(0.103)	(0.077)
Health	1.028	0.985	0.836
	(0.152)	(0.164)	(0.135)
Other	1.198	0.737**	0.637***
	(0.155)	(0.102)	(0.087)
Financial Literacy	0.859***	1.333***	1.306***
	(0.036)	(0.062)	(0.059)
Constant	0.630	12.992***	26.601***
	(0.218)	(4.423)	(9.823)
Observations	3,860	3,860	3,860
Pseudo R^2	0.037	0.046	0.084
Chi^2	192.0	202.6	406.8

Note: For each cell, the first row shows odds ratios and the second row shows standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.

Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Student Loan Debt and Financial Security

First-generation graduates carried significantly higher student loan debt burdens compared to continuing-generation graduates. As shown in Table 2, 30.4% of first-generation graduates had over $50,000 in student debt compared to 21.2% of continuing-generation graduates (p <

0.001). Conversely, only 20.1% of first-generation graduates had no student debt, compared to 37.6% of continuing-generation graduates. The logistic regression results in Table 6 demonstrate that student loan debt had a significant negative association with financial security (OR = 0.999993, $p < 0.001$), indicating that each additional $1,000 in debt reduced the odds of financial security. However, the interaction between first-generation status and debt was not statistically significant (OR = 1.000001, $p = 0.405$), suggesting that the negative impact of debt on financial security was similar for both groups.

When examining categorical debt levels, graduates with higher debt amounts showed progressively lower odds of financial security. Those with over $50,000 in debt had 63.8% lower odds of financial security (OR = 0.362, $p < 0.001$) compared to those with no debt. The interaction terms between first-generation status and debt categories were not statistically significant, further supporting the conclusion that debt affects both groups similarly.

Subgroup analyses (Table 7) showed that among first-generation graduates, each $10,000 increase in student debt was associated with a 5.7% decrease in the odds of financial security (OR = 0.999994, $p < 0.001$). Among continuing-generation graduates, the effect was slightly larger, with a 6.7% decrease in odds for each $10,000 in debt (OR = 0.999993, $p < 0.001$). While both groups were adversely affected by student debt, the base probability of financial security was substantially lower for first-generation graduates at every debt level.

Table 6: Logistic Regression Results for Financial Security

Variable	Model 1	Model 2	Model 3	Model 4
	OR (SE)	OR (SE)	OR (SE)	OR (SE)
First Generation	0.489***	0.467***	0.607***	0.693***
	(0.029)	(0.038)	(0.052)	(0.101)
Debt Total	0.999***	0.999***	0.999***	
	(0.000001)	(0.000001)	(0.000001)	
First Gen × Debt Total		1.000001	1.000001	
		(0.000001)	(0.000001)	
Debt Categories (ref: No debt)				
$1-10k				0.770
				(0.154)
$10k-30k				0.568***
				(0.073)
$30k-50k				0.474***
				(0.068)
Over $50k				0.362***
				(0.044)
First Gen × Debt Categories				
First Gen × $1-10k				0.761
				(0.214)
First Gen × $10k-30k				1.084
				(0.211)
First Gen × $30k-50k				0.796
				(0.162)
First Gen × Over $50k				1.076
				(0.194)

Female			0.862**	0.872**
			(0.057)	(0.058)
Race (ref: White)				
Black			0.479***	0.507***
			(0.046)	(0.049)
Hispanic			0.656***	0.657***
			(0.056)	(0.056)
Asian			0.868	0.822
			(0.108)	(0.103)
Other			1.002	0.989
			(0.152)	(0.151)
Married			1.296**	1.304**
			(0.141)	(0.142)
Has dependents			0.581***	0.590***
			(0.063)	(0.064)
Age			0.950***	0.954***
			(0.008)	(0.008)
GPA			0.811***	0.819***
			(0.022)	(0.022)
Major (ref: STEM)				
Business			1.070	1.085
			(0.113)	(0.115)
Education			0.749*	0.780*
			(0.111)	(0.116)
Social Sciences			0.774**	0.788**
			(0.080)	(0.082)
Humanities			0.641***	0.636***
			(0.063)	(0.063)
Health			1.128	1.175
			(0.152)	(0.159)
Other			0.733***	0.748***
			(0.080)	(0.081)
Employed			1.479***	1.495***
			(0.095)	(0.097)
Constant	6.717***	6.847***	31.186***	36.010***
	(0.338)	(0.381)	(6.426)	(7.822)
Observations	7,010	7,010	7,010	7,010
Pseudo R^2	0.038	0.038	0.085	0.094
Chi^2	277.1	277.8	618.4	684.6

Note: For each cell, the first row shows odds ratios and the second row shows standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.

Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Table 7: Subgroup Analysis - Financial Security by First-Generation Status

Variable	First-Generation Graduates	Continuing-Generation Graduates
	OR (SE)	OR (SE)
Debt Total	0.999994***	0.999993***

	(0.000001)	(0.000001)
Female	0.822**	0.902
	(0.076)	(0.086)
Race (ref: White)		
Black	0.480***	0.454***
	(0.060)	(0.067)
Hispanic	0.587***	0.818
	(0.062)	(0.124)
Asian	0.923	0.821
	(0.167)	(0.141)
Other	0.775	1.281
	(0.167)	(0.284)
Married	1.252	1.403*
	(0.174)	(0.249)
Has dependents	0.643***	0.485***
	(0.084)	(0.093)
Age	0.952***	0.928***
	(0.009)	(0.020)
GPA	0.811***	0.809***
	(0.032)	(0.030)
Major (ref: STEM)		
Business	1.058	1.137
	(0.152)	(0.184)
Education	0.976	0.560***
	(0.202)	(0.118)
Social Sciences	0.845	0.714**
	(0.121)	(0.107)
Humanities	0.806	0.525***
	(0.116)	(0.071)
Health	1.175	1.087
	(0.215)	(0.219)
Other	0.821	0.662**
	(0.121)	(0.107)
Employed	1.450***	1.531***
	(0.127)	(0.146)
Constant	17.660***	49.229***
	(4.587)	(21.698)
Observations	3,000	4,010
Pseudo R^2	0.067	0.064
Chi^2	241.5	226.3

Note: For each cell, the first row shows odds ratios and the second row shows standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.

Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

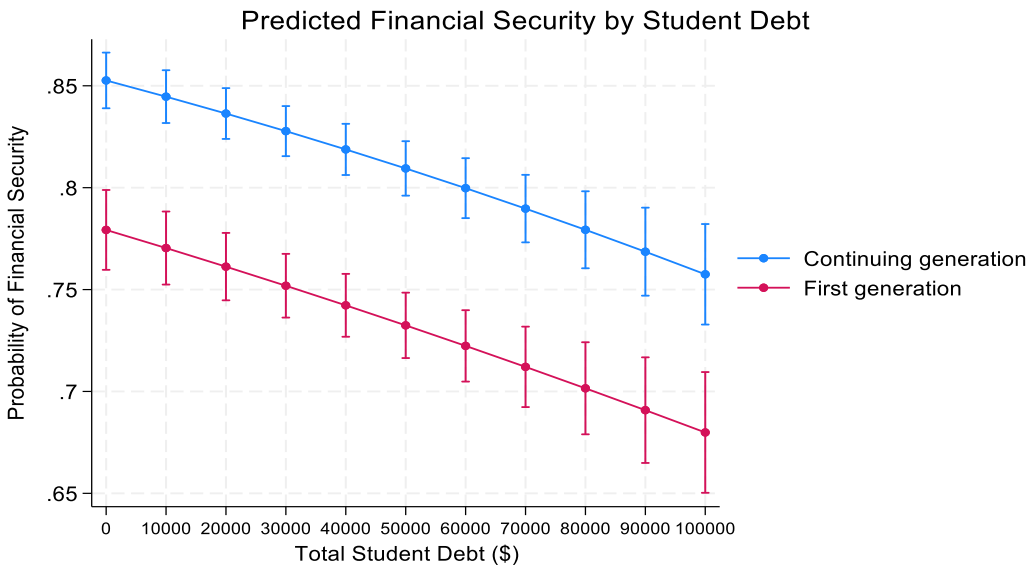

Figure 1: Predicted Financial Security by Student Debt
Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Employment Outcomes by First-Generation Status

First-generation graduates demonstrated significantly different employment patterns compared to continuing-generation graduates. They were less likely to be employed in 2017 (64.3% vs. 71.1%, $p < 0.001$) and more concentrated in-service occupations (13.1% vs. 10.3%) and sales/administrative positions (21.6% vs. 16.7%) rather than management or professional roles (49.2% vs. 57.2%, $p < 0.001$). In terms of earnings, first-generation graduates reported substantially lower average annual salaries ($36,432 vs. $42,052, $p < 0.001$), representing a 13.4% earnings gap. They also reported fewer job benefits on average (2.08 vs. 2.24, $p = 0.002$), suggesting less comprehensive employment packages. Multivariate analysis of log salary (Table 8) showed that first-generation status was associated with a 4.6% lower salary ($\beta = -0.046$, $p = 0.020$) after controlling for demographic characteristics, academic background, and financial behaviors. The positive association between financial literacy and earnings ($\beta = 0.064$, $p < 0.001$) suggests that knowledge gaps may contribute to the income disparity between first-generation and continuing-generation graduates.

Relationship Between Financial Behaviors and Economic Outcomes

Table 8 examines how financial behaviors relate to economic outcomes among college graduates. Prioritizing debt repayment was associated with 8.2% lower salary ($\beta = -0.082$, $p < 0.001$) and 57.7% lower odds of financial security (OR = 0.423, $p < 0.001$). This counterintuitive finding may reflect that those who prioritize debt repayment are likely those struggling with high debt burdens, which constrain their current economic well-being. In contrast, prioritizing savings was associated with 60.5% higher odds of financial security (OR = 1.605, $p < 0.001$), though it showed no significant relationship with salary ($\beta = 0.018$, $p = 0.415$). Paying credit card balances in full had the strongest positive association with financial security (OR = 2.898, $p < 0.001$), highlighting the importance of avoiding high-interest debt. Financial literacy maintained a significant positive association with both salary ($\beta = 0.064$, $p < 0.001$) and financial security (OR = 1.475, $p < 0.001$) even after accounting for financial behaviors. This

underscores the enduring importance of financial knowledge for economic well-being beyond its influence on specific financial behaviors.

First-generation status continued to show a negative association with both salary (β = -0.046, p = 0.020) and financial security (OR = 0.781, p = 0.012) after controlling for financial behaviors and literacy. This persistent gap suggests that additional unmeasured factors contribute to the economic disparities between first-generation and continuing-generation graduates.

Table 8: Relationship Between Financial Behaviors and Economic Outcomes

Variable	**Log Salary**	**Financial Security**
	Coef. (SE)	OR (SE)
First Generation	-0.046**	0.781**
	(0.020)	(0.077)
Prioritize Debt	-0.082***	0.423***
	(0.020)	(0.051)
Prioritize Savings	0.018	1.605***
	(0.022)	(0.161)
Pay Credit Card in Full	0.031	2.898***
	(0.021)	(0.282)
Financial Literacy	0.064***	1.475***
	(0.011)	(0.085)
Female	-0.090***	1.037
	(0.021)	(0.112)
Race (ref: White)		
Black	-0.101***	0.671**
	(0.036)	(0.105)
Hispanic	-0.072**	0.704***
	(0.028)	(0.091)
Asian	0.074**	0.731
	(0.037)	(0.145)
Other	0.038	1.032
	(0.046)	(0.234)
Married	0.037	1.129
	(0.030)	(0.177)
Has dependents	0.018	0.686**
	(0.038)	(0.113)
Age	-0.001	0.958***
	(0.004)	(0.015)
GPA	-0.033***	0.846***
	(0.009)	(0.036)
Major (ref: STEM)		
Business	0.037	1.000
	(0.029)	(0.167)
Education	-0.277***	0.781
	(0.044)	(0.181)
Social Sciences	-0.195***	0.715**
	(0.030)	(0.114)

Humanities	-0.257***	0.653***
	(0.030)	(0.102)
Health	-0.032	1.270
	(0.040)	(0.285)
Other	-0.237***	0.656**
	(0.034)	(0.112)
Constant	10.649***	8.871***
	(0.091)	(3.591)
Observations	3,860	3,860
R^2/Pseudo R^2	0.110	0.172
F/Chi^2	23.72	609.3

Note: For log salary, standard errors are in parentheses. For financial security, the first row shows odds ratios and the second row shows standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.
Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

College Engagement and Mitigation of Financial Challenges

Analyses of college experiences revealed several promising pathways for mitigating financial challenges faced by first-generation graduates. The composite engagement index, which averaged faculty interaction, peer interaction, sense of belonging, academic satisfaction, and social satisfaction, showed a small but non-significant difference between first-generation and continuing-generation graduates (4.24 vs. 4.27 on a 1-5 scale, p = 0.269). Table 9 presents results examining whether college engagement moderates the relationship between first-generation status and financial literacy. The main effect of engagement was positive and significant (β = 0.038, p = 0.057), indicating that higher engagement was associated with higher financial literacy. However, the interaction between first-generation status and engagement was not statistically significant (β = 0.002, p = 0.940), suggesting that engagement benefits both groups similarly with respect to financial literacy.

When examining specific dimensions of engagement (Table 10), academic satisfaction showed a significant interaction with first-generation status (OR = 1.161, p = 0.025). This indicates that while academic satisfaction had minimal effects on financial security for continuing-generation students, it had substantial positive effects for first-generation students. First-generation students with high academic satisfaction had financial security levels much closer to their continuing-generation peers compared to those with low academic satisfaction. The faculty interaction, peer interaction, sense of belonging, and social satisfaction measures did not show significant interactions with first-generation status, suggesting these forms of engagement, while generally beneficial, do not differentially benefit first-generation students with respect to financial outcomes.

Table 9: College Engagement Effects on Financial Literacy

Variable	**Engagement Index Model**	**Components Model**
	Coef.	Coef.
First Generation	-0.172	-0.160***
	(0.137)	(0.020)
College Engagement Index	0.038*	
	(0.020)	

First Gen × Engagement	0.002	
	(0.032)	
High Faculty Interaction		-0.063
		(0.043)
High Peer Interaction		0.064
		(0.042)
High Sense of Belonging		0.045
		(0.034)
High Academic Satisfaction		0.082**
		(0.040)
High Social Satisfaction		-0.070**
		(0.035)
Female	-0.437***	-0.437***
	(0.024)	(0.021)
Race (ref: White)		
Black	-0.290***	-0.294***
	(0.042)	(0.034)
Hispanic	-0.232***	-0.193***
	(0.035)	(0.029)
Asian	0.052	0.042
	(0.045)	(0.038)
Other	-0.191***	-0.209***
	(0.054)	(0.047)
Married	0.104***	0.100***
	(0.039)	(0.033)
Has dependents	-0.073	-0.114***
	(0.049)	(0.038)
Age	-0.005	-0.002
	(0.005)	(0.003)
Major (ref: STEM)		
Business	0.112***	0.080**
	(0.037)	(0.031)
Education	-0.421***	-0.346***
	(0.053)	(0.046)
Social Sciences	-0.151***	-0.150***
	(0.037)	(0.032)
Humanities	-0.323***	-0.287***
	(0.035)	(0.031)
Health	-0.304***	-0.271***
	(0.047)	(0.040)
Other	-0.373***	-0.354***
	(0.042)	(0.035)
Employed		0.077***
		(0.021)
Constant	2.459***	2.429***
	(0.125)	(0.076)
Observations	5,090	7,160

R^2		
F		
p-value	1.34e-178	3.89e-232

Note: Standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.
Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

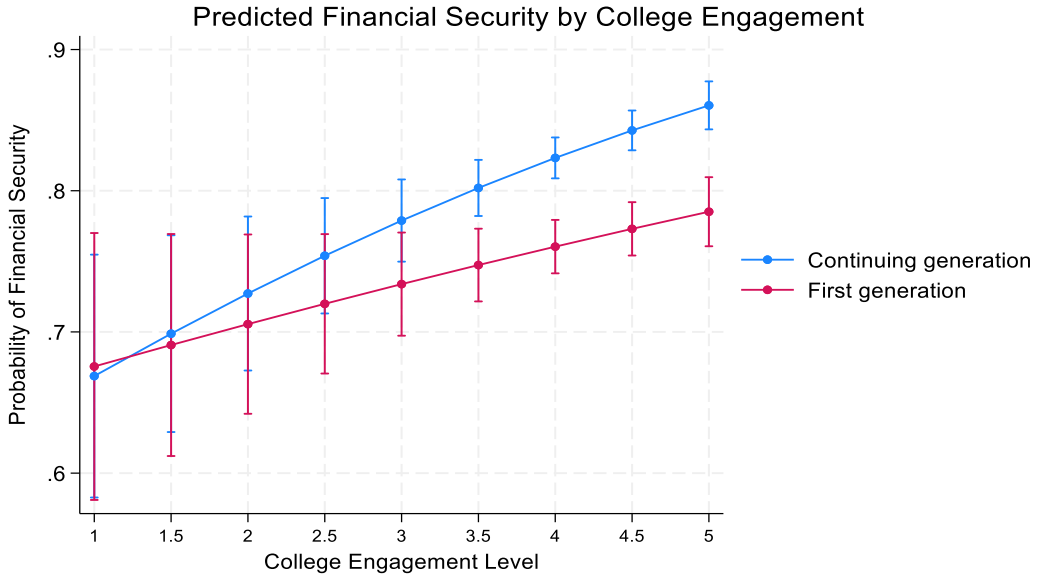

Figure 2: Predicted Financial Security by College Engagement
Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Table 10: Engagement Measures Interaction Models for Financial Security

Variable	Faculty Interaction	Peer Interaction	Sense of Belonging	Academic Satisfaction	Social Satisfaction
	OR (SE)	OR (SE)	OR (SE)	OR (SE)	OR (SE)
First Generation	0.589***	0.627***	0.607***	0.607***	0.607***
	(0.058)	(0.057)	(0.053)	(0.051)	(0.051)
Engagement Measure	0.881	1.061	1.047	1.012	0.981
	(0.084)	(0.099)	(0.068)	(0.081)	(0.075)
First Gen × Engagement	1.083	0.995	0.983	1.161**	1.045
	(0.074)	(0.073)	(0.052)	(0.066)	(0.058)
Control Variables	Yes	Yes	Yes	Yes	Yes
Constant	2.40***	2.34***	2.34***	2.34***	2.32***
	(0.134)	(0.132)	(0.131)	(0.130)	(0.130)
Observations	7,160	7,160	7,160	7,160	7,160

For each cell, the first row shows odds ratios and the second row shows standard errors in parentheses. All models include controls for gender, race/ethnicity, marital status, dependents, age, major, and employment

status (not shown). * p < 0.10, ** p < 0.05, *** p < 0.01. All sample sizes are unweighted and rounded to the nearest 10 to protect confidentiality.
Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

Mediating Role of Financial Literacy

A formal mediation analysis was conducted to test whether financial literacy mediates the relationship between first-generation status and financial security. The direct effect of first-generation status on financial security was significant (average marginal effect = -0.087, $p < 0.001$). First-generation status was also significantly associated with lower financial literacy ($\beta = -0.163$, $p < 0.001$), and financial literacy was positively associated with financial security when controlling for first-generation status (average marginal effect = 0.072, $p < 0.001$).

The calculated mediation effect was -0.012 (the product of -0.163 and 0.072), indicating that about 13.2% of the total effect of first-generation status on financial security was mediated through financial literacy. This suggests that while knowledge gaps explain some of the financial security disparities, the majority of the effect operates through other pathways.

Table 11: Mediation Analysis Results

Step	Description	Estimate	Standard Error	p-value
1	Effect of first-generation status on financial security	-0.087	0.010	<0.001
2	Effect of first-generation status on financial literacy	-0.163	0.020	<0.001
3	Effect of financial literacy on financial security	0.072	0.005	<0.001
4	Effect of first-generation status on financial security, controlling for financial literacy	-0.076	0.010	<0.001
	Mediation Effect	-0.012		
	Proportion Mediated	13.2%		

Note: Step 1 represents the total effect of first-generation status on financial security. Step 2 represents the effect of first-generation status on the mediator (financial literacy). Step 3 represents the effect of the mediator on financial security, controlling for first-generation status. Step 4 represents the direct effect of first-generation status on financial security, controlling for financial literacy. The mediation effect is calculated as the product of coefficients from steps 2 and 3. The proportion mediated is calculated as 1 - (direct effect / total effect).
Source: U.S. Department of Education, National Center for Education Statistics, 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17).

In summary, the results reveal substantial disparities in financial literacy, behaviors, and economic outcomes between first-generation and continuing-generation college graduates. While college engagement, particularly academic satisfaction, shows promise for mitigating these gaps, significant disparities persist even after accounting for a comprehensive set of demographic, educational, and behavioral factors. The findings highlight the need for targeted interventions to address the specific financial challenges faced by first-generation college graduates.

DISCUSSION

This study examined the relationship between first-generation status and financial literacy, behaviors, and economic outcomes among college graduates. Drawing on data from the 2012/17 Beginning Postsecondary Students Longitudinal Study, the analysis revealed substantial disparities between first-generation and continuing-generation graduates across

multiple dimensions of financial well-being. These findings have important implications for understanding how social background continues to shape economic trajectories even among individuals who have achieved the same level of educational attainment. This section discusses the key findings, their theoretical implications, and their practical significance for higher education institutions and policymakers seeking to promote greater economic equity.

The results revealed significant gaps in financial literacy between first-generation and continuing-generation college graduates, with first-generation graduates scoring lower on measures of financial knowledge even after controlling for demographic characteristics, academic factors, and employment status. This finding aligns with social reproduction theory, which posits that family background shapes the acquisition of cultural capital, including financial knowledge and dispositions. Parents with higher education transmit specific forms of knowledge about financial systems to their children that first-generation students may not receive through family socialization. The persistence of these knowledge disparities after college completion suggests that higher education alone does not fully equalize financial literacy, despite providing first-generation students with academic credentials.

The financial literacy gap was particularly pronounced for investment diversification knowledge, with first-generation graduates showing substantially lower odds of understanding this concept compared to inflation and interest calculations. This specific deficit may have significant long-term implications for wealth accumulation, as understanding diversification is critical for effective investment and retirement planning. From a policy perspective, this finding suggests that financial education initiatives should pay particular attention to investment concepts, especially when targeting first-generation students and graduates.

Beyond knowledge disparities, the study found that first-generation graduates reported lower levels of financial security, with fewer indicating they could come up with $2,000 in an emergency. This financial fragility persisted even after controlling for student loan debt, suggesting that factors beyond educational debt contribute to first-generation graduates' economic vulnerability. These findings align with research on the “wealth gap” among college graduates from different socioeconomic backgrounds (Manzoni & Streib, 2019) and highlight the limitations of education alone in equalizing economic outcomes.

The analysis of student loan debt revealed a complex picture. First-generation graduates carried heavier debt burdens than their continuing-generation peers, with a higher percentage having debt exceeding $50,000. Student loan debt negatively affected financial security for all graduates, but interestingly, the analysis did not find evidence that this effect was stronger for first-generation graduates. This finding suggests that while debt is a challenge for all graduates, the overall lower baseline of financial security among first-generation graduates means they may have fewer resources to manage their debt burden effectively.

From a human capital perspective, educational debt represents an investment that should generate sufficient returns to justify the cost. However, the findings suggest that first-generation graduates may receive lower returns on their educational investment, as evidenced by their lower salaries and employment rates despite similar debt burdens. This pattern raises concerns about the equity of student loan financing as a mechanism for educational access. Policy initiatives such as income-driven repayment plans, targeted loan forgiveness for

economically vulnerable graduates, and expanded grant aid for first-generation students could help address these concerns.

One of the most striking findings from the study was the distinctive pattern of financial behaviors among first-generation graduates. They were more likely to prioritize debt repayment when given a financial windfall, less likely to prioritize savings, and less likely to pay credit card balances in full. These behavioral differences persisted even after controlling for financial literacy, suggesting they reflect more than just knowledge gaps.

Financial socialization theory helps explain these behavioral patterns. First-generation students' financial behaviors likely reflect value orientations and strategies developed in family contexts where managing immediate financial pressures may have taken precedence over long-term financial planning. If their families experienced significant financial hardship or insecurity, first-generation students might develop strong aversions to debt or focus on addressing immediate financial obligations rather than building long-term savings. These deeply socialized financial approaches may persist even after these individuals gain financial knowledge through education.

The finding that prioritizing debt repayment was associated with lower salary and financial security appears counterintuitive at first glance, as debt reduction is generally considered financially prudent. However, this pattern likely reflects that those most focused on debt repayment are those struggling with high debt burdens that constrain their current economic well-being. In contrast, prioritizing savings and paying credit card balances in full were associated with greater financial security, highlighting the importance of these behaviors for economic stability.

These findings suggest that financial education for first-generation students should address not just knowledge gaps but also deeply held attitudes and values about financial management. Programs that acknowledge the emotional dimensions of financial decision-making and help students develop strategies aligned with both their financial values and long-term economic interests may be particularly effective.

The investigation of college experiences identified academic satisfaction as a significant moderator of the relationship between first-generation status and financial security. While other forms of engagement showed general benefits for all students, academic satisfaction had particularly strong effects for first-generation graduates' financial outcomes. This finding suggests that positive academic experiences may help first-generation students develop forms of human and social capital that partially compensate for limitations in family-based resources and connections.

Several mechanisms might explain the particular importance of academic satisfaction. First, academic satisfaction likely reflects meaningful engagement with course content and faculty, which can enhance the development of critical thinking, problem-solving, and analytical skills valued in the labor market. Second, positive academic experiences may facilitate stronger faculty relationships and mentoring, providing first-generation students with valuable sources of social capital and professional references. Third, academic satisfaction may contribute to

greater self-efficacy and confidence, which can translate into more effective career navigation and financial decision-making.

From an institutional perspective, these findings highlight the importance of ensuring that first-generation students not only complete their degrees but also have high-quality, satisfying academic experiences. Interventions such as faculty mentoring programs, enhanced academic support services, and pedagogical approaches that validate first-generation students' experiences and perspectives could help promote academic satisfaction among this population. Additionally, linking academic experiences more explicitly to financial and career preparation through embedded financial education, career-focused coursework, and applied learning opportunities could help first-generation students translate their academic engagement into post-graduation financial success.

Theoretical and Practical Implications

The findings from this study have important implications for both theory and practice related to first-generation students' post-graduation outcomes. Theoretically, the results support an integrated framework that combines insights from social reproduction, human capital, financial socialization, and social capital theories. No single theoretical perspective fully explains the complex relationship between first-generation status and financial outcomes; rather, these perspectives complement each other in illuminating different aspects of this relationship.

Social reproduction theory helps explain the persistent advantage of continuing-generation graduates in terms of financial knowledge and security, highlighting how cultural capital related to financial systems is transmitted intergenerationally. Human capital theory illuminates the economic returns to education and financial literacy, while also raising questions about why these returns differ based on first-generation status. Financial socialization theory provides insights into the distinctive financial behaviors observed among first-generation graduates, emphasizing how family experiences shape financial values and decision-making approaches. Social capital theory offers a framework for understanding employment and earnings disparities, as well as the potential role of college-based networks in mitigating these disparities.

From a practical perspective, the findings suggest several approaches for supporting first-generation students' financial well-being both during college and after graduation. First, institutions should integrate comprehensive financial education into the curriculum and co-curriculum, addressing not only basic financial concepts but also investment principles, behavioral tendencies, and emotional aspects of financial decision-making. Second, student loan counseling should be enhanced to help first-generation students make informed borrowing decisions and develop realistic plans for managing debt after graduation. Third, career services should be tailored to address the specific challenges facing first-generation students, including limited professional networks and potentially lower familiarity with career navigation strategies. Fourth, mentoring programs should connect first-generation students with faculty, staff, alumni, and professionals who can provide guidance on both academic and financial matters.

At a broader policy level, the findings suggest the need for systemic approaches to addressing financial disparities among college graduates. These might include expanded need-based

financial aid to reduce debt burdens for first-generation students, income-based repayment programs that protect financially vulnerable graduates, progressive taxation policies that address wealth inequality, workplace financial wellness programs, and community-based financial empowerment initiatives. By combining institutional interventions with broader policy changes, stakeholders can work toward ensuring that higher education fulfills its promise as a pathway to economic mobility for students from all backgrounds.

Limitations and Future Research

While this study provides valuable insights into first-generation graduates' financial outcomes, several limitations should be noted. The cross-sectional nature of the financial outcome measures limits the ability to examine how disparities evolve over time. Future research using longer-term longitudinal data could investigate whether financial gaps between first-generation and continuing-generation graduates narrow or widen throughout their careers. Additionally, the measures of financial literacy, while standard in the field, capture only basic financial knowledge. More comprehensive measures addressing advanced financial concepts and applied knowledge would provide a fuller picture of financial literacy disparities.

Another limitation is the focus on bachelor's degree recipients, which excludes first-generation students who pursued but did not complete degrees or who earned associate's degrees. Future research should examine financial outcomes across different educational pathways to understand how degree completion and type interact with first-generation status to influence financial well-being. Finally, the unweighted analysis approach, while appropriate for examining relationships within the sample, limits the generalizability of findings to the full population of U.S. college graduates. Future studies using weighted analyses with larger samples would complement the findings by providing population-level estimates of disparities. Despite these limitations, the study makes a significant contribution to understanding the relationship between first-generation status and post-graduation financial outcomes. By documenting disparities in financial literacy, behaviors, and security among college graduates and identifying potential pathways for addressing these disparities, this study provides valuable insights for theory, research, policy, and practice related to higher education's role in promoting economic equity. As institutions and policymakers increasingly focus on ensuring that college degrees translate into economic well-being for all graduates, attention to the specific challenges facing first-generation graduates will be essential for creating more equitable outcomes.

In conclusion, while higher education provides important opportunities for social mobility, the findings suggest that it does not fully eliminate the influence of family background on economic outcomes. First-generation college graduates continue to face challenges in financial knowledge, behaviors, and security compared to their continuing-generation peers, even after earning the same level of educational credentials. Addressing these persistent disparities will require multifaceted approaches that go beyond increasing college access and completion to encompass comprehensive financial education, targeted support services, and broader policy changes aimed at creating a more equitable economic system. Through such efforts, higher education can work toward ensuring that higher education fulfills its promise as a pathway to financial well-being for students from all backgrounds.

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