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THESIS

ANALYSIS OF SERVICE MEMBERS' FINANCIAL KNOWLEDGE LEVEL AND UTILIZATION OF THE THRIFT SAVINGS PLAN

by

Christopher J. Cavanaugh

March 2018

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ANALYSIS OF SERVICE MEMBERS' FINANCIAL KNOWLEDGE LEVEL AND UTILIZATION OF THE THRIFT SAVINGS PLAN

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LIST OF ACRONYMS AND ABBREVIATIONS

AFADBD	Armed Forces Active-Duty Base Date
BAH	basic allowance for housing
BRS	Blended Retirement System
C Fund	Common Stock Index Investment Fund
CFPB	Consumer Financial Protection Act
DoD	Department of Defense
EAFE	Europe, Australasia, and the Far East
ETAC	Employee Thrift Advisory Council
F Fund	Fixed Income Investment Index Fund
FERS	Federal Employee's Retirement System
FINRA	Financial Industry Regulatory Authority
FRTIB	Federal Retirement Thrift Investment Board
HIGH-3	Legacy Retirement System
G Fund	Government Securities Investment Index Fund
I Fund	International Stock Index Investment Fund
IRA	Individual Retirement Account
IRB	Institutional Review Board
IRS	Internal Revenue Service
MSCI	Morgan Stanley Capital International
NASD	National Association of Securities Dealers
NDAA	National Defense Authorization Act
NFCS	National Financial Capability Study
NPS	Naval Postgraduate School
NPV	net present value
NYSE	New York Stock Exchange
PII	Personally Identifiable Information
S Fund	Small Capitalization Stock Index Fund
SCF	Survey of Consumer Finance
SRO	self-regulatory organization

T-bills	Treasury Securities
TIG	time in grade
TIS	time in service
TSP	Thrift Savings Plan
TVM	time value of money
YOS	years of service

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I. INTRODUCTION

A. BACKGROUND

In the United States, increasing Medicare costs, increasing life expectancy, and declining government programs such as Social Security and defined benefit retirement plans are contributing to the critical situation of individuals failing to meet their retirement goals needed for financial independence. The country has entered into what researchers refer to as a “post-retirement crisis,” in which retired individuals are outliving their assets and becoming solely dependent on others to meet their everyday financial needs (Benartzi, 2010). The transition and financial crisis that many retirees face today has been compounded by a lifetime of poor financial decision-making that makes it nearly impossible for many individuals to quit working (Benartzi, 2010). Furthermore, some of those who are retirement eligible do not have the financial skills needed to calculate how much money they need to last throughout retirement and end up spending too much during their earlier years of retirement (Benartzi, 2010).

Just as there are retirement plans available to employees in industry, the federal government and the Department of Defense (DoD) also have retirement plans available for their employees. The DoD has recently transitioned to a new program for retiring uniformed service members allowing them to be eligible to receive matching contributions towards their retirement plans. In 2016, the National Defense Authorization Act (NDAA) created what is now known as the Blended Retirement System (BRS), which officially took effect on January 1, 2018. The new retirement system incorporates a reduced retirement pension with what is known as a defined contribution plan built around a service member’s Thrift Savings Plan (TSP) account (DoD, 2017a). The BRS places more responsibility on the individual service member to make financial decisions to plan and prepare for retirement. As of January 1, 2018, new joining service members and those service members with 12 years of service (YOS) or more are not qualified to select between the two retirement systems. Those service members who do qualify must elect which retirement system to participate in, and once a service member elects which system to participate in, the decision is final and cannot be changed (DoD, 2016b).

The Thrift Savings Plan was created in 1986 as an investment platform for government employees to invest towards growing their retirement savings (TSF, 2016). Under the new BRS, several new elements have been designed to help ensure service members are not leaving the service with a financial hardship. Annual matching contributions up to 5% of a service member's base pay, at least a 1% DoD annual contribution, and a mid-career lump sum payment are some of the highlights within the BRS. Similar to industry's 401(k) programs, service members, upon leaving service, can decide to leave the money remaining in the TSP; roll their account over to their future employer's contribution plan or an Individual Retirement Account (IRA); or withdraw the money with special tax penalty considerations. However, service members need to understand where and how their money is being invested. They also need to understand how to maximize these investments while investing in the TSP, taking into account the available funds' time horizons, risk levels, and compounding interest opportunities throughout their careers. Although service members have the option not to contribute into the TSP program, many enroll during initial training at boot camp because of the advice they receive there, despite having little financial knowledge or little understanding of the options they are investing in or the purpose of the investments.

This research study helps evaluate how service members currently understand and utilize the TSP to make investments, weighing risk, return, and volatility among the 10 different TSP funds available, including five LifeCycle Funds and five Individual Funds. Whether a service member chooses to remain under the legacy HIGH-3 or opt into the BRS, all service members need to understand the financial implications of investing in the TSP to maximize their future financial independence.

B. RESEARCH PURPOSE

The purpose of this research is to identify the service members' general and Thrift Savings Plan-specific current financial knowledge level regarding retirement and to determine important factors to consider for retirement.

C. RESEARCH QUESTIONS

The research questions for this research study include the following:

1. What is the service members' current general financial knowledge level related to retirement?

2. What is the service members' current financial knowledge level regarding the Thrift Savings Plan?

3. What are important factors for eligible service members to consider when making the decision to either remain under the HIGH-3 or choose the Blended Retirement System?

4. Based on an example, what is the potential financial gain or loss for those service members who choose the Blended Retirement System?

D. METHODOLOGY

This research encompasses a literature review and the development of an online survey. All Institutional Review Board (IRB) procedures were followed, and the IRB protocol was approved. The sample target population consisted of active-duty officers and enlisted personnel from across the five military services at the Naval Postgraduate School (NPS) for this research study. Junior service members (lieutenants-captains) comprise the sample, as they are the ones who will need to choose between the HIGH-3 and Blended Retirement System (BRS). Participants in the study completed a voluntary and anonymous survey online using LimeSurvey. The results of this study have the potential to show how improvements can be made to the current financial knowledge instruction provided during basic training.

E. IMPORTANCE OF RESEARCH

The importance of this research study is to identify current financial knowledge, strategies, risks, and available investment options offered through the TSP. This research may help the DoD and service level leadership better educate, inform, and provide the knowledge necessary for service members to make informed financial decisions towards individual retirement planning when investing into the TSP whether participating in the BRS or not. Several resources exist that provide information about the TSP, but this research study may help DoD leadership identify various resources regarding retirement planning for future dissemination to service members.

F. BENEFITS AND LIMITATIONS

With the current environment and training focused on the shift from the defined benefit retirement system (HIGH-3) to the Blended Retirement System (BRS), service members may not be receiving enough information about how to properly invest in the TSP. A benefit of this research study is that it may identify factors service members should consider making decisions regarding their retirement planning as it relates to the TSP. In addition to providing service members with the most current and accurate information to make an appropriate informed decision on retirement systems, the service members must receive the appropriate knowledge on how to maximize their investments within the TSP to fully maximize future earnings potential.

Another benefit to this research study is that it may provide leaders with information to enhance how service members access and utilize TSP information to make sound financial decisions. This research may also identify areas for developing better tools offered on the TSP website, which may further aid service members when they are choosing investment funds.

A limitation to this research is that it focuses on active-duty service members even though the TSP is also available to federal employees and reserve members. This research study focuses on active-duty junior officer and enlisted personnel in an effort to capture the most recent and current financial trends in regards to the TSP.

G. ORGANIZATION OF REPORT

This research report is organized into five chapters. The first chapter, the introduction, covers a brief background and an overview of this research report. Chapter II is the literature review, which discusses the current retirement systems, current decisions service members face in choosing between the two systems, the population affected, and a current review of the financial training and previous studies conducted. In addition, a historical review of the TSP and an analysis of investment options and strategies available within the TSP are addressed. The literature review provides a review of potential investment risks as presented on the TSP website.

Chapter III includes a discussion of the methodology of this research study. The method of analysis for the collection of data from the online survey is presented. In addition, descriptions of the survey structure and the method of deploying the survey are discussed. This chapter concludes with a discussion on the methods of analyzing the data collected in the research.

Chapter IV provides an analysis of the research results collected from the survey responses. The collected data is analyzed using descriptive statistics. Chapter IV also includes a discussion of the results, as well as the implications, of the research study and responses to the four research questions. Based on the analysis of the data, recommendations are provided for leaders responsible for conducting financial instruction. Chapter V is the conclusion of this research report and offers a summary with recommendations for further areas of research study.

H. SUMMARY

This chapter introduced a brief description of the background and history relevant to this research study, as well as an introduction on the TSP and the new DoD retirement system. The purpose of this research and the research questions were identified. The methodology of this study was discussed. The importance of this research study, as it affects every service member, and the benefits and limitations of the research were also addressed. This chapter concluded with the organization of the report, and the following chapter provides a discussion of the literature review.

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II. LITERATURE REVIEW

A. INTRODUCTION

This chapter discusses the literature review for this research study. This chapter introduces the military retirement system and the current transition from the defined benefit plan to the new defined blended contribution plan. This chapter includes a discussion on the current retirement trends affecting our country. Furthermore, this chapter discusses the military retirement system as well as the old HIGH 3 retirement system and the new Blended Retirement System (BRS). This chapter also discusses the Thrift Savings Plan (TSP). Lastly, this chapter concludes with a discussion of the research provided by the Financial Industry Regulatory Authority (FINRA) and the FINRA Investor Education Foundation’s reports that have been generated over the past 10 years on the service members’ financial health and on the military as a whole.

Benartzi (2010) notes that one out of 10 individuals who reach age 65 will have enough saved up to pay four years of their retirement expenses, and another one out of 10 will have enough saved to last for 34 years of expenses. These effects can be attributed to what has become the new normal for employee-employer retirement plans, in which the employee no longer earns a pension in exchange for a specific amount of time working for that company, known as a defined benefit plan (Benartzi, 2010). Today, many employers have switched, or are in the process of switching, to the popular defined contribution plan, in which the retirement responsibility is placed on the individual instead of the company (Benartzi, 2010).

Within the first decade of the 21st century, two major financial crises had an exponentially negative impact on individuals not only within the United States, but throughout the world. In the most recent financial crisis of 2007, thousands of individuals were affected when companies like Enron and investment advisor Bernie Madoff deceived investors and knowingly committed financial fraud, costing some people their entire life savings and making the retirement phase non-existent. Researchers are finding ways to help individuals plan for retirement by using technology and by exposing individuals, earlier in their careers, to the concepts of retirement (Benartzi, 2010). Education on lifetime income, investment products, and financial planning are becoming standard practice as individuals enter the workforce (Benartzi, 2010). Education, along with presenting financial products in a language that people can understand, is known to have a favorable effect on individuals making decisions early in their careers and may help prevent negative financial consequences as they age (Benartzi, 2010). The following section discusses the current retirement trends within the United States.

B. THE CURRENT RETIREMENT TREND

Workers today face micro- and macro-economic and demographic changes that have changed the way people think about retirement and how they prepare for retirement. Organizations systematically have shifted the risk and responsibility from the government and employers and placed them on the employee (Munnell, 2015). Munnell (2015) notes that 50% of working individuals are “at risk” of being incapable to support their current style of living throughout their retirement years. From 1983-2013, the Federal Reserve’s *Survey of Consumer Finance (SCF)* found that although wealth-to-income ratios appear to be steadily increasing with each other, this actually represents a decline in how well-prepared people currently are compared to workers in the past (Munnell, 2015).

Munnell (2015) attributes this decline to several of those micro- and macro-economic shifts over the past two decades, including the following:

- **Life expectancy** – With increased longevity, the trend has increased the individuals’ retirement period from 13 years in 1960, to approximately 20 years as of 2015 (Munnell, 2015).

- **Social Security program –** Social Security is a major socio-economic program in the federal government’s retirement system. With increased demand, the program gradually shifted its full retirement age from 65 to 67, causing people to need to work longer. Individuals who are still retiring at the age of 65 are taking lower monthly benefits, equal to approximately 36% of pre-retirement income, which is a drop from the previous 40% average (Munnell, 2015).

- **Employee retirement plans** –Industry, and now the federal government, have shifted away from the traditional defined benefit plans towards individuals now being responsible for contributing more of their earnings in order to receive a matching contribution. Munnell (2015) highlights survey results that show that over the past 30 years, only 50% of private sector workers are actively participating in their employer-sponsored retirement plan while 20% of employees, despite being eligible to participate, still do not contribute to their employer's plan. Of those who do contribute, only about 10% of individuals contribute the maximum contribution allowed (Munnell, 2015). For uniformed service members, the 2008 Military Financial Confidence Survey administered by the Financial Industry Regulatory Authority (FINRA) found that only 69%, or about 7 out of 10, were currently saving for retirement (FINRA, 2008). Additionally, only 68% of those with retirement savings were utilizing the TSP (FINRA, 2008).

- **Medical and health care expenses –** Medicare premiums have risen faster than the prescribed benefit levels (Munnell, 2015). As a result, a retiree in 2030 will see premiums increase to an estimated average of 10.4% of the Social Security benefit, compared to premiums averaging 5.4% for a retiree in 1990 (Munnell, 2015).

- **Reduced interest rates and home equity –** Many retirees have to use their home equity as an emergency fund reserve instead of a potential source of income during their retirement years (Munnell, 2015). Downsizing and reverse mortgages have become standard practice for many retirees to free up cash flow and provide extra funds (Munnell, 2015).

With these trends shifting over the past two decades, retirees have to make hard financial decisions to make ends meet (Munnell, 2015). Munnell further highlights that preparation during their younger adult working years might have been able to offset some of the shock of retiring and discovering that they do not have the necessary assets to provide a comfortable living. With rising medical costs, lower defined benefit packages, and decreased accumulation of assets over an individual's lifetime, there are not many options for retirees to prepare financially for their retirement (Munnell, 2015). Financial education and training for planning for retirement will help ensure that people are armed with the knowledge that they need in order to make sound financial decisions and potentially avoid financial hardship in the future for themselves, their families, and society (Munnell, 2015). The following section discusses the current military retirement system.

C. MILITARY RETIREMENT SYSTEM

Until January 1, 2018, the former military retirement system was known as the HIGH-3, or legacy retirement system. This retirement system only benefited those service members who were eligible to retire after 20 years of service (YOS), with zero retirement benefits for those service members who decide to leave service prior to their 20-year mark. As of May 1, 2017, 81% of service members who joined the military separated with no government retirement benefits, whereas with the new Blended Retirement System (BRS), it is expected that 85% of service members will receive some transferable government retirement benefit if they have at least two full years of service from their time of joining (DoD, 2017a). This is an increase, from the previous 19% of active service members and 14% of those serving in the National Guard and Reserve forces, which will receive financial benefits (DoD, 2017a).

1. Retirement Plan Design

Currently, the two most common types of retirement plans are the defined benefit plan and the defined contribution plan, with the key words being *benefit* or *contribution* (Purcell, 2007). A defined benefit plan pays a pension based on the employee's specific number of years employed using some measure of the individual's average salary over the lifetime of that individual's career. Under the defined benefit plan, employees do not contribute funds into their retirement account (Purcell, 2007). The federal Social Security program is defined and operates in this manner. For example, when an individual becomes eligible for Social Security benefits, the payments are calculated using their previous 35 years of the highest earnings and then adjusted to the match the national average wage index for monthly payments (Purcell, 2007).

Under a defined contribution plan, an employee makes contributions into his or her retirement account. A defined contribution plan can be described as a savings account in which the employer agrees to contribute a specified percentage of annual pay into the employee's individual retirement account, which is then managed by an investment brokerage company that invests those contributions into stocks or bonds traded on the open market (Purcell, 2007). The amount of matching contributions on behalf of the employer can be different between plans; however, when the employee retires, the employee is entitled to the full amount of contributions plus the interest, dividends, and capital gains (Purcell, 2007). Many plans offer the retiree the option to receive the funds in various ways such as a lump sum payment at retirement or through a continuous series of fixed payments over a specific period, such as a life annuity, or a mix of options if the plan allows (Purcell, 2007). In industry, many retirement accounts are set up as 401(k) plans (Purcell, 2007).

Similar to industry's 401(k) plans, The Thrift Savings Plan (TSP) is an account designed for qualified federal civilian and military employees to contribute money over the lifetime. One of the TSP benefits offered to its participants is the plan's portability function. For example, if workers were to leave the federal government, making them no longer qualified to contribute to the TSP, they are allowed to keep their money within the TSP where it will remain invested within the funded allocations (Purcell, 2007). The TSP also offers the option to "roll over" participant's funds from the TSP into another qualifying retirement account, whether that account is a personal Individual Retirement Account (IRA) or a new employer's 401(k) plan (Purcell, 2007). Likewise, the TSP has the option for individuals, who join the federal government workforce and become eligible, to "roll over" their previous employer's IRA or 401(k) plans into the TSP (Purcell, 2007).

Another benefit that the TSP offers its participants is the option to borrow from their individual accounts (Purcell, 2007). There are two types of plans for which borrowers can qualify, which include the general-purpose loan and a residential loan (TSP, n.d.-a). An individual can obtain a general purpose loan for any reason that the individual wants, as long as the individual agrees to a repayment period between 1 to 5 years (TSP, n.d.-a). This option is available for individuals who do not have enough reserve emergency funds, and unexpected expenses arise. Individuals can apply for and receive a residential loan with the intent to use that money as a down payment on a primary residence and with an agreement to a 1-15 year repayment plan (TSP, n.d.-a). If a participant were to use this option, the minimum loan amount required is at least $1,000, and the money must come from the participant's contributions and attributable earnings (TSP, n.d.-a). The real benefit to the individual is that the loan's interest rate is set at the amount of the lowest earning interest rated fund, the Government (G) Fund, and the interest that is paid on that loan is placed in the participant's account during repayment (Purcell, 2007).

Retirement accounts include two types of investment options, traditional and Roth, which offer participants different tax advantages. It was not until 2012 that the TSP incorporated the Roth option, which allows participants to make contributions with "after-tax" dollars (Thomas & Shaye, 2016). The most common option is the traditional option, which uses "pre-tax" contributions in which the money is taken out of the individual's paycheck before their income is taxed (Thomas & Shaye, 2016). This is referred to as tax deferred, and with this option, while contributions to the TSP grow, taxes on contributions and earnings accumulate over time and are owed when that money is withdrawn in retirement (Thomas & Shaye, 2016). The biggest benefit to this option is that it may lower the individual's current taxable income for that year and may defer payment of taxes on that money until the future, if the individual qualifies for a lower tax bracket while in retirement.

The Roth option consists of "after-tax" contributions, meaning the money is taxed in the current tax year (Thomas & Shaye, 2016). Like regular Roth accounts, individuals' contributions made to the TSP Roth option grow tax-free, with the participants not having to pay taxes upon withdrawal, unlike the traditional option, in which taxes must be paid on contributions or earnings (Thomas & Shaye, 2016). These tax advantages may not be understood correctly when service members elect to contribute to their TSP accounts. Additionally, Thomas & Shaye (2016) note that each account option has other benefits and restrictions, such as the Required Monthly Distributions (RMDs) for traditional accounts, which are calculated separately given the individual's specific total amount saved and which play a role when making sound financial decisions for the future. The following section discusses the federal government's new Blended Retirement System.

D. THE BLENDED RETIREMENT SYSTEM

The Blended Retirement System (BRS), created through the National Defense Authorization Act (NDAA) of 2016, took effect on January 1, 2018, offering a blend between the traditional defined benefit and the contribution retirement pension plans for service members' utilizing their Thrift Savings Plan account (DoD, 2017c). The new BRS is similar to industry-type 401(k) plans. It includes employer-matching contributions and reduces the benefits of the formal legacy plan depending on the options the service member chooses.

Although the BRS retains some of the traditional defined retirement benefits from the legacy retirement system, one of the major adjustments includes reducing the annual multiplier from its previous amount of 2.5% down to the newly established 2.0% when determining future monthly-retired pay (DoD, 2017b). As a new feature, the BRS now includes a matching contribution component of up to 5% of the service members' base pay, with an automatic government contribution of 1% and the individual's service agency matching contributions of up to 4%, into their individual TSP account (DoD, 2017b). New joining service members, as of January 1, 2018, and those service members with 12 years of service (YOS) or more will not have the option to select between the former legacy retirement system and the new BRS. Service members with less than 12 YOS must elect into the retirement system in which they choose to participate, and once a service member makes the selection, the decision is final and cannot be changed (DoD, 2016b).

In addition to the new defined government contributions, the new retirement system provides the option of a one-time continuation pay option as a financial incentive that aims to encourage service members to elect to continue serving at their mid-career point (DoD, 2017b). This continuation pay option serves as an immediate cash payout, advertised by the DoD as a bonus, in exchange for the service member agreeing to a minimum commitment of an additional three more years of service (DoD, 2017b). For those service members enrolled in the BRS, this cash incentive is payable between the completion of eight to 12 YOS, with active component service members eligible for 2.5 to 13 times their monthly base pay (DoD, 2017b). The reserve service members are eligible for 0.5 to 6 times their base pay as if they were serving on active duty (DoD, 2017b). The respective branches of service will need to publish guidance on continuation pay rates. These continuation pay rates are likely to differ based on retention rates, military occupational specialty (mos) needs, hard-to-fill positions, and specific career fields, among others, leaving a large gap and unknown amount in determining future cash flows (DoD, 2017b). The following section discusses the Thrift Savings Plan, including its history, contributions, available fund options, and financial considerations.

E. THRIFT SAVINGS PLAN

Similar to private industry's retirement plans known as 401(k)'s, the TSP was established to provide civilian government employees an opportunity to invest in their retirement over the course of their government service (Curtis, Elan, & Baldrich 2011). It was not until 2001 that the uniformed service members were allowed to contribute to the TSP (Curtis et al., 2011). Today, legislative authority governs the TSP in providing the qualified federal workforce a financial platform and serves as a way to increase their stability during their time of federal service (Curtis et al., 2011). Furthermore, it provides the service member an opportunity to invest in a tax-advantaged retirement account, comparable to their civilian counterparts designed with the intent of longer career commitments working with the federal government (Curtis et al., 2011).

1. Thrift Savings Plan History

The Federal Employees' Retirement System (FERS) Act of 1986 created the Thrift Savings Plan (TSP), providing federal civilian employees a retirement investment resource, similar to that of private corporations and their 401(k) tax benefits and savings plans (TSP, n.d.-c). Through this act, and in conjunction with the National Defense Authorization Act (NDAA) of 2001, the Federal Retirement Thrift Investment Board (FRTIB), under the leadership of an executive director, was put in place to oversee the TSP (TSP, n.d-c). The board members are presidentially appointed officials who are charged with the responsibility, as required by law, to supervise and oversee the TSP on behalf of the participants and beneficiaries (TSP, n.d-c). An advisory committee, known as the Employee Thrift Advisory Council (ETAC), consists of a mix of employee organizations, union representatives, and uniformed service personnel, and is responsible for providing advice regarding investments, policies, and administrative procedures to the FRTIB (TSP, n.d.-c).

There have been several changes to the TSP over its 32-year history that were intended to enhance investors' participation and enrollment. As previously mentioned, the TSP was not open to uniformed service members' contributions and participation until 2001 (TSP, n.d.-c). In 2009, the TSP Enhancement Act was passed and was the first step in providing FERS employees many of the same benefits the BRS now provides to uniformed service members (Thrift Savings Fund [TSF], 2016). These benefits include an automatic agency contribution of 1%, automatic enrollment of newly hired employees, and establishment of the option for surviving spouses of TSP participants to create an account (TSF, 2016). Additionally, the 2009 act authorized the use of the TSP Roth contribution option, allowing participants more flexibility in contributing to either one or both tax-advantaged retirement accounts (TSF, 2016).

In 2014, Congress passed a law known as the Smart Savings Act, which allowed the TSP to invest the contributions of civilian employees into what are now known as LifeCycle Funds, (TSF, 2016). The most recent change has been the 2016 NDAA officially putting into law the new BRS, which is believed to significantly increase TSP participation due to automatic enrollments of those uniform service members joining on or after January 1, 2018, or those who qualify and elect into the system (TSF, 2016.) The following section discusses the contributions allowed into the TSP.

2. Thrift Savings Plan Contributions

The new Blended Retirement System (BRS) has three sources of contributions into the Thrift Savings Plan, including employee, automatic, and matching contributions. The following is a discussion of each category.

a. Employee Contributions

Eligible participants (FERS or uniformed service members) are allowed to contribute up to a certain percentage of their individual pay per year. For uniformed service members, these contributions can be made from basic pay, special duty pay, and basic allowance for housing (BAH) before taxes are withheld. Prior to 2006, the TSP imposed a specific limit on the base pay of individual contributions. However, these imposed limits were eliminated, and now only Internal Revenue Service (IRS) contribution limits towards individual retirement plans apply, depending on the service member's situation.

b. Automatic Contributions

Government Agency automatic contributions are designed for employees to receive a 1% contribution from the government into the employee's retirement account. For new uniformed service members and those enrolling into the new Blended Retirement System (BRS), one percent of the employee's before-tax base pay is paid into the plan at no cost to the employee, regardless of whether or not the employee elects to contribute to the TSP. Uniformed service members are entitled to keep these automatic contributions once they have become vested after they have met their two years' time in service requirement.

c. Matching Contributions

Matching contributions are specific agency contributions into the individual's TSP account matching no more than four percent of what the individual contributes to his or her TSP account. The uniformed service member's agency is responsible for matching up to four percent with the government automatic contribution of one percent, for a five percent dollar-for-dollar match per the individual's pay period. Again, once the uniformed service member has become vested, he or she is entitled to those contributions plus their earnings. The following section discusses the TSP fund options available and details their main objectives as well as their past performance.

3. The Thrift Savings Plan Fund Options

The TSP offers a diverse selection of fund options. Participants are offered 10 TSP funds that include five individual funds and five LifeCycle funds. Each individual fund is designed to follow a specific index fund with the intent of matching that specific market's performance. In addition, the LifeCycle funds are retirement target date funds, comprised of the five individual funds that establish the service members' investment portfolio by variables such as time, risk, and date of retirement.

a. Five Individual Funds

The five individual TSP funds include the Government Securities Investment (G) Fund, Fixed Income Index Investment (F) Fund, Common Stock Index Investment (C) Fund, Small Capitalization Stock Index Investment (S) Fund, and the International Stock Index Investment (I) Fund (TSP, 2017). The following sections describe each fund:

- The (G) Fund is the only fund offered that presents no risk or loss of principal through investing in short-term U.S. treasuries, mainly government-backed notes and bonds. The main objectives of the G Fund are to receive a rate of return equal to or higher than the inflation rate, and significantly reduce an individual's exposure to market risk, which is ideal for those nearing or entering into retirement for protecting their retirement savings. The U.S. government guarantees payment on the principal and interest of its issued securities, making this one of the safest investments for individuals. As of December 2016, this fund earned a yield of 1.82 percentage points higher than its Treasury securities' (T-bills) benchmark (TSP, 2017).

- The (F) Fund presents a lower range of market risk as the main objective of this fund is to match the performance of the Bloomberg Barclays U.S. Aggregate Bond Index, which is comprised of government-backed mortgage, corporate, and specific foreign government sectors within the bond market. Reduced individual risk of loss to principal or interest makes this fund ideal for those who are near retirement or entering into retirement. As of December 2017, this fund's yield was averaging 2.57% and beating its benchmark index on its 1, 3, 5, and 10-year notes (TSP, 2017).

- The (C) Fund provides investors with the opportunity to earn significantly higher returns with a longer-term investment strategy. An investor's risk of loss to principal and interest is much higher than with the previous two funds. The main investment objective of this fund is to match the performance of the Standard and Poor's 500 (S&P 500) Index. This index represents 82% of the market value for the entire U.S. stock market, with the largest 100 companies worth nearly 64% of the index's total value (TSP, 2017). With the higher risk of loss to principal and interest, individuals who can accept a greater level of market volatility should consider incorporating this fund earlier in their careers. Over the past 10 years, and since the fund's inception in 1988, the C Fund has slightly outperformed its benchmark index (TSP, 2017).

- The (S) Fund is similar in risk and market volatility to that of the C Fund. The main investment objective of this fund is to match the Dow Jones U.S. Completion Total Stock Market Index, which is comprised of small- to medium- sized U.S. companies not included in the S&P 500. Due to the similarity in market risk and volatility, investors who can assume more risk over a longer timeframe should consider this fund, as it has the potential for earning higher returns. The S Fund has outperformed its benchmark index over the past 10 years (TSP, 2017).

- The (I) Fund provides investors the opportunity to greatly diversify their investment portfolio with this fund. The fund is designed to match the performance of the MSCI EAFE (Europe, Australia, Far East) Index that comprises qualifying international companies. This fund presents a higher risk to loss in principal and interest relative to changes in the value of the U.S. dollar (TSP, 2017). Investors who can assume more risk over a larger investment timeframe should consider this fund in order to diversify their portfolio outside of the U.S. Stock Market. This fund has outperformed its benchmark index over the past 10 years and since this fund's inception in 2001 (TSP, 2017).

b. Five LifeCycle Funds

If a service member does not want to individually allocate contributions among the five individual funds, they can choose one of the five LifeCycle funds. Currently, four LifeCycle fund timeframes may be elected, such as L-2020, L-2030, L-2040, and L-2050, depending on the service member's time horizon regarding when they anticipate needing retirement money. The objective of these funds is to tailor an investment mix of the five individual funds to achieve a comfortable balance between that index's risk factors and the unexpected future return potential of each fund. As a general guideline, the farther away an individual is from entering into their retirement age, the more risk that individual can accept and tolerate with riskier investment funds. Conversely, the closer individuals get towards retirement, the less risk-averse they become, and therefore, the LifeCycle funds will automatically adjust their distributions among the five individual funds, accordingly. Service members can also elect the fifth fund, the L Income Fund, when they enter retirement. The objective of the L Income Fund is for retiree's to preserve their assets as the fund matches the performance of the G Fund, which represents the lowest risk investment fund available.

Service members can access the Thrift Savings Plan website (www.tsp.gov) to further evaluate the funds in detail, including each fund's specific investment objective, investment strategy, risks associated, rewards, and process for allocating their individual contributions (TSP, 2017). Service members can also utilize the information provided by the TSP to quickly compare the available investment funds by reviewing each fund's overview details and analyzing the funds by variables. Information can be found on the TSP website regarding investments to include the fund's primary objective, risk levels associated to each investment type, volatility within specific markets, types of earnings, and the fund's previous performance history (TSP, 2017). The following section discusses some TSP financial considerations that should be taken into account.

4. Thrift Savings Plan Financial Considerations

There are several considerations uniformed service members must take into consideration before investing within the TSP. Passive investing through index funds, risk, and the time value of money are just a few considerations and will be discussed in the following sections.

a. Benefits of the Index Fund

Malkiel (2012) describes index funds as a combination of similar companies within a market sector, which are measured and combined by their calculated market value and designed to match the performance of the companies and their weighted averages. Index Fund investments, or indexing, are described as a passive form of investing, which current and historical research shows is a form of investing successfully outperforming most professionally managed mutual funds and individual investments (Bogle, 2007; Malkiel, 2012). The common day index fund was created in December 1975 by John Bogle, through his company, the First Index Investment Trust (Bogle, 2007). Bogle (2007) describes index funds as the capability to own many, if not all, of the assets within that specific index while eliminating the risks of individual stocks within their respective market sectors. Bogle (2007) further states that this eliminates the inherent manager selection bias and leaves the investor with only the stock market risk remaining. Bogle (2007) further compares indexing to a common analogy: Choosing equities is like hunting for the winning needle (stock) in the haystack, when instead you could just own the whole haystack (index).

Other highly successful and well-known investors such as Warren Buffet and Dr. Burton G. Malkiel support Bogle's (2007) views. Malkiel (2012) and Bogle (2007) state that research has proven index fund investing has historically beaten actively managed funds by a margin of approximately two-percentage points year after year. Malkiel further justifies this dominant strategy because the majority of individual stock choices cannot meet or exceed the market as a whole and because of the costly transaction fees associated with active investment management firms (Bogle, 2007; Malkiel, 2012).

Bogle (2007) specifically highlights how the Thrift Savings Plan has been a huge success and how indexing has become the predominant strategy for various pension plans:

> The simple index fund solution has been adopted as a cornerstone of investment strategy for many of the nation's pension plans operated by our giant corporations, state, and local governments. Indexing is also the predominant strategy for the largest of them all, the retirement plan for the

> federal government employees, the Federal Thrift Savings Plan (TSP). The plan has been a remarkable success, and now holds (as of 2007) $173 billion of assets for the benefit of our public servants and members of the armed services. All contributions and earnings are tax-deferred until withdrawal, much like corporate 401(k) thrift plans. (p. 33)

The model of the TSP, built around five low to high-risk major index funds, is so successful that President George W. Bush had attempted to overhaul Personal Savings Accounts in this manner as the leading alternative to the current design of the government's Social Security program (Bogle, 2007).

b. Investment Risk

The TSP identifies risk under its Planning & Tools section by asking a question: "How Much Risk Am I Willing to Accept" (TSP, 2017). Furthermore, it provides a definition of *volatility*, describing it as the amount of monetary change, in both gains and losses, of that investment's overall value throughout its course (TSP, 2017). Investment accounts come with inherent risk. As the BRS places more responsibility on the service member under the defined contribution plan, service members will need to learn how to balance those risks and choose which investments they should be making during different timeframes of their lives. During economic downturns, financial advisors recommend to stay the course, as there is greater earnings potential for investors to continue their investment strategy over a long period of time rather than by trying to time the markets, such as buying low and selling high (Malkiel, 2012).

c. Time Value of Money

The time value of money (TVM) is the concept that money invested today, in the present, will grow to be more in value at some point in the future. The TSP website refers to the effects of TVM as the benefits of compounding (TSP, n.d.-b). TVM is best explained by the following example: if an individual invested $100 today and earned 5% interest, the individual would have a total of $105 at the end of the year (TSP, n.d.-b). In addition, if that individual left the $105 intact for another year without making an additional investment, now that $105 would earn another 5% interest, so the individual would now have a total of $110.25 at the end of the second year (TSP, n.d.-b). Interest is earned on interest. This example depicts how money invested today in present value (PV) dollars grows due to the effects of compounding interest and shows how that PV investment will grow to higher amounts in the future, calculated as future value (FV) dollars.

Bach (2005), Malkiel (2012), and Bogle (2007) explain that one of the most important aspects with individuals investing wisely is taking advantage of time through the effects of compounding interest. The earlier individuals start to invest, even small amounts on a continuous basis, is critical to laying the foundation for exponential returns in the future (Bach, 2005). Bach (2005) explains that in order to achieve this foundation and high level of earnings benefit, individuals must adopt the habit of paying themselves first before meeting other financial obligations. Bach (2005) further clarifies that this pay yourself first behavior can be any amount, from small to large payments that will most likely change over time, but a payment must be made so that compounding interest has the opportunity to benefit the investor. The following section discusses the results of the Financial Industry's Regulatory Authority (FINRA) studies from 2005, 2009, and 2013.

F. FINANCIAL INDUSTRY REGULATORY AUTHORITY

The Financial Industry Regulatory Authority (FINRA) serves as a non-government private entity, that is classified as a self-regulatory organization (SRO), responsible for conducting independent regulations for all securities firms that operate within the United States (FINRA, 2017). During the global financial crisis in 2007, the New York Stock Exchange (NYSE) and the National Association of Securities Dealers (NASD) consolidated individual member regulators, enforcement agencies, and arbitration operations to form the largest independent securities agency charged with preventing future financial fraud (FINRA, 2017).

The NASD published a report, through its partnership with Applied Research and Partnership (ARP), as part of its investor education foundation program, which surveyed 1,592 qualified service members and their spouses. Seventy-four percent of these investors reported owning mutual funds and actively participating in the Thrift Savings Plan (TSP) while 36% reported owning individual stocks (Applied Research & Partnership [ARP], 2005). Seventy-two percent of survey respondents described themselves as "somewhat knowledgeable" or "very knowledgeable" about investing, with 66% reporting their knowledge level had increased over the past three years (ARP, 2005). Ninety percent of survey respondents described themselves as "somewhat confident" or "very confident" when it comes to managing their finances, with 74% reporting an increase in confidence over the past three years (ARP, 2005). However, NASD found that only 29% of those currently investing received a passing score (at least seven correct questions out of 10) on their basic market knowledge survey (ARP, 2005).

a. Financial Literacy

The terms *financial literacy* and *financial knowledge* are used interchangeably, each describing how individuals use their skills and knowledge to manage their financial resources over the course of their lifetime and establish some measure of a secure financial future (Hastings, Madrian, & Skimmyhorn, 2012). However, with the most recent global financial crisis of 2007, concerns began to arise about individuals making poor financial decisions and about very lenient consumer protections throughout the financial markets in terms of qualifying for loans, credit checks, and lesser restricting guidelines (Hastings et al., 2012). In response to these concerns, and in an effort to pull the United States out of the financial turmoil, President Barrack Obama approved the Dodd-Frank Wall Street Reform and Consumer Protection Act in July of 2010 (Hastings et al., 2012). As part of this new law, the Consumer Financial Protection Bureau (CFPB) was established and charged with the responsibility of supervisory oversight (Hastings et al., 2012). The law was designed to give the CFPB oversight and authority over consumer financial products to including free trade on the financial markets, personal checking/savings accounts, and the restructuring and implementation of stricter guidelines in the loan approval process (Hastings et al., 2012).

To understand the best way to educate service members on the topics of financial literacy and financial education, financial professionals need to understand that a person's financial literacy changes over a person's lifetime (Agarwal, Driscoll, Gabaix, & Laibson, 2009). Agarwal et al. (2009) describe how an individual's ability to make sound financial decisions reaches its highest point during an individual's early fifties and that financial mistakes have typically followed which looks like a U-shaped pattern over a person's lifetime. The U-shaped pattern represents a relatively higher number of mistakes made for individuals in their early twenties and declines as they reach their fifties, and then again rises after their fifties (Agarwal et al., 2009). Agarwal et al (2009) state that it was in the early 1990s that the Consumer Federation of America began trying to measure financial literacy conducting consumer knowledge surveys among differing populations. Topics mainly included those that affect the general population's everyday lives in personal finance such as credit processes for loans, personal bank and savings accounts, a wide variety of insurance products, and the larger consumer expenses within our lifetimes, such as housing, food, and vehicles (Agarwal et al., 2009).

In 2009, a large national survey called the National Financial Capability Study (NFCS) surveyed adults and asked three questions focusing on the following areas:

1. Interest rates and compounding
2. Inflation and purchasing power
3. Risk diversification

Seventy-eight percent of the respondents correctly answered the first question, 65% correctly answered the second question, and 53% correctly answered the third question, with only 39% of the population answering all three questions correctly (Agarwal et al., 2009). With only 29% of military personnel passing these survey questions in 2005 and only 39% passing the survey questions in 2009, concern over the level of individual financial knowledge and literacy seems justifiable (Agarwal et al., 2009). The NFCS research results suggest that individuals are making below-optimal financial decisions in everyday life that have lifelong negative repercussions (Agarwal et al., 2009).

b. FINRA 2012 Military Survey Data

The results of the FINRA 2012 Military Survey highlight the need to increase financial education and training programs for service members. The major categories of the FINRA survey results are as follows:

- **Making Ends Meet Category**: Nineteen percent of individuals report spending above their monthly household income (excluding large purchases such as a new home, vehicle, or investment) and report not saving enough; 28% of individuals are breaking even every month, and 51% spend less allowing them to save more (FINRA, 2012).

- **Planning Ahead Category:** Forty-three percent of individuals do not have a rainy day fund, which would cover a three-month period in preparation for emergencies such as a job loss, health care issues, vehicle repairs, or an economic downturn (FINRA, 2012).

- **Retirement Account Category:** Seventy-six percent of individuals reported having a retirement account compared to only 18% without a retirement account. The survey showed an increase of individuals having a retirement account as the rank structure moves higher. However, the survey did not indicate whether or not those who reported having a retirement account were actively investing or knew what their investments contained (FINRA, 2012).

- **Managing Financial Products Category:** Thirty-five percent of individuals used non-bank borrowing methods such as an auto title loan, a payday loan advance on their tax return, pawnshop, or rent-to-own store (FINRA, 2012). FINRA (2012) notes these methods guarantee the chance of incurring higher interest rates over banks, credit unions, credit card companies, or other potential predatory lending services.

FINRA (2012) survey data reports that 38% of individuals surveyed carry some sort of student loan debt. FINRA noted that the survey did not specify when the student loan was taken, but it is possible that it was prior to entering the military and the debt could have been incurred to support a dependent or relative (FINRA, 2012). In addition, paying off student loan debt was found to be a major concern to the survey participants (FINRA, 2012). The FINRA research study found that the underlying concern with student loan debt is not that service members are seeking higher education, but that 43% of those carrying student loan debts are concerned with not being able to pay off their current student loans (FINRA, 2012). Educational assistance programs exist for service members, but it is unclear whether or not many service members know of or utilize the programs to which they have access (FINRA, 2012). The following three categories were highlighted as additional financial areas of concern (FINRA, 2012):

- **Home Equity Category:** Thirty-eight percent of individuals are "underwater," which means that they owe more on their home than what their home is worth based on the real estate market. Forty-two percent of individuals reported having financially dependent children, while 32% reported not having financially dependent children (FINRA, 2012).

- **Financial Knowledge and Decision-Making Category:** Five questions were asked concerning the topics of economics and finance that the general population experiences throughout their everyday life to include the effects of compound interest, monetary inflation effects, risk and diversification of investments, interest rates on consumer products, and individual mortgages. Fifty-five percent of individuals answered three or less questions incorrectly, while 45% answered four or more questions correctly. To further highlight the need for financial education training and programs, the study broke this question down by age. Seventy-one percent of those who answered three or more questions incorrectly were between the ages of 18–25, 25% were between the ages of 26–35, and 38% were 36 years old and older (FINRA, 2012).

- **Credit Report Monitoring:** Of the total survey participants, 62% reported as having checked their credit report, while 35% had not. The survey further broke down the analysis by services. Survey results showed that 70% of respondents were in the Army, 69% in the Navy, 59% in the Air Force, and 58% in the Coast Guard who had reported as having checked their credit report (FINRA, 2012).

In total, 91% of military respondents carry at least one type of debt with the most common debt being automobile loans (63%) and credit cards (52%; FINRA, 2012). With 21% of the military population carrying four or more types of debt, it may prove easy to see how service members are not handling their financial obligations appropriately (FINRA, 2012). Furthermore, 50% of respondents felt that they were carrying too much debt, while the survey shows service members are carrying an increasing amount of debt as they get older (FINRA, 2012).

FINRA (2012) found throughout the survey that lower enlisted (E1–E4) and senior enlisted (E7–E9) service members were consistently more vulnerable to making poor financial decisions. Hastings et al. (2012) show that not only are uniformed service members making avoidable financial mistakes, but they also lack the requisite levels of financial knowledge and literacy to avoid these costly mistakes. Munnel (2015) highlights, with nearly half of all U.S. households' wealth-to-income ratios steadily declining from 1983–2013, the increased risk entering retirement with inadequate resources is a widespread problem and is continuing to get worse.

G. SUMMARY

Chapter II included a review of the current retirement trend and the military retirement system. It described the current transition from a defined benefit plan (HIGH-3) to the defined contribution plan (BRS). This chapter also included a discussion of the differences between the old and new retirement systems and the shift of responsibility to the service member. Chapter II provided a discussion of the Thrift Savings Plan, its investment fund options, and financial considerations. This chapter then concluded with information regarding the Financial Industry Regulatory Authority (FINRA) research studies. The next chapter discusses the methodology used in this research study.

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III. METHODOLOGY

A. INTRODUCTION

This chapter describes the methodology the researcher used in conducting the analysis of this research study. This chapter provides an explanation regarding the development of the survey, development of the survey content, survey deployment, and data analysis method. The primary source of data was an anonymous online survey conducted via LimeSurvey.

B. DEVELOPMENT OF THE SURVEY

The survey utilized in this research study was developed by two different research teams and used for two separate research studies. Both research studies were similar in that they focused on researching personal finance, financial knowledge and literacy, and retirement plans for service members. The researchers collaborated to develop a combined survey that could be deployed and utilized to answer research questions for both research teams. The researchers combined the survey questions into one survey to avoid needing to ask participants to complete two surveys with similar questions. However, not all of the survey questions were utilized in this research study in conducting the analysis. In total, 37 of the 48 survey questions were used to support this research study and analysis.

The survey was developed by assessing the information found on the TSP website, in a literature review, and through previous research studies conducted by the Financial Industry Regulatory Authority (FINRA). Written permission was granted to utilize the material from these sources in the development of this survey questionnaire. The survey questions used in this research study were divided into four main categories: demographics, resources, general financial knowledge questions, which included general TSP-specific knowledge questions, and TSP-specific scenario-based questions. FINRA provided permission for the research teams to utilize the literacy questions. Questions were modified to account for the target population. The researcher created the questions regarding the general TSP-specific knowledge questions and the TSP-specific scenario-based questions.

C. SURVEY QUESTIONNAIRE CONTENT DEVELOPMENT

A voluntary and anonymous survey was administered online, via LimeSurvey, to ask uniformed service members several questions regarding their demographics, resources, personal retirement savings and expenses, general financial knowledge, and TSP financial knowledge. The demographic questions included participant's rank, education level, dependents, retirement participation, and savings behavior. The questions regarding resources included credit card debt, automobile debt, mortgage debt, education debt, and the use of various loan services. The questions regarding general financial knowledge included the topics of compound interest, inflation, bonds, mortgages, and investment scenarios. Lastly, the questions regarding the TSP included retirement focused options, tax-advantaged accounts, and available fund options.

D. SURVEY DEPLOYMENT

The online survey questionnaire was deployed to approximately 1,305 active duty U.S. Military resident students attending the Naval Postgraduate School (NPS), in Monterey, CA. The students were asked to participate in an anonymous survey via an online survey platform known as LimeSurvey. All of the required Institutional Review Board (IRB) procedures were followed, adhered to, and approved prior to the deployment of the online survey. Following the approval from the NPS IRB, one recruitment e-mail message was sent to the U.S. active duty students on campus. The survey was open for a one-week period, beginning on September 28, 2017, and closing on October 6, 2017. The survey did not collect any personally identifiable information (PII) from the survey participants. The survey participants remained completely anonymous and volunteered to participate in this research study. Following the completion of the survey questionnaire, the participants' data was downloaded from LimeSurvey and distributed to only the researchers for analysis.

E. DATA ANALYSIS METHOD

Once the survey closed, participants' responses were exported from LimeSurvey and imported to Microsoft Excel for analysis. The data collected from LimeSurvey included 203 responses. Of the 203 responses, 34 responses were incomplete and therefore not utilized in the analysis of this research study. Therefore, 169 responses were analyzed, and the researcher utilized descriptive statistics to conduct the analysis

F. SUMMARY

This chapter provided a description of the methodology the researcher used in this research study as well as the survey development, the survey content, the survey deployment and the data collection. A discussion of the data analysis method used to analyze the data within this research was presented at the conclusion of this chapter. The next chapter provides the analysis and results of this research study.

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IV. ANALYSIS

A. INTRODUCTION

This chapter provides an analysis of the data collected from the Naval Postgraduate School (NPS) U.S. military active duty resident students who participated in the survey. The data analysis uses both descriptive statistics and references of key findings from the literature review. The graphs depict key data that the researcher found of interest. The survey utilized for this research study was developed by two separate research teams and does not incorporate all the questions for this research study. Finally, the implications of this research and recommendations based on the analysis are included at the end of the chapter.

B. SURVEY RESPONSES

The survey used in this research study was open for a one-week period, beginning with a recruitment script that was e-mailed to approximately 1,305 active duty U.S. Military resident students at NPS. The recruitment e-mail contained a link to an online survey of 48 questions. Because the survey was developed to support two separate research groups, not all of the survey questions were analyzed within this research study. This research study utilized 37 out of the 48 survey questions

At the end of the survey window, 203 participants had responded, which is a response rate of 15.5%. However, 34 responses were incomplete, and therefore, excluded from the data collected. In total, 169 fully completed responses were analyzed for this research study, generating a response rate of 12.9% of the targeted population. Questions were presented in Likert-type format to gather information regarding demographics, savings, constraints, and resources. Multiple-choice questions were used to gather information regarding general and TSP-specific financial knowledge questions. Descriptive statistics regarding the survey responses are discussed in the following section.

C. ANALYSIS OF DESCRIPTIVE STATISTICS

1. Demographics

The survey began with several demographic questions regarding the participant's age, gender, race, marital status, service component, rank, education level, NPS school, and number of dependents. Figures 1 through 7 depict the data from the demographic questions analyzed in this survey. Figure 1 shows the age distribution of the survey participants. The largest age group of the survey participants (69) was the age category 31–35 years, 40.83% of the total participants. Forty-seven (27.8%) participants were 30 years old or younger, while 53 (31.3%) were 36 years or older. With 68.64% of participants falling within the first three age groups, this represents the target population for those with 12 years of service (YOS) who are eligible to enroll in the Blended Retirement System (BRS).

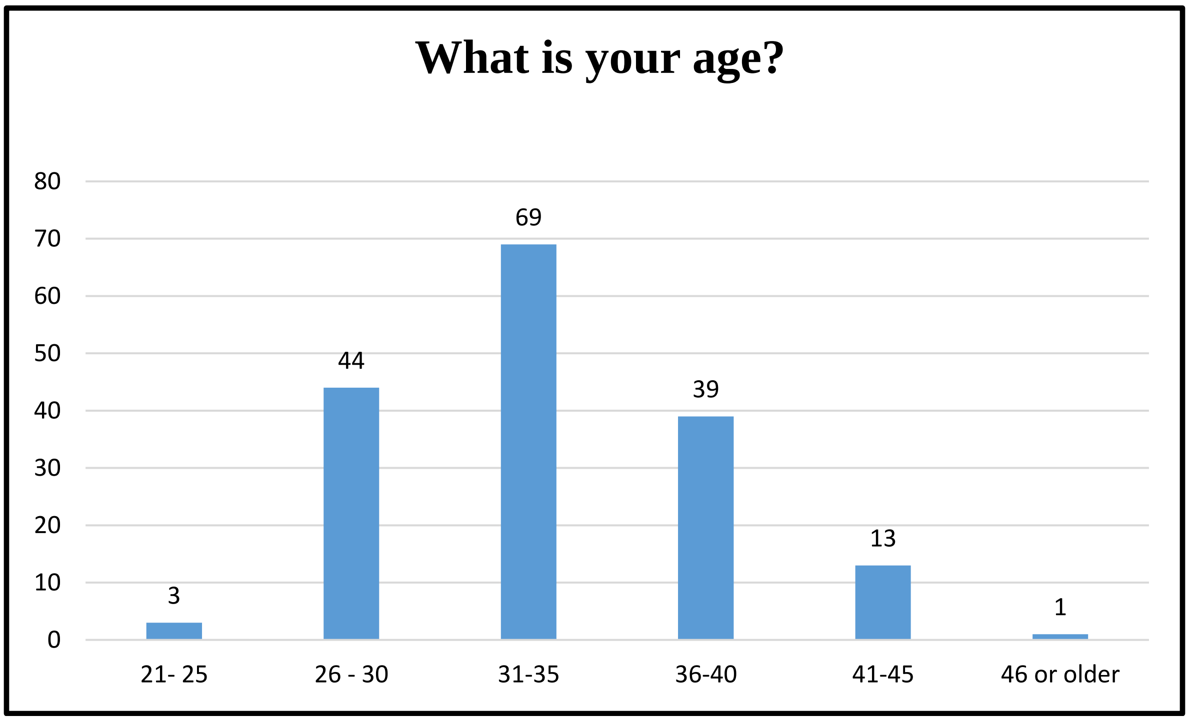

Figure 1. Age Distribution of Participants

Figure 2 shows the gender distribution of the survey participants. Of the total participants, 147 (86.98%) were males and 21 (12.43%) were females. One survey participant selected “I choose not to answer.”

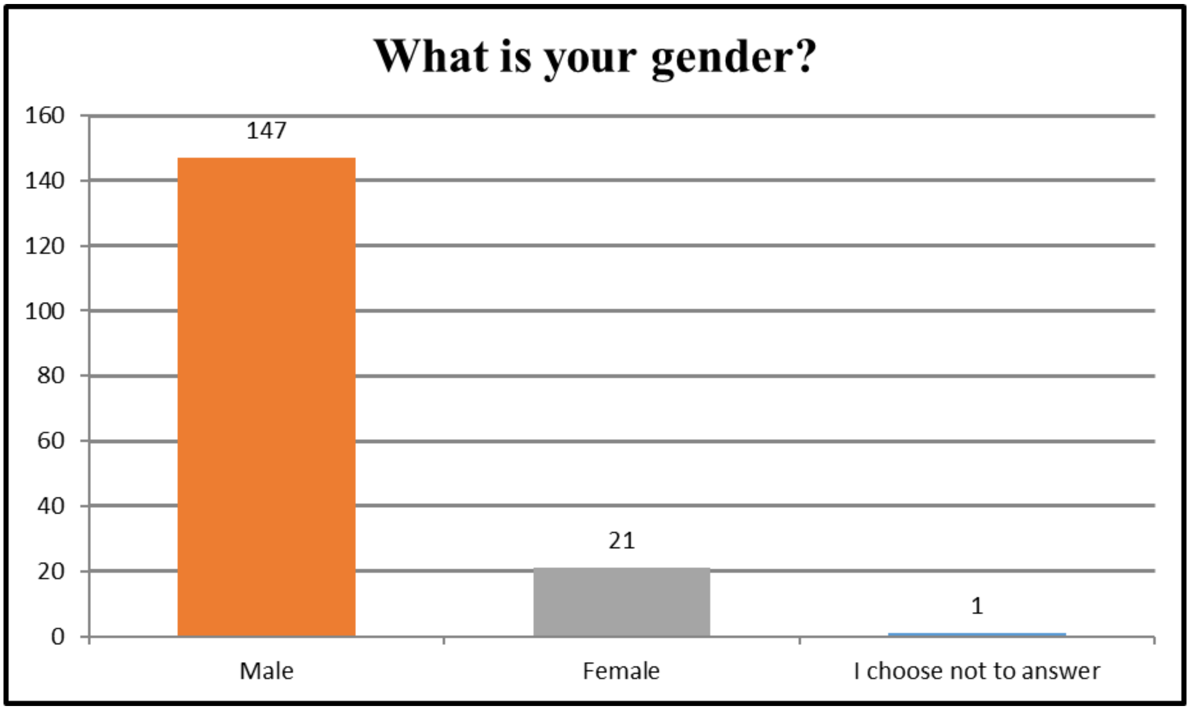

Figure 2. Gender of the Survey Participants

Figure 3 shows the race distribution of the survey participants. Of the respondents, the largest category was White, Non-Hispanics, making up 126 (74.5%) of the total participants. Forty-three (22.4%) are categorized as either White (Hispanics), Asians, African Americans, American Indians, Pacific Islanders, or others. Five (2.9%) participants selected “I choose not to answer.”

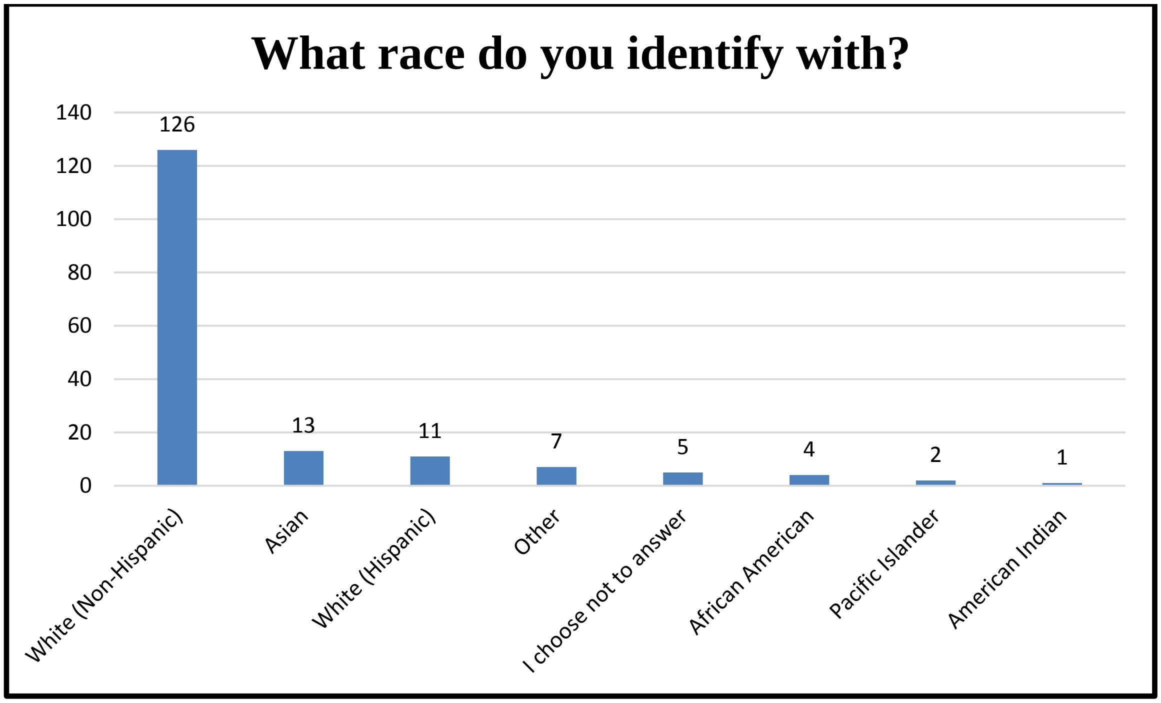

Figure 3. Race of the Survey Participants

Figure 4 shows the marital status distribution of the survey population. The largest category, First Marriage, represented 118 (69.8%) of the survey participants. Twenty-nine (17.2%) participants represented the Single category, and the remaining 20 (11.8%) were either Divorced, Re-Married, or Separated. Two participants selected “I choose not to answer.”

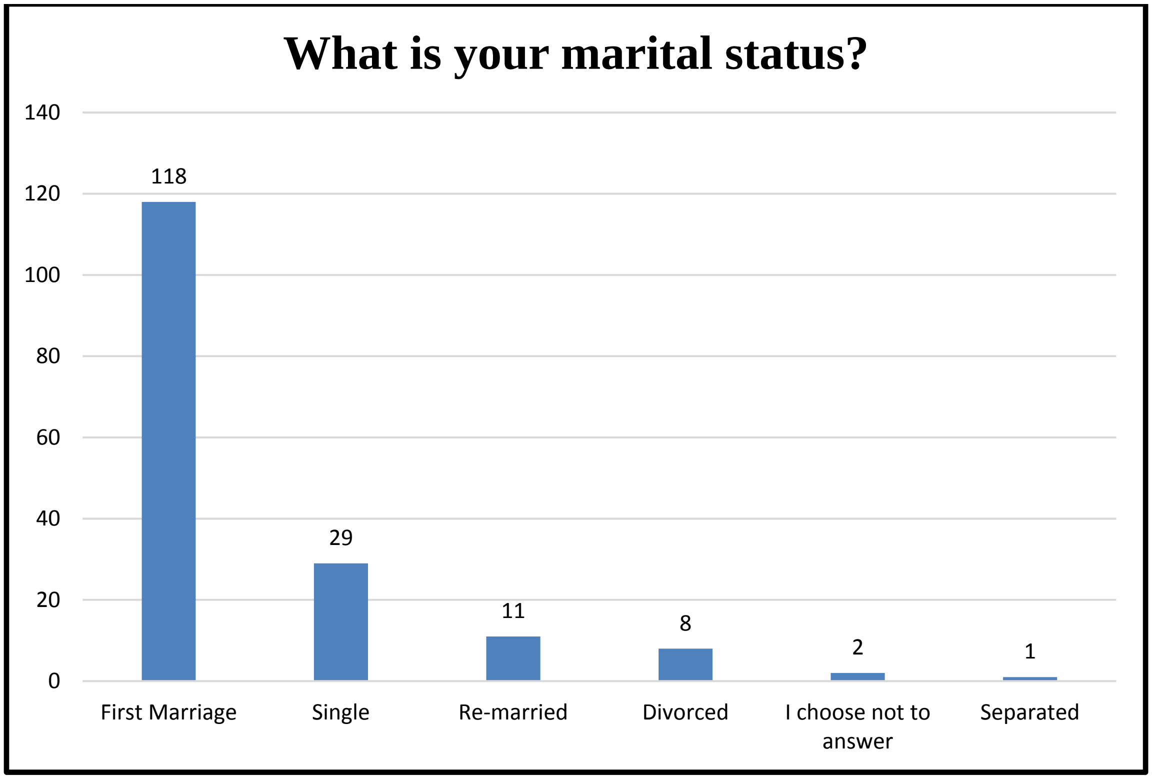

Figure 4. Marital Status Distribution

Figure 5 shows the breakdown of services participating in the survey. The largest participating service was the Navy, with 81 (47.9%) of the total participants, followed by the Marine Corps, with 46 (27.2%) participants. The remaining 41 (24.2%) participants represented the Air Force, Army, and Coast Guard. One participant selected "I Choose Not to Answer."

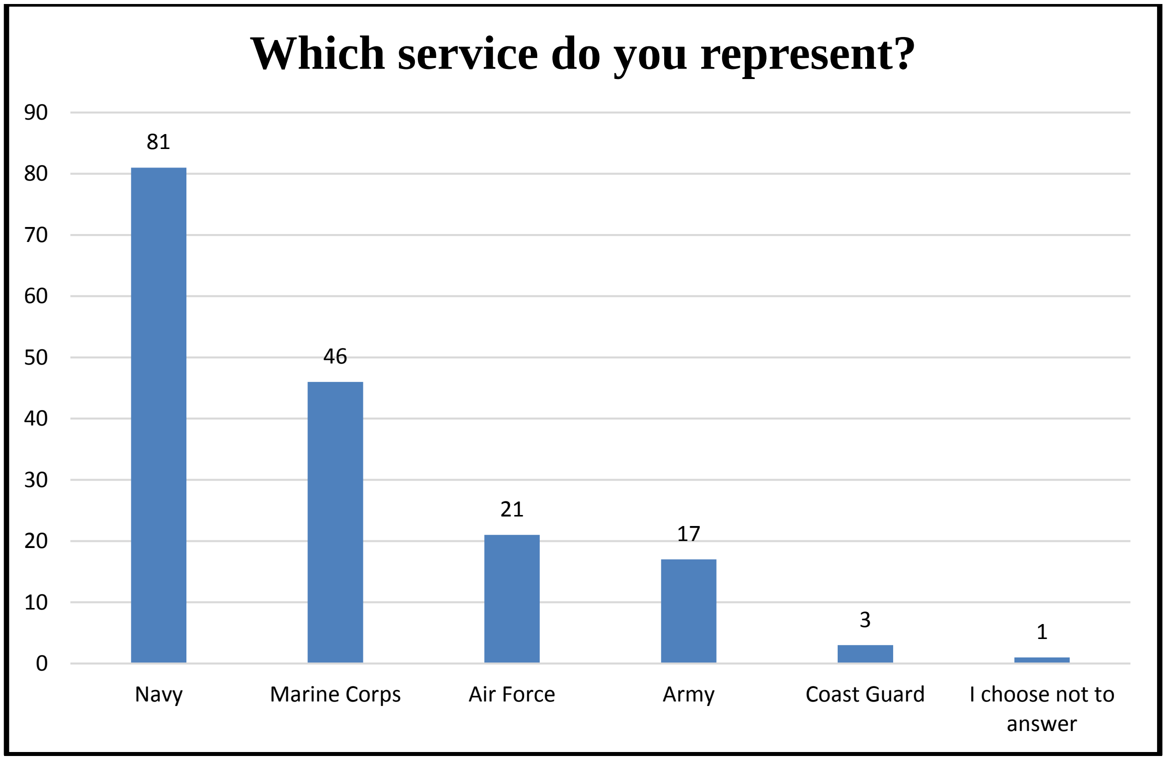

Figure 5. Participating Service Distribution

Figure 6 shows the survey distribution of ranks according to their respective service. Of the total participants, the largest group of respondents came from the Navy, with 81 (47.9%) participants. Eighty (47.3%) participants were the rank of captain, and 73 (43.2%) participants were the rank of major. These two ranks accounted for 90.5% of the total participants. This indicates that the survey participants have, at a minimum, four years of service.

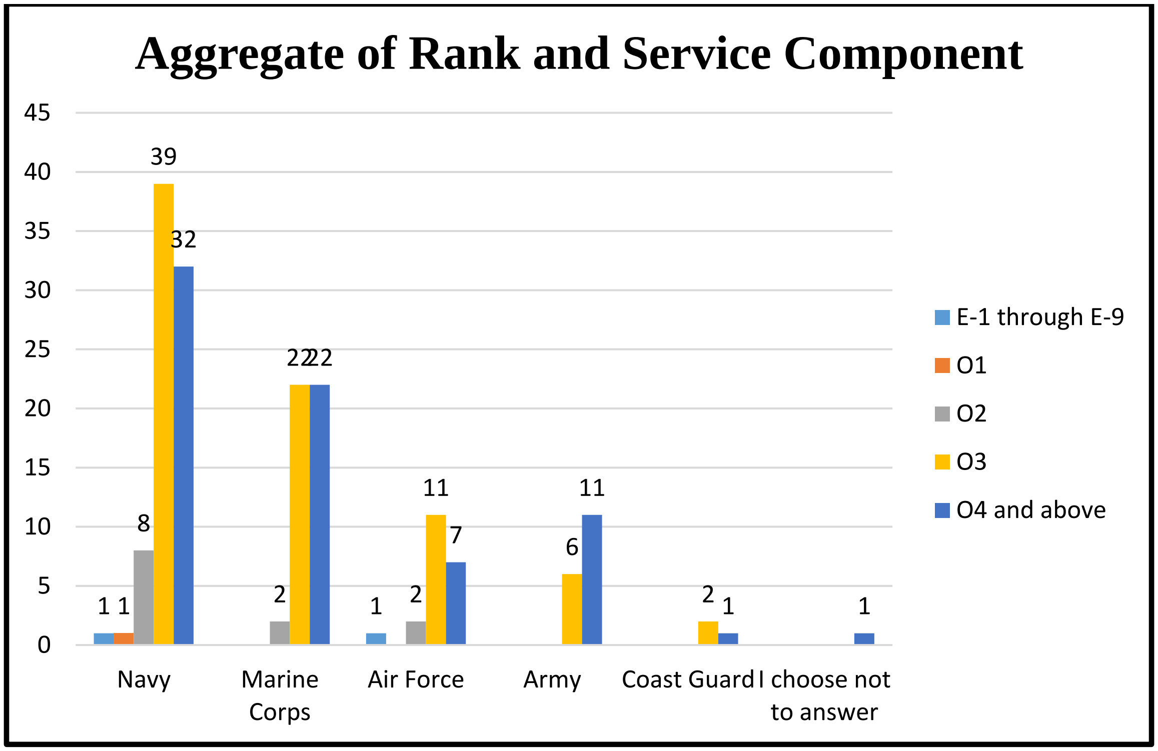

Figure 6. Distribution of Ranks per Service

Figure 7 shows the survey distribution of services and the NPS school they are currently attending. The largest group of participants came from the Graduate School of Business and Public Policy with 62 (36.6%), followed by the Graduate School of Operational and Information Sciences with 50 (29.5%). These two schools made up 66.2% of the survey participants. The remaining 57 (33.7%) participants are attending the Graduate School of Engineering and Applied Sciences, School of International Graduate Studies, or other.

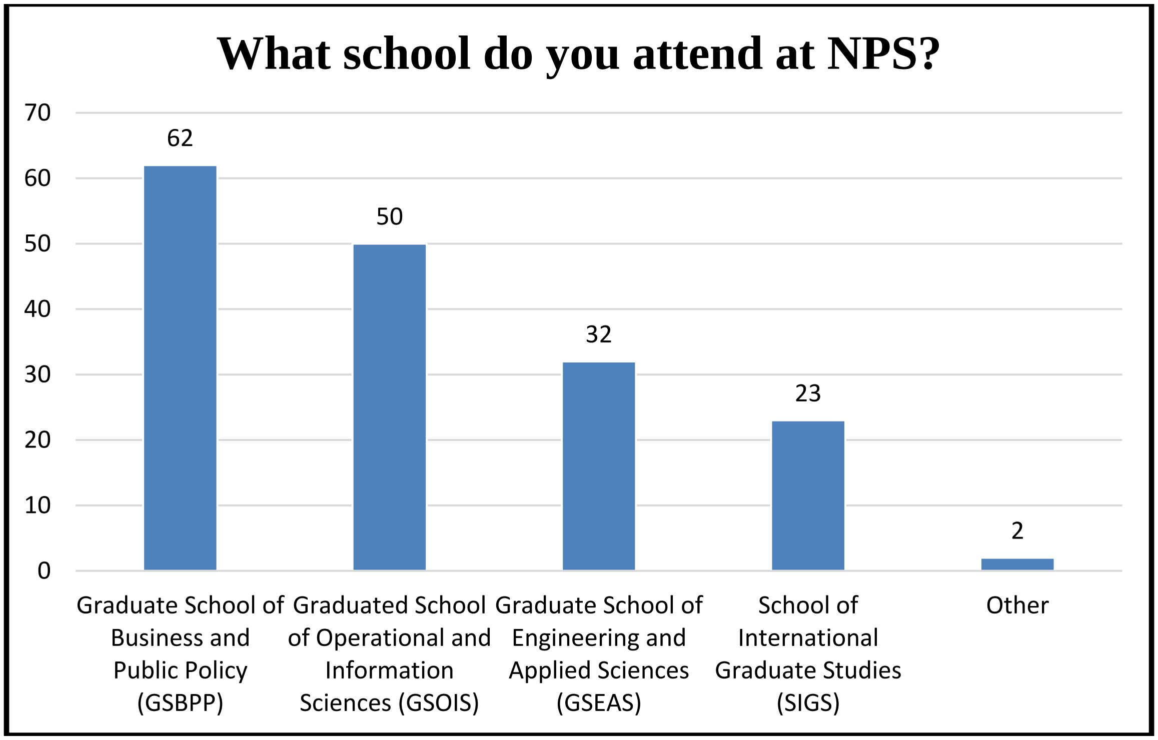

Figure 7. Distribution of Service and School

2. Debt

Figure 8 displays the number of forms of debt participants reported having, with the higher number indicating they had more forms of debt. The survey contained four questions regarding participants' forms of debt, including their mortgage, education, automobile, and credit card debt. The data analysis shows that 129 (76.3%) of the total survey participants carry one to four of these forms of debt. Forty (23.7%) participants carried no debt.

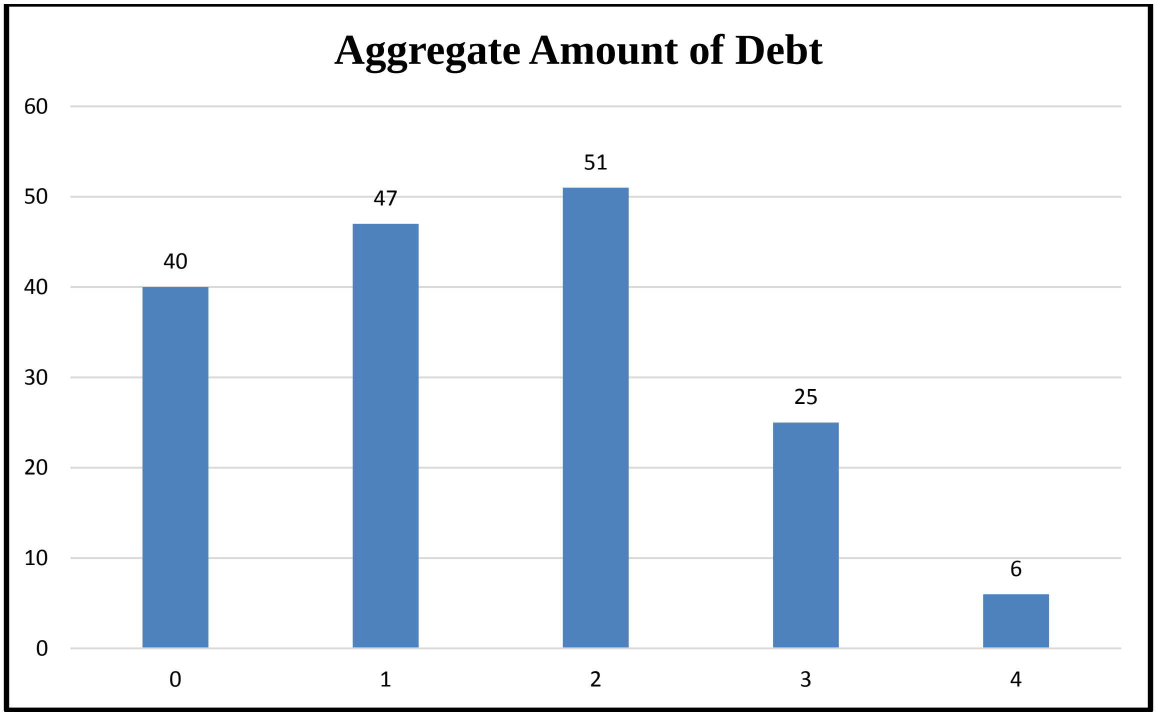

Figure 8. Distribution of Participants Total Number of Forms of Debt

Figures 9-12 show the types of debt participants reported as having. Of the total 169 participants, 90 (53.8%) participants carry automobile debt, which is the largest category of type of debt. The second largest category includes 64 (37.9%) participants who reported having some amount of mortgage debt. Sixty (35.5%) participants carry credit card debt, and 32 (18.9%) participants carry some amount of education debt.

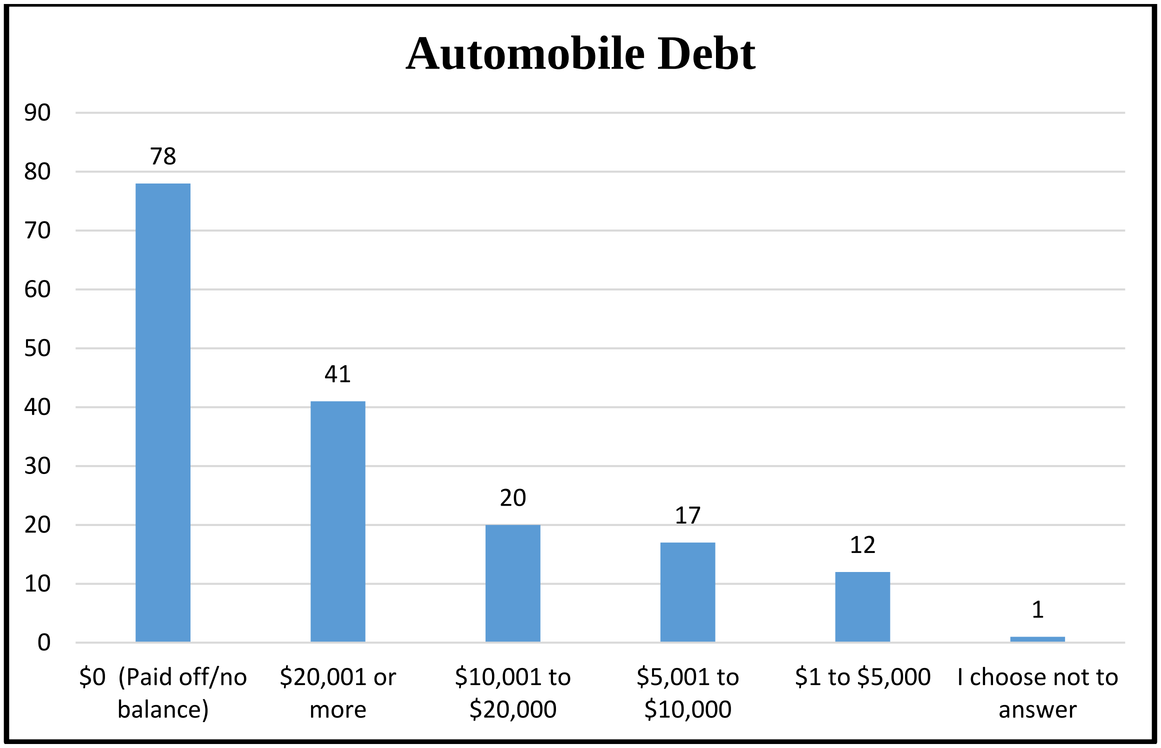

Figure 9. Distribution of Participants Automobile Debt

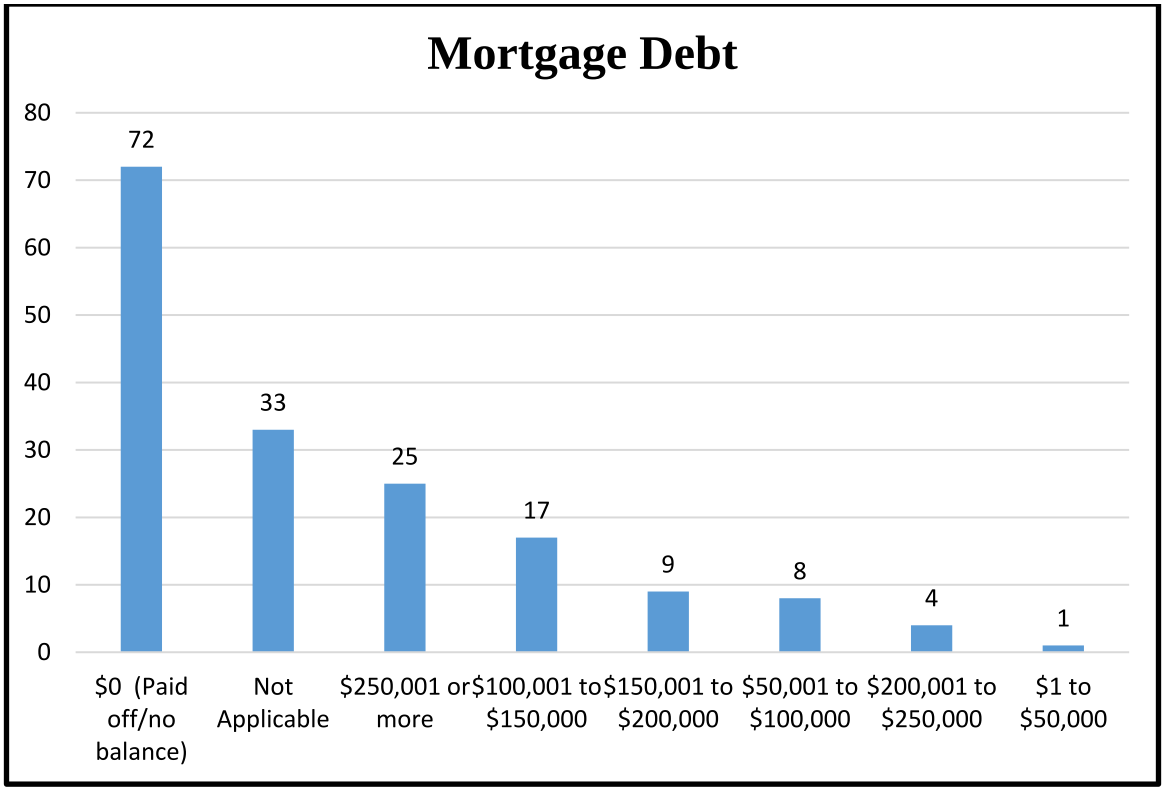

Figure 10. Distribution of Participants Mortgage Debt

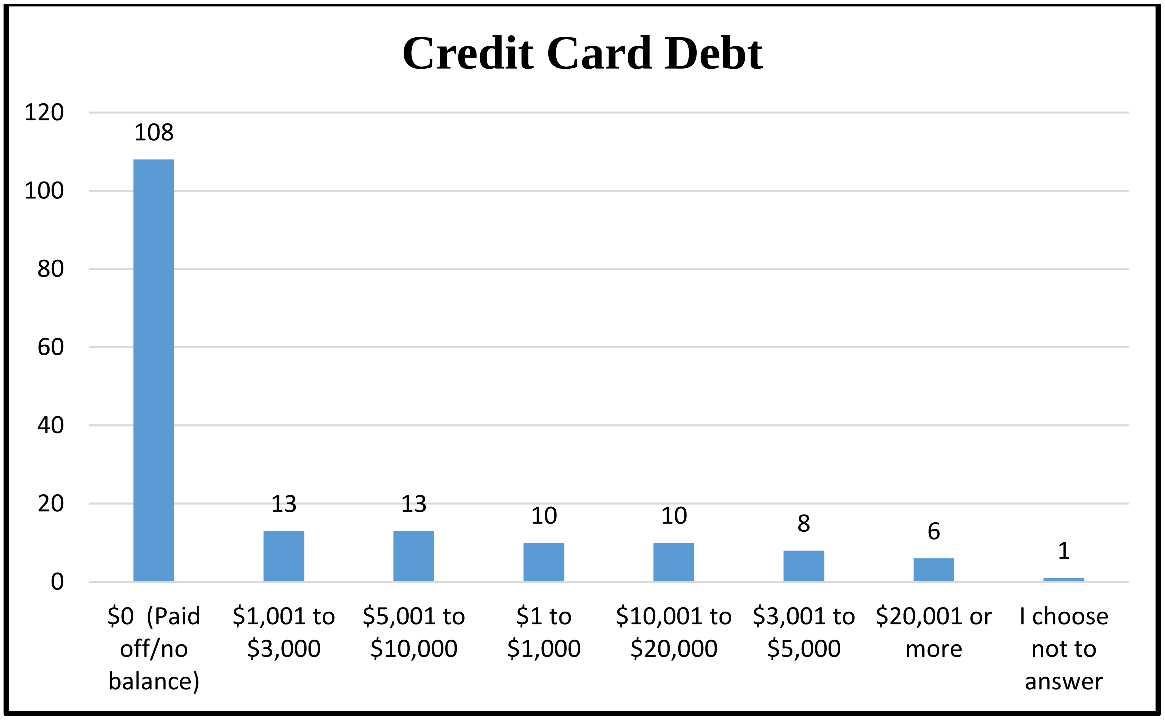

Figure 11. Distribution of Participants Credit Card Debt

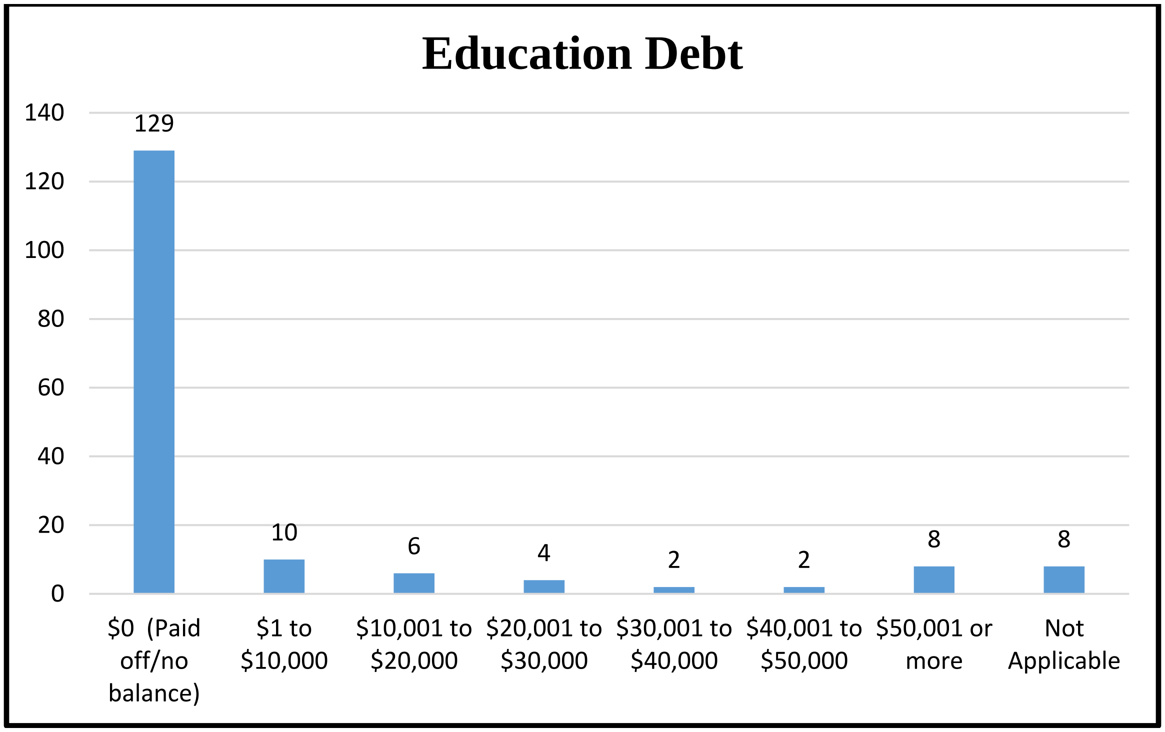

Figure 12. Distribution of Participants Education Debt

3. Resources

Figure 13 shows the education level of participants. One hundred and ten (65%) participants hold a bachelor's degree, while 58 (34.3%) hold a master's degree. One participant selected "I choose not to answer."

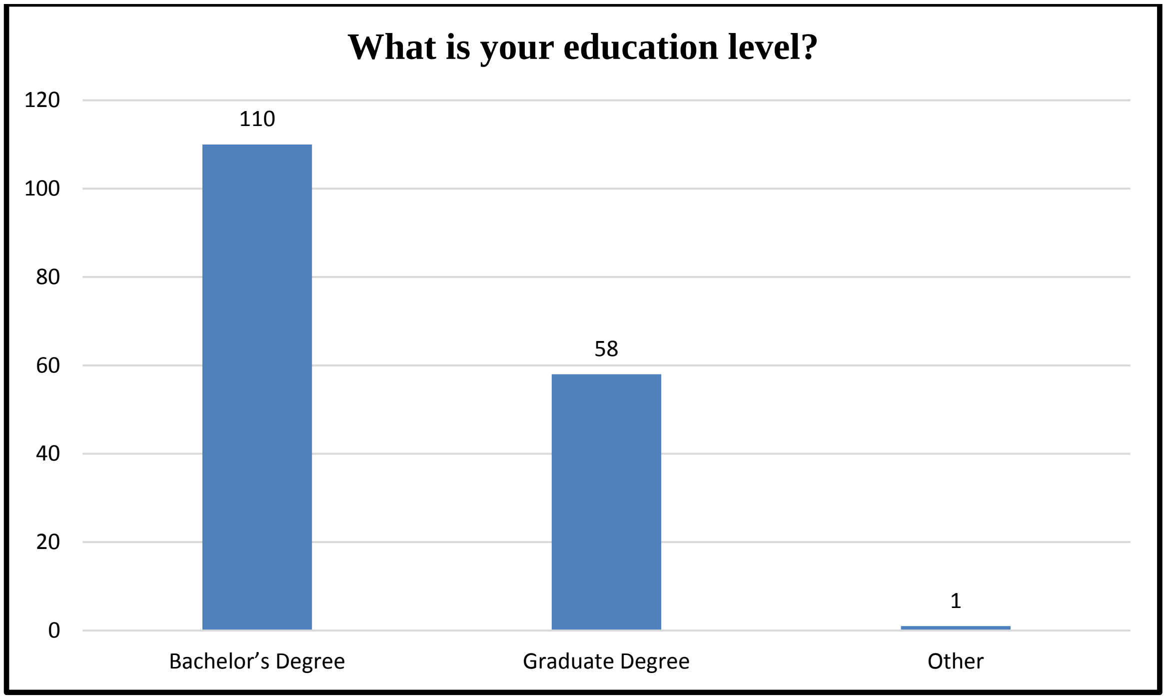

Figure 13. Distribution of Survey Education

Figure 14 shows the distribution of participants whose spouses are currently employed. The data shows that 70 (41.4%) participants have a spouse that is not currently seeking employment, while nine (5.3%) currently have spouses seeking employment. Fifty-three (31.3%) participants have a spouse that is currently employed. Thirty-five (20.7%) participants selected "Not Applicable," and two participants selected "I choose not to answer."

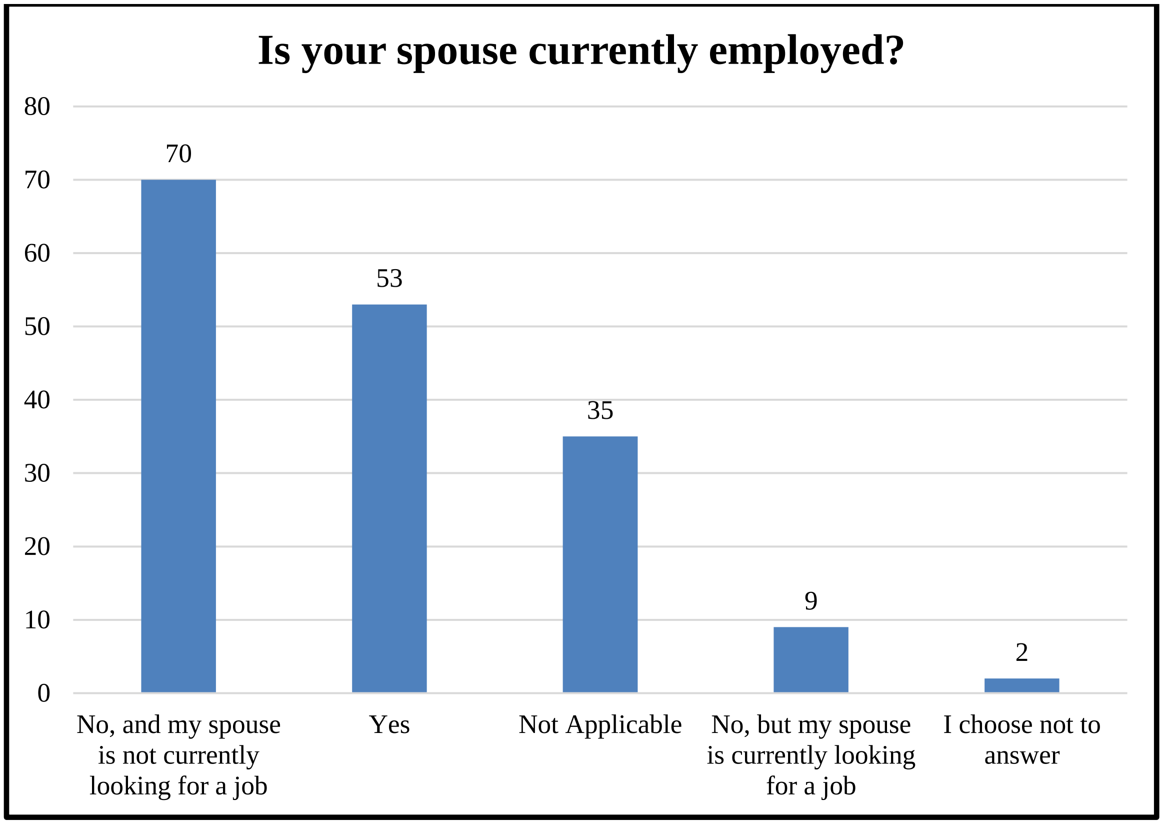

Figure 14. Survey Participant Spouse Employment

Figure 15 shows the distribution of participants with financial dependents. The data analysis shows that 40 (23.6%) have zero dependents, while 128 (75.7%) participants reported having one or more dependents. One participant selected “I choose not to answer.”

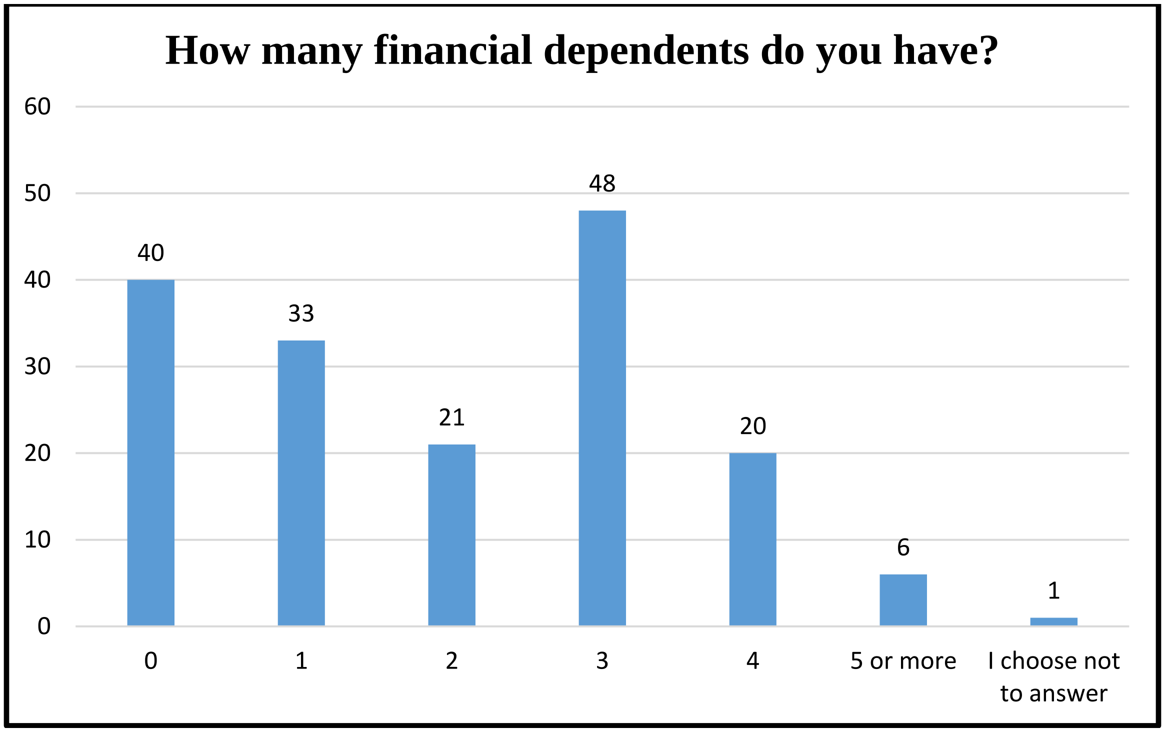

Figure 15. Survey Participants Number of Financial Dependents

4. Retirement Saving Activity

Figure 16 shows that 163 (96.4%) survey participants have a dedicated retirement account. Six (3.6%) participants indicate that they do not have a dedicated retirement account.

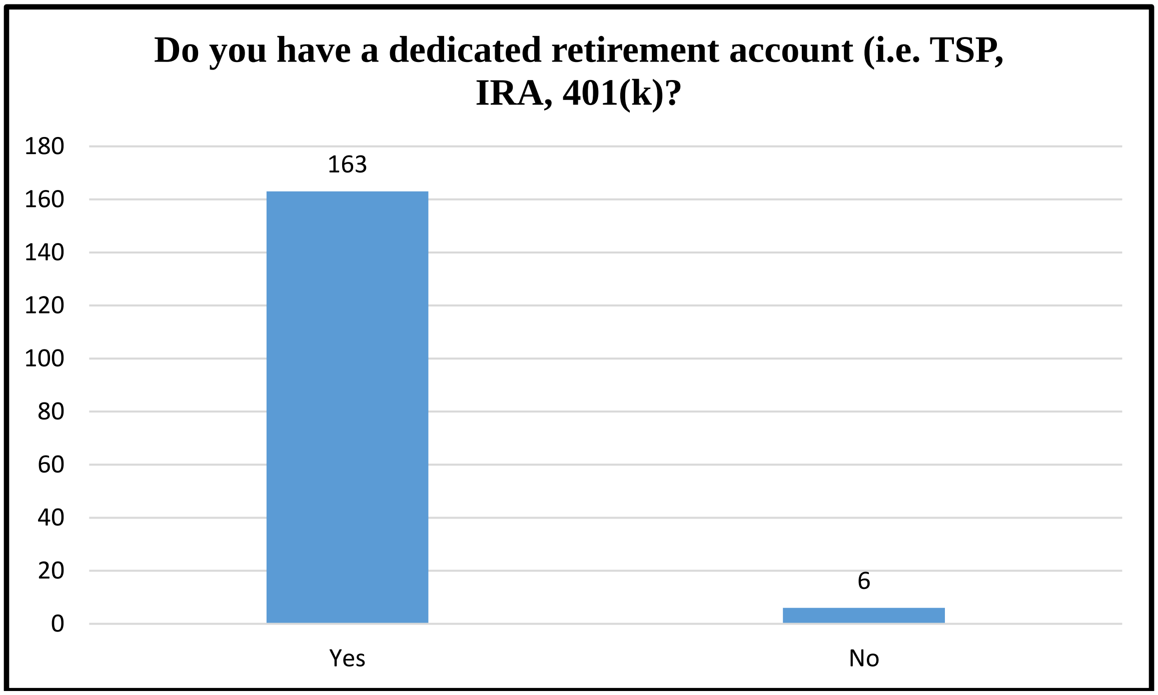

Figure 16. Distribution of Participants with a Retirement Account

Figure 17 shows that 134 (79.3%) survey participants currently budget their finances, while 25 (14.8%) do not. Eight (4.7%) participants plan to begin budgeting while one participant does not plan on budgeting. One participant selected "I choose not to answer."

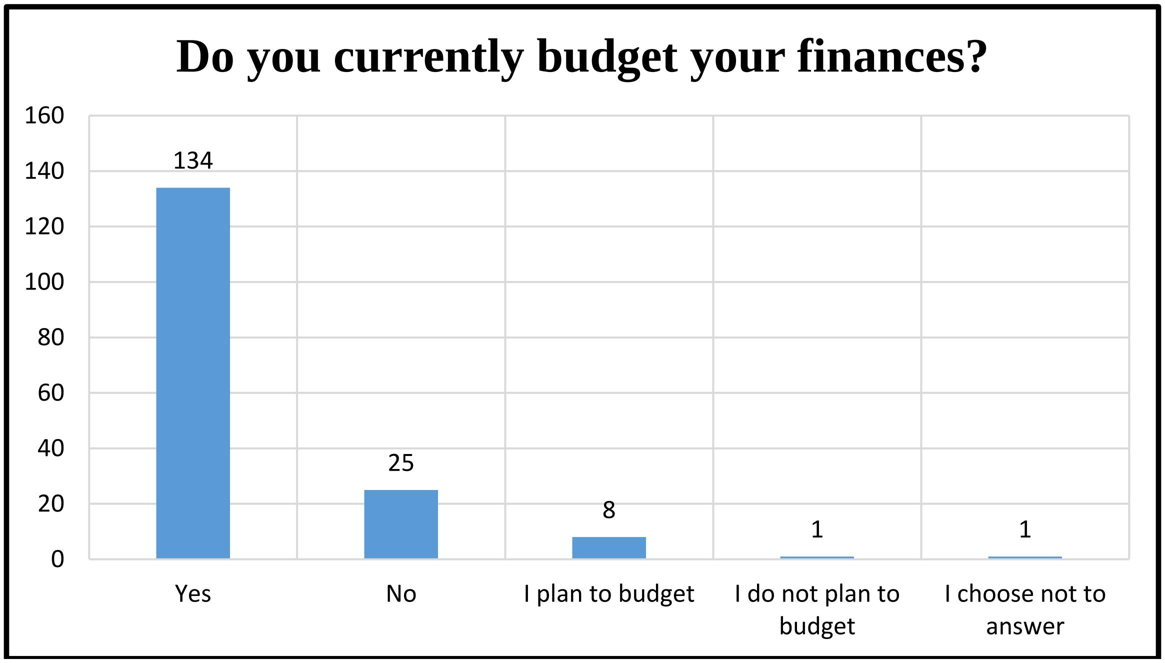

Figure 17. Distribution of Participants Who Currently Budget Their Finances

Figure 18 shows that 120 (71.0%) participants and their spouse have taken the steps to calculate how much money they will need by the time they retire, whereas 47 (27.8%) participants and their spouses have not calculated their amount. One participant selected "I choose not to answer," and one participant selected "Not Applicable."

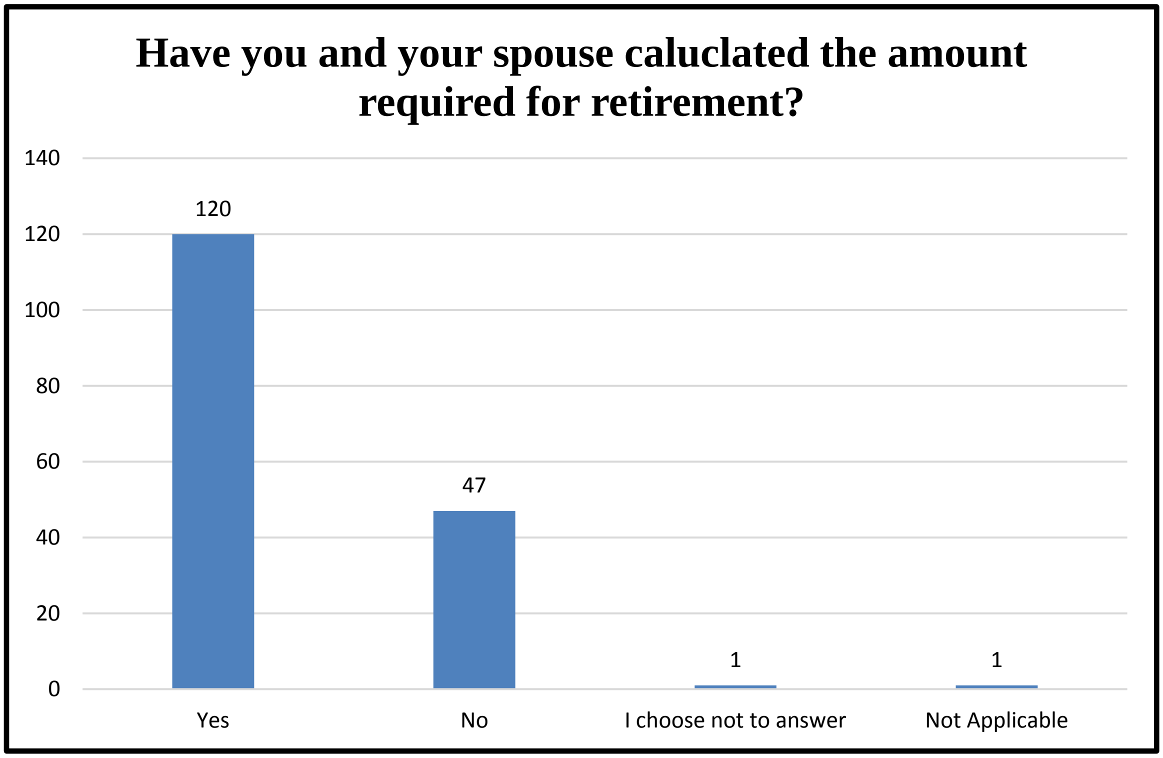

Figure 18. Distribution of Participants and Their Spouse Who Have Calculated the Amount Needed by Retirement

Figure 19 shows that 52 (30.7%) participants and their spouses currently contribute $15,001 or more annually to a dedicated retirement account. Twenty-five (14.8%) contribute between $10,001–$15,000 dollars per year. Fifty-eight (34.3%) contribute $5,000–$10,001 per year. For the remaining, 25 (14.8%) contribute $5,000 or less, while eight (4.7%) participants contribute nothing to a retirement account. One participant selected “I choose not to answer.”

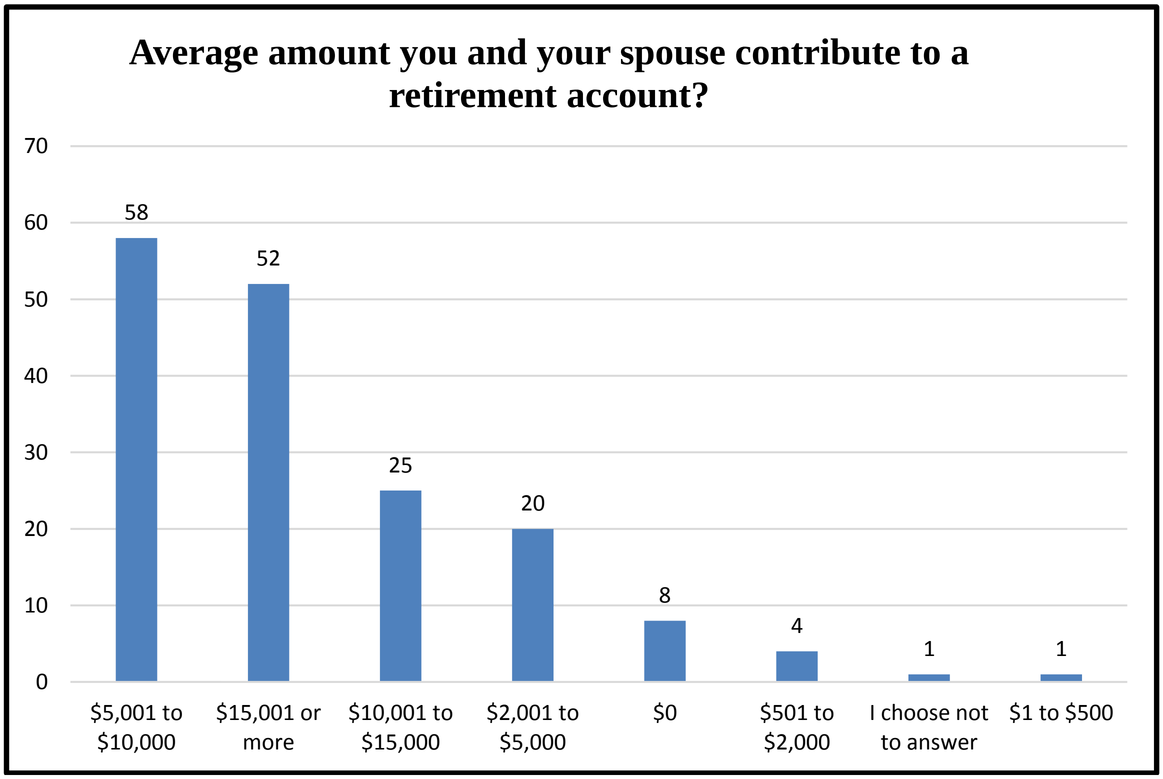

Figure 19. Distribution of Participants and Their Spouse Who Contribute to a Dedicated Retirement Account

5. Thrift Savings Plan Retirement Activity

Figure 20 shows that 127 (75.1%) of the survey participants are currently investing within the TSP. Thirty-nine (23.1%) participants currently do not invest in the TSP. Two participants indicated they plan to invest in the TSP, while one participant did not plan to invest in the TSP.

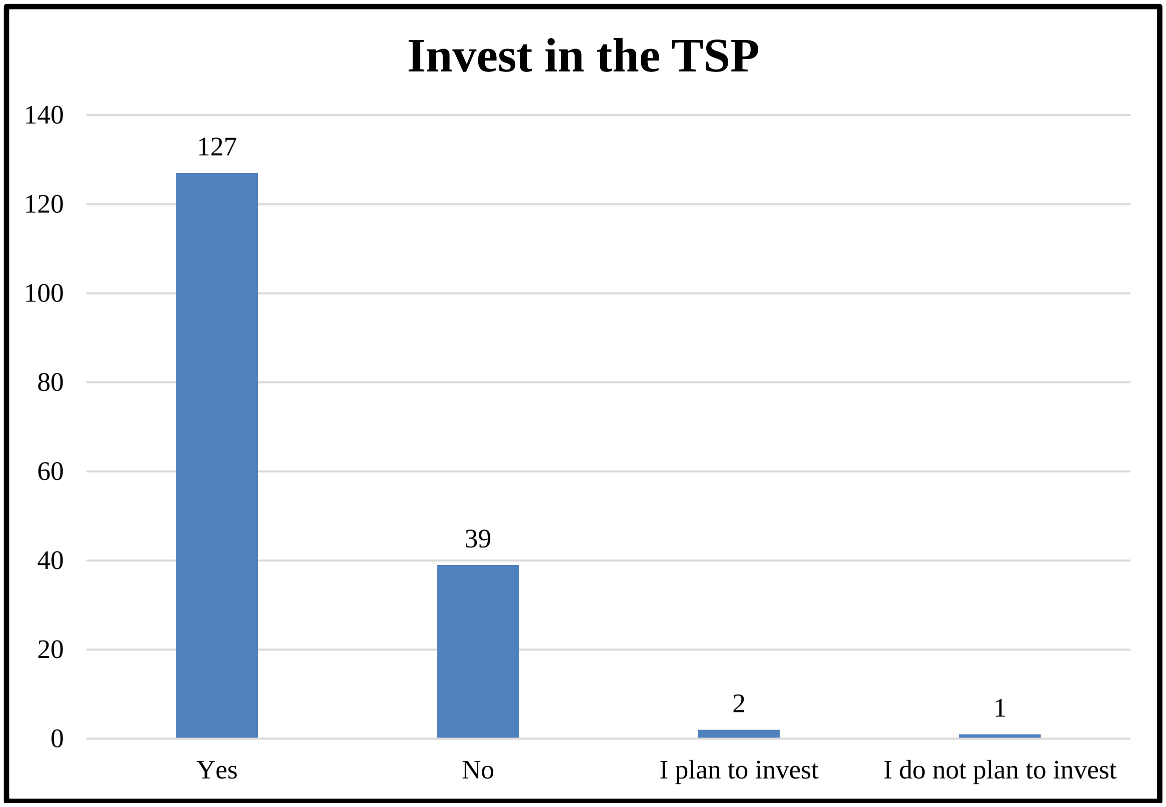

Figure 20. Distribution of Participants Actively Investing in the TSP

Figure 21 shows that 134 (79.2%) participants currently do not seek and do not intend to seek advice on percentage allocations of contributions into the TSP. That is nearly 8 out of 10 individuals that do not seek guidance on how to invest their contributions. Thirty-four (20.1%) currently seek or intend to seek advice.

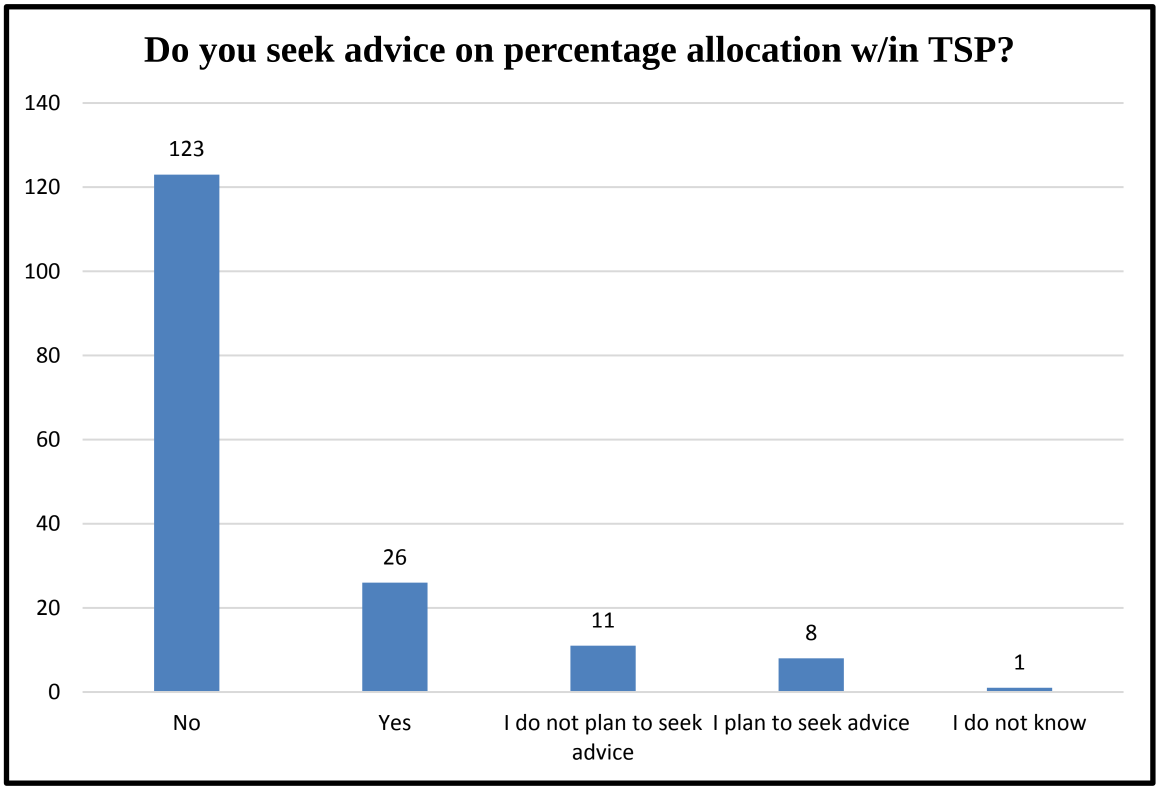

Figure 21. Distribution of Participants Who Seek Advice on Fund Allocations within the TSP

Figure 22 shows that 117 (69.2%) of the survey participants almost never or seldom utilize the TSP website for financial or retirement planning. Twenty-seven (16.0%) survey participants sometimes utilize the TSP website. Twelve (7.1%) participants often utilize the TSP website, with three (1.8%) participants almost always utilize the TSP website.

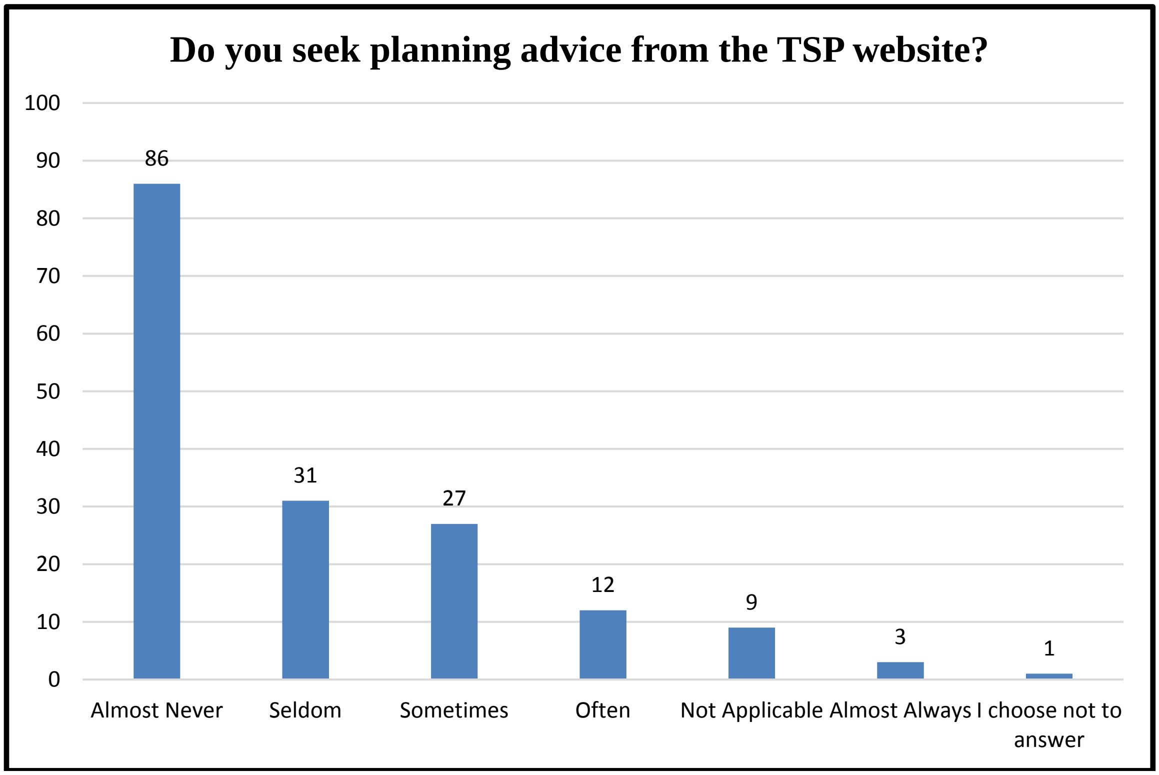

Figure 22. Distribution of Participants Who Seek Financial/Retirement Advice from the TSP Website

6. General Financial Knowledge Questions

Figure 23 shows the aggregate scores for the survey participants on six questions regarding general financial knowledge questions. Higher numbers indicate a higher number of correct answers. For each question, survey responses were coded a one for correct or a zero for incorrect. Participants received a score of zero if they chose to select responses “Not Applicable” or “I choose not to answer.” The data shows the mean score of 4.97, with a standard deviation of 1.04. The range of possible responses was between 0 and 6. The data analysis shows that 41 (24.2%) survey participants answered only 1 to 4 questions correctly, so they scored below the 70% passing grade threshold when answering general financial knowledge-based questions. Seventy-one (42.0%) participants answered five questions correctly, and 52 (30.8%) participants answered all six questions correctly.

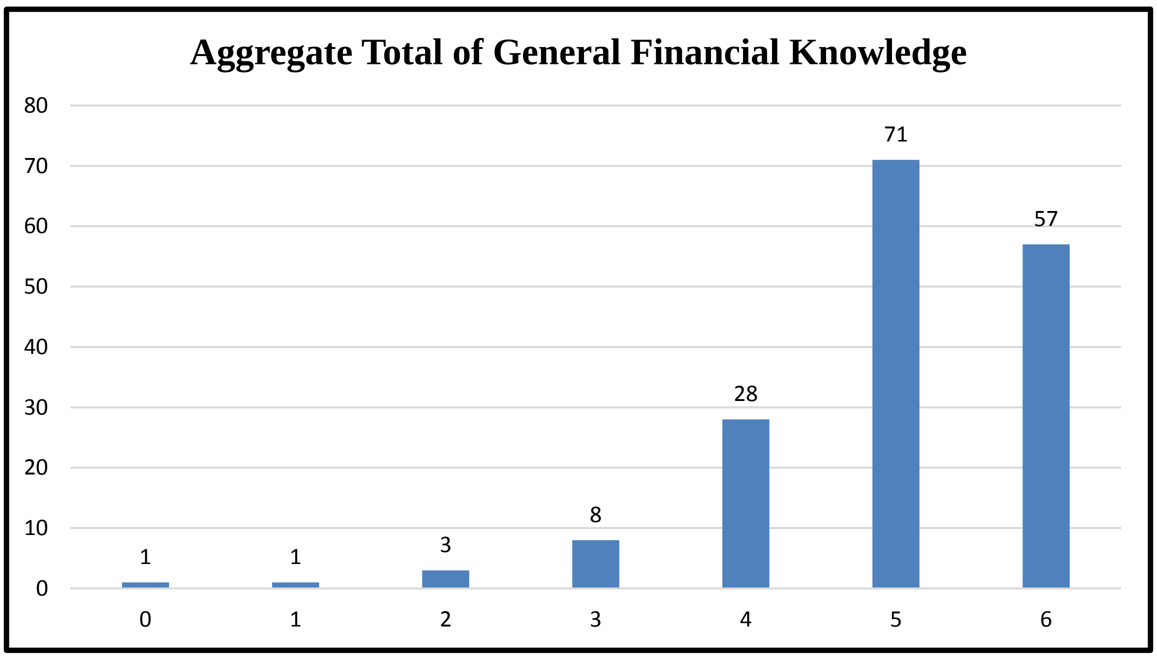

Figure 23. Distribution of Participants Aggregate Total of General Financial Knowledge Questions

7. TSP Specific General Financial Knowledge Questions

Figure 24 shows the aggregate scores for the survey participants on eleven questions regarding their knowledge about the TSP. Higher numbers indicate a higher number of correct answers. For each question, survey responses were coded a one for correct or a zero for incorrect. Participants received a score of zero if they chose to select responses “Not Applicable” or “I choose not to answer.” The data shows the mean score of 7.21, with a standard deviation of 2.89. The range of possible responses was between 0 and 11. The data analysis shows that 72 (42.6%) of the survey participants answered 0-7 of questions correctly, so they scored below the 70% passing grade threshold when answering TSP-specific general financial knowledge-based questions. Ninety-seven (57.4%) answered 8–11 questions correctly, so they scored above the 70% passing grade threshold.

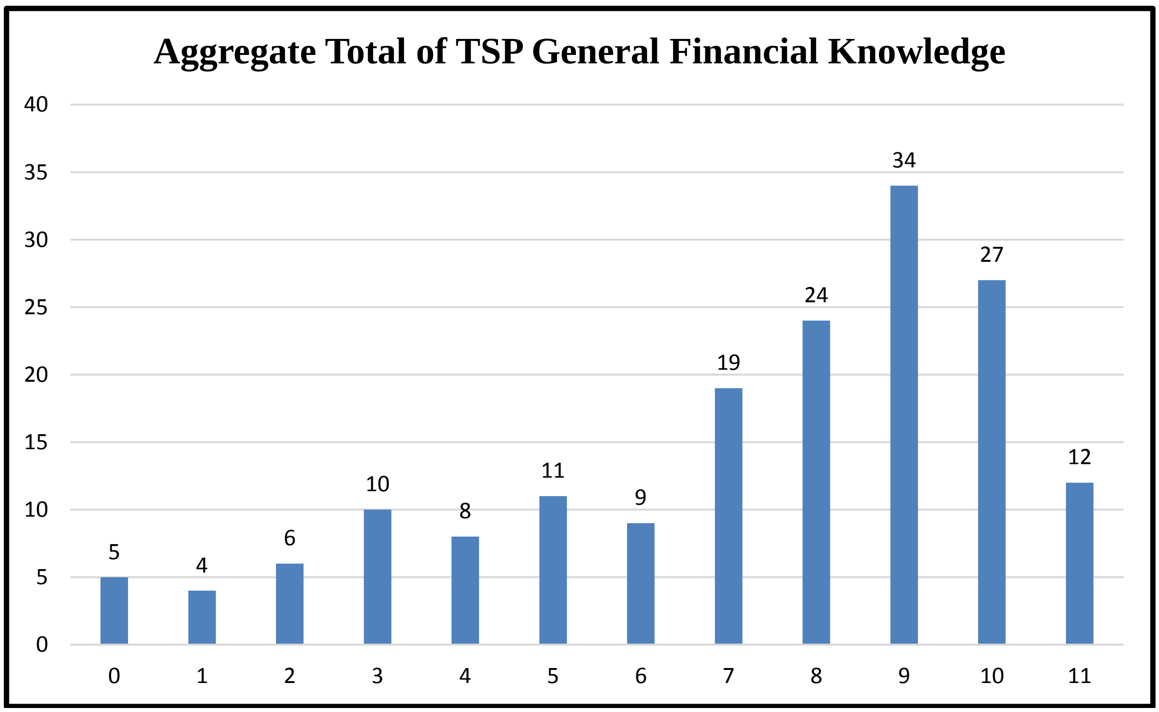

Figure 24. Distribution of Participants Aggregate Total Score of TSP Specific General Financial Knowledge Questions

8. TSP Investment Scenario Based Questions

Figure 25 shows the aggregate scores for the survey participants' responses to six scenario-based questions about TSP funds. The higher numbers indicate a higher number of correct answers. For each question, survey responses were coded a one for correct, or a zero for incorrect. Participants received a score of zero if they chose to select responses "Not Applicable" or "I choose not to answer." The data shows the mean score of 2.77, with a standard deviation of 2.33. Survey data indicates that 58 (34.3%) participants answered five to six questions correctly out of the total six questions, scoring above the 70% passing grade threshold when answering TSP-specific scenario-based financial knowledge questions. Survey data indicates that 111 (65.6%) of the survey participants answered zero to four questions correctly, scoring below the 70% passing grade threshold. Fifty-three (31.4%) participants did not correctly answer any questions, whereas 28 (16.6%) participants answered all six questions correctly.

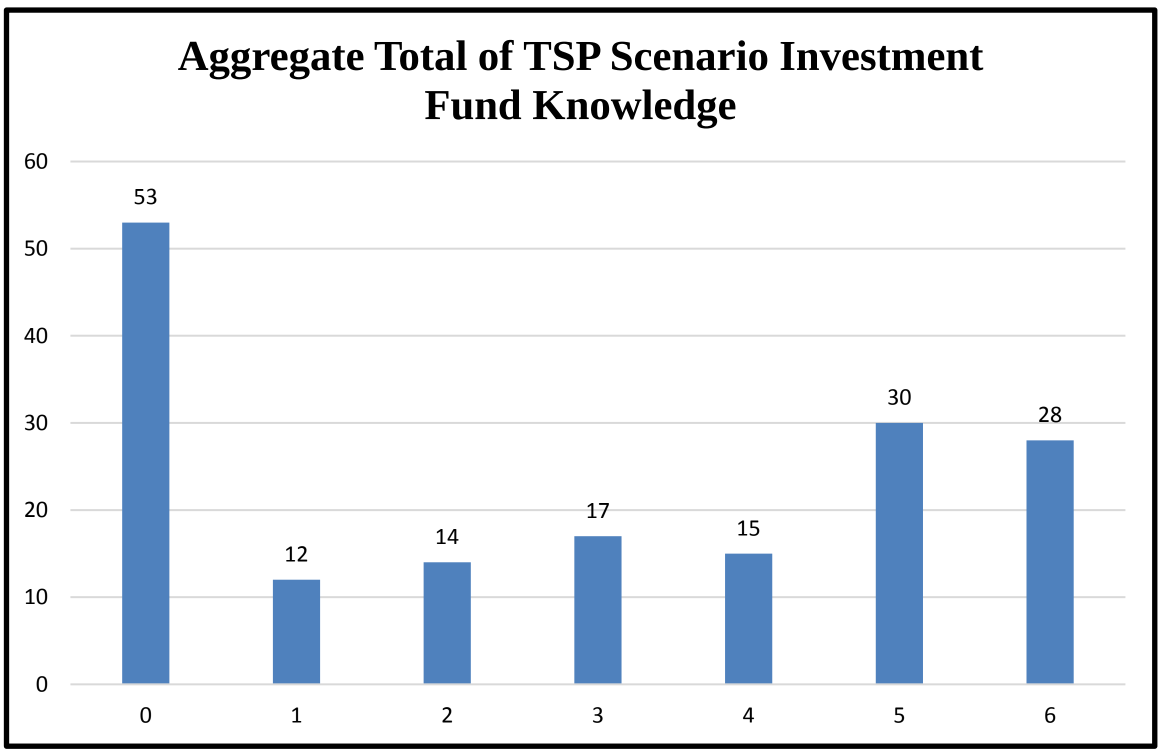

Figure 25. Distribution of Participants Aggregate Score on TSP Investment Scenarios

D. ANALYSIS AND IMPLICATIONS OF RESEARCH RELATED TO THE RESEARCH QUESTIONS

As the DoD shifts towards placing more responsibility on individual service members to make appropriate financial decisions towards their retirement, the goal of this research is to identify the service members' general and Thrift Savings Plan-specific current financial knowledge regarding retirement and to determine important factors to consider for retirement. In this section, the responses to the four research questions that initiated this research study are addressed.

(1) What is the service members' current general financial knowledge level related to retirement?

The first research study question can be answered by reviewing the results of the data collected from the research survey. In the survey for this research, participants were asked to answer six questions about their general financial knowledge to assess their current financial knowledge level. The data analysis shows that on average, 41 (24.2%) survey participants correctly answered zero to four out of six general financial knowledge questions; therefore, scoring below the passing grade of 70%. The data analysis shows that 128 (75.7%) participants correctly answered five to six general financial knowledge questions to achieve a passing score above 70%. In addition to six general financial knowledge questions, participants were asked to answer 11 TSP-specific general financial knowledge questions, and six TSP scenario-based questions, which will be addressed in the next section.

(2) What is the service members' current financial knowledge level regarding the Thrift Savings Plan?

The second research study question can be answered by reviewing the results of the data collected from the research survey. In the survey for this research, participants were asked to answer eleven TSP-specific general financial knowledge questions to assess their financial knowledge level of the TSP. This research study also contained six TSP fund knowledge questions presented in scenario-based format. Participants were presented the six scenario-based questions and asked to choose which funds to invest in based off of the information presented in the question.

For the TSP-specific general financial knowledge questions, the data analysis shows that 72 (42.6%) participants correctly answered seven or fewer out of 11 questions, failing to meet the 70% passing grade threshold. Ninety-seven (57.4%) participants correctly answered eight to 11 questions out of 11 TSP-specific questions, so they scored above the 70% passing grade threshold.

For the TSP-scenario based financial knowledge questions, the data analysis shows that 111 (65.6%) of the participants answered zero to four questions correctly, failing to meet the 70% passing grade threshold. Fifty-three (31.4%) participants answered zero questions correctly. Fifty-eight (34.3%) survey participants answered four to six questions correctly, so they scored above the 70% passing grade threshold. Twenty-eight (16.6%) participants correctly answered all six questions.

(3) What are important factors for eligible service members to consider when making the decision to either remain under the HIGH-3 or choose the Blended Retirement System?

The third research question can be answered by reviewing the results from the survey and literature review. The important factors that BRS-eligible service members need to consider when making retirement plan decisions include their personal debt level, continuation lump sum pay, and investment strategies in the TSP.

Per the DoD, 81% of service members leave service before the 20-year mark, so it may be beneficial to choose the BRS over the legacy plan in order to receive the government-matching rate (DOD –b, 2017). Per the FINRA Military Survey of 2012, several factors indicate that service members are not comfortable with their current financial situation. The 2012 survey results showed that service members were taking on more debt with mortgages, automobiles, and credit cards. Education debt was one area of concern, with nearly half (43%) of those surveyed indicting that they feared they would not be able to pay off that debt (finra.org, 2012). The results of this research study survey show that 40 (24%) participants have student loan debt; 64 (38%) participants have mortgage debt; 61 (36%) have credit card debt; and 91 (54%) participants reported having automobile debt.

Therefore, with service members carrying more consumer debt, the lump sum continuation pay that service members are eligible for between their eight-to-twelve years of service may prove to be a large factor in their decision to choose the BRS. That continuation pay can be used to pay down debts to alleviate financial obligations. On the other hand, that money can be used to purchase assets, such as an automobile, or as a down payment on a home.

(4) Based on an example, what is the potential financial gain or loss for those service members who choose the Blended Retirement System?

The fourth and final research question can be addressed by reviewing the literature review and by providing an example utilizing the online BRS calculator published by the DOD to assist service members in making their retirement plan decision. In order to illustrate the example, some of the previously discussed topics in Chapter II may be repeated in this section.

First, there are many variables to consider when evaluating the financial gain or loss of one's decision, including the mid-career-point incentive pay, the 20% reduction in annuity, a reduced lump sum payment at retirement, and federal tax implications of traditional pre-tax advantaged accounts. One of the first variables to consider is that the BRS includes a mid-career continuation pay incentive which service members qualify for no earlier than at the completion of eight years of service but no later than at 12 years of service (DOD –c, 2017). This adjustable rate, between 2.5–13 times the service member's regular monthly base pay, will be different for every service member and is based off of the future needs of the service. The downside to this is that service members cannot accurately predict their total financial gain or loss now during the decision-making process. The factors that affect this rate are predicted to be future service component retention needs, the service member's military occupational service (MOS) requirements, and the service member's status as critical personnel per their service component (DOD, 2017a).

One of the most significant factors for those considering enrollment into the BRS will be the 20% reduction in annuity towards that individual's pension, from 2.5% to 2.0% per year (DOD, 2017a). Another variable to consider with the BRS is the option for the service member to receive a discounted present value payout, either a 25% or 50% lump sum of their retirement pay when they retire from service (DOD, 2017a). That lump sum is advertised by the DOD as cash that can be used to pay off debt, as a down payment, or as startup money for a personal venture (DOD, 2017a). The following example is provided to illustrate the difference in payouts from each retirement plan, the HIGH 3 and the BRS.

The information used to generate the data shown in Table 1 are averages gathered from the survey responses of those who participated in this research study. The researcher accessed the online DOD BRS calculator and input the details for this example. The life expectancy of 85 years is the default on the BRS calculator, so that is what is used for this calculation. Based on previous research, 7% has been used as a conservative interest rate for the rate of return, so that is what is used in this example (Bogle, 2007; Malkiel, 2012). The totals are presented in both present value (PV) and future value (FV) dollar amounts.

Table 1. BRS Calculator Results

Example	
Rank	Captain
Paygrade	O-3
YOS (present)	7
Rank at Retirement	Lieutenant Colonel
YOS (future)	20
Life Expectancy	85
TSP Rate of Return	7%
HIGH 3 Pension (PV)	$2,012,016
BRS Pension (PV)	$1,609,613
HIGH 3 (FV)	$5,666,450
BRS (FV)	$4,533,160

As shown in Table 1, utilizing the BRS online calculator, the total net loss of a service member switching from the HIGH 36 to the BRS is calculated to be $1.1 million ($5.6m - $4.5m) in FV terms. However, it must be noted that several variables and assumptions need to be made in order to calculate FV amounts, which will be different for every service member. First, the service member must estimate their life expectancy age in order to calculate the required minimum distributions (RMDs) during retirement. Because the government will only match contributions into the service member's TSP traditional account (DOD, 2017a), the IRS mandates RMDs on traditional pre-tax advantaged retirement accounts beginning one year after the service member reaches age 70.5 (IRS, n.d.). Therefore, these RMDs are treated as normal income and taxed based on the individual's tax bracket (IRS, n.d.). If the correct RMD is not withdrawn at the prescribed time, the service member may be assessed a 50% tax penalty (IRS, n.d.). Second, the service member must estimate their continuation pay amount in terms of a one-time multiplier on their monthly basic pay. Furthermore, the service member must estimate at what year of service completion (8–12) they will accept this lump sum incentive.

Additionally, the service member must estimate the expected rate of return (ROR) on the contributions within the TSP for the life of the account. As a conservative estimate, a ROR of 7% was used in this example. Now, the service members have the option to allocate up to 100% of this lump sum into their TSP account. However, limitations on contributions into tax-advantaged retirement accounts will apply, which will determine the final amount allowed (IRS, n.d.).

The bottom line is that the net total loss in exchange for opting into the BRS, pending market variables, may be greater than the advertised 20% reduction of defined benefits when including federal tax law and considering unknown future RORs. Several considerations must be taken into account when evaluating the two retirement plans. Among the several estimates that the service member must make in order to calculate the financial gain or loss affecting their retirement decision, the future tax implications of a traditional retirement account need to be fully understood. Based on the survey results, with over 25% of the participants incorrectly answering or responding with "I Don't Know" on the financial tax questions, further education in this area needs to be addressed. The following section discusses recommendations based on the findings of this research study.

E. RECOMMENDATIONS BASED ON FINDINGS

In this section, recommendations based on the findings of this research study in regard to retirement planning and the TSP are discussed.

1. Increase Thrift Savings Plan Financial Education for Service Members

The data analysis shows that 163 (96.4%) of survey participants are currently investing into a dedicated retirement account, while 127 (75%) of the survey participants are currently investing into the TSP. Forty-one (24.2%) participants scored below the 70% passing grade threshold on general financial knowledge questions. Seventy-one (43%) participants scored below the passing grade of 70% on TSP-specific general financial knowledge questions, and 111 (66%) participants scored below the 70% passing grade on TSP-specific investment scenario-based knowledge questions. The survey results indicate that service members may need more education on personal financial matters and investing within the TSP.

The survey results also show that 79% of the participants are not seeking financial advice on retirement or on the TSP. Therefore, as more responsibility is being placed on service members under the BRS, it is recommended that DOD continue efforts to ensure service members are properly trained and educated when it comes to making sound financial decisions regarding the TSP and retirement planning.

2. Increase Financial Education on Debt and Consumer Products for Service Members

Service members may not be aware that the TSP offers the option for service members to utilize a loan based on their contributions and at the G fund interest rate (Purcell, 2007). This option could help service members avoid having to take out loans from other predatory lenders charging unsustainable interest rates. FINRA (2012) and Hastings et al. (2012) contend that increasing financial knowledge leads to better-informed financial decisions. Avoiding higher interest rates on various forms of debt is one way for service members to be able to contribute more towards retirement savings.

As researchers continue to develop financially friendly technology and individuals begin the process of preparing for retirement earlier in their lives, individuals may get a better grasp of the level of debt they feel comfortable accepting (Benartzi, 2010). Benartzi (2010) further highlights that lifetime financial education on personal finance and planning will continue to remain the common practice for individuals to avoid financial pitfalls. Benartzi (2010) reaffirms this idea that exposure to understandable and comprehensible financial products and language will have a favorable effect and will help individuals avoid making poor financial decisions. Therefore, it is recommended that the DOD offer increased financial education on debt, consumer products, and tax implications.

F. SUMMARY

This chapter included the analysis of the data collected from the U.S. active duty military resident students at NPS who participated in the online survey in support of this research study. The analysis included descriptive statistics and an example using the BRS online calculator to illustrate the possible financial loss for an individual switching from the HIGH-3 to the BRS. Descriptive data of key questions were presented in graphs and include the mean, range, and standard deviation, where pertinent. Implications of this research and recommendations based on the analysis were provided at the end of this chapter. Chapter V provides a summary of this research study as well as conclusions and areas for further research.

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V. SUMMARY, CONCLUSIONS, AND FURTHER STUDY

A. SUMMARY

Personal financial health and knowledge is an area that has been studied by numerous agencies and academia in recent years. Previous research, as provided in this report, shows that the lack of individual financial knowledge and lack of proper financial behavior are continuing to contribute to poor financial decisions that have lasting negative impacts throughout society. Increasing Medicare costs, increasing life expectancy, and declining government programs such as social security and defined benefit retirement plans are contributing to the critical situation of individuals failing to meet their retirement goals needed for financial independence.

The government and DOD have made several efforts to provide financial education and services through various forums. However, uniformed service members are continuing to make poor financial decisions in areas such as forms of debt, retirement and emergency savings, financial education, making ends meet, planning for the future, and more. These decisions not only prevent individuals and their families from achieving personal financial stability, but also prevent service members from being able to meet the high standards of a force in readiness capable of deploying worldwide.

With the BRS placing more financial responsibility on the individual, it will be increasingly important to focus on providing uniformed service members the appropriate financial education and training programs to allow uniformed service members to make informed financial decisions throughout their careers. This may increase the service members' overall personal readiness by removing unnecessary financial obligations and its negative financial consequences.

B. CONCLUSIONS

The TSP plays a critical role for those who elect or who are automatically enrolled into the BRS. Having the financial knowledge to better understand investments will provide service members with the best opportunities to grow their retirement funds over the long run. Furthermore, sound financial decision-making is critical throughout a person's life, and when done incorrectly, can lead to life-altering, and even catastrophic, consequences. The DOD and individual service components require service members to be physically, mentally, and spiritually fit for duty and ready to deploy to combat on a moment's notice.

That level of preparation requires a disciplined mentality and, to have that, service members need to be experiencing financial well-being. As service members advance in rank and throughout their careers, financial obligations will change and will require additional training, guidance, and action to fulfill those obligations. Individuals' financial cognitive ability reaches its peak in their early to mid-fifties after they have experienced the majority of their lives (Agarwal et al., 2009). For service members experiencing worldwide deployments and moving every few months, those financial pressures can be exacerbated and become detrimental if service members are not properly educated in financial matters. The following section provides areas for further research.

C. AREAS FOR FURTHER RESEARCH

The BRS is a new retirement system and currently in the election phase for uniformed service members with 12 YOS or less electing into the plan. One area of further research could be to research whether or not uniformed service members are utilizing the matching contributions effectively to make up for the 20% loss from the previous defined benefit plan. Another area of further research could be whether or not uniformed service members are maximizing their contributions in order to receive the highest matching contribution. Furthermore, another area of further research could entail analyzing how service members are utilizing their mid-career incentive pay. A comprehensive analysis could be conducted on how uniformed service members are utilizing the new BRS and defined contribution plan to gauge whether the design of the program is in fact increasing financial readiness for the services.

Yet another area of further research could be to continue to evaluate the financial education and knowledge of uniformed service members now that a greater responsibility has been placed on them. Financial knowledge regarding personal finance including debt, savings, loans, retirement, and so on, should be analyzed in relationship to current financial education programs. If future financial knowledge remains stagnant, financial education programs and topics being covered must be reexamined to identify weaknesses in financial training. Furthermore, a larger survey population consisting of federal employees and service members may provide more evidence of the discrepancies in financial training, education, and resources made available by the DOD.

Finally, a comprehensive analysis of the Thrift Savings Plan (TSP) and how uniformed service members are utilizing their retirement accounts could be analyzed to ensure that the platform remains the best available option. A future comparative analysis could determine whether the current funds available provide enough exposure to the market to allow uniformed service members' contributions the greatest future earnings potential. If the TSP is going to be the only option available for uniformed service members to contribute as part of the BRS, the TSP needs to be as competitive as those available in the corporate market.

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APPENDIX. DESCRIPTIVE STATISTICS

How much education debt do you have?	Mean	Std. Dev.	Range
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
$0 (Paid off/no balance)	129	76.33%	76.33%
$1 to $10,000	10	5.92%	82.25%
$10,001 to $20,000	6	3.55%	85.80%
$20,001 to $30,000	4	2.37%	88.17%
$30,001 to $40,000	2	1.18%	89.35%
$40,001 to $50,000	2	1.18%	90.53%
$50,001 or more	8	4.73%	95.27%
Not Applicable	8	4.73%	100.00%
Grand Total	169	100.00%	100.00%
How much mortgage debt do you have?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
$0 (Paid off/no balance)	72	42.60%	42.60%
Not Applicable	33	19.53%	62.13%
$250,001 or more	25	14.79%	76.92%
$100,001 to $150,000	17	10.06%	86.98%
$150,001 to $200,000	9	5.33%	92.31%
$50,001 to $100,000	8	4.73%	97.04%
$200,001 to $250,000	4	2.37%	99.41%
$1 to $50,000	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%
How much credit card debt do you have?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
$0 (Paid off/no balance)	108	63.91%	63.91%
$1,001 to $3,000	13	7.69%	71.60%
$5,001 to $10,000	13	7.69%	79.29%
$1 to $1,000	10	5.92%	85.21%
$10,001 to $20,000	10	5.92%	91.12%
$3,001 to $5,000	8	4.73%	95.86%

$20,001 or more	6	3.55%	99.41%
I choose not to answer	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%
How much automobile debt do you have?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
$0 (Paid off/no balance)	78	46.15%	46.15%
$20,001 or more	41	24.26%	70.41%
$10,001 to $20,000	20	11.83%	82.25%
$5,001 to $10,000	17	10.06%	92.31%
$1 to $5,000	12	7.10%	99.41%
I choose not to answer	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%
How much do you and your spouse contribute to a retirement account each year?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
$5,001 to $10,000	58	34.32%	34.32%
$15,001 or more	52	30.77%	65.09%
$10,001 to $15,000	25	14.79%	79.88%
$2,001 to $5,000	20	11.83%	91.72%
$0	8	4.73%	96.45%
$501 to $2,000	4	2.37%	98.82%
I choose not to answer	1	0.59%	99.41%
$1 to $500	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%
Total amount of debt	**Mean**	**Std. Dev.**	**Range**
	1.47	1.11	5
	Frequency	**Percent**	**Cumulative**
0 correct answers	40	23.67%	23.67%
1 correct answer	47	27.81%	51.48%
2 correct answers	51	30.18%	81.66%
3 correct answers	25	14.79%	96.45%
4 correct answers	6	3.55%	100.00%
Grand Total	169	100.00%	100.00%

Total amount of TSP general financial knowledge questions	Mean	Std. Dev.	Range
	7.22	2.90	12
	Frequency	Percent	Cumulative
0 correct answers	5	2.96%	2.96%
1 correct answer	4	2.37%	5.33%
2 correct answers	6	3.55%	8.88%
3 correct answers	10	5.92%	14.79%
4 correct answers	8	4.73%	19.53%
5 correct answers	11	6.51%	26.04%
6 correct answers	9	5.33%	31.36%
7 correct answers	19	11.24%	42.60%
8 correct answers	24	14.20%	56.80%
9 correct answers	34	20.12%	76.92%
10 correct answers	27	15.98%	92.90%
11 correct answers	12	7.10%	100.00%
Grand Total	169	100.00%	100.00%
If qualified, can you contribute to both a traditional IRA and a Roth IRA in the TSP?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
Yes	108	63.91%	63.91%
I do not know	35	20.71%	84.62%
No	24	14.20%	98.82%
I choose not to answer	2	1.18%	100.00%
Grand Total	169	100.00%	100.00%
Suppose you were a 32-year-old E-6, what is the maximum amount you can contribute into the TSP?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
$18,000	94	55.62%	55.62%
$23,000	7	4.14%	59.76%
$5,500	11	6.51%	66.27%
Any Amount	8	4.73%	71.01%
I choose not to answer	1	0.59%	71.60%
I do not know	48	28.40%	100.00%
Grand Total	169	100.00%	100.00%

Which retirement option is PRE-TAX dollars (deducted from your annual income)?	Mean	Std. Dev.	Range
	N/A	N/A	N/A
	Frequency	Percent	Cumulative
TRADITIONAL	122	72.19%	72.19%
ROTH	39	23.08%	95.27%
I do not know	6	3.55%	98.82%
I choose not to answer	1	0.59%	99.41%
Neither	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%

Which retirement option is AFTER-TAX dollars (not deducted from your annual income)?	Mean	Std. Dev.	Range
	N/A	N/A	N/A
	Frequency	Percent	Cumulative
ROTH	122	72.19%	72.19%
TRADITIONAL	38	22.49%	94.67%
I do not know	7	4.14%	98.82%
I choose not to answer	1	0.59%	99.41%
Neither	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%

How many funds does the TSP offer?	Mean	Std. Dev.	Range
	N/A	N/A	N/A
	Frequency	Percent	Cumulative
5	93	55.03%	55.03%
10	36	21.30%	76.33%
I do not know	34	20.12%	96.45%
2	4	2.37%	98.82%
I choose not to answer	2	1.18%	100.00%
Grand Total	169	100.00%	100.00%

Which fund has the LOWEST risk within the TSP?	Mean	Std. Dev.	Range
	N/A	N/A	N/A
	Frequency	Percent	Cumulative
G Fund	113	66.86%	66.86%
I do not know	51	30.18%	97.04%
F Fund	4	2.37%	99.41%
S Fund	1	0.59%	100.00%

Grand Total	169	100.00%	100.00%
Which fund has the HIGHEST risk within the TSP?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
I Fund	71	42.01%	42.01%
I do not know	58	34.32%	76.33%
S Fund	25	14.79%	91.12%
C Fund	10	5.92%	97.04%
F Fund	5	2.96%	100.00%
Grand Total	169	100.00%	100.00%
What is the default fund that TSP invests in automatically if no selection is made?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
G Fund	95	56.21%	56.21%
I do not know	60	35.50%	91.72%
C Fund	11	6.51%	98.22%
I Fund	1	0.59%	98.82%
F Fund	1	0.59%	99.41%
I choose not to answer	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%
How can you access your TSP account?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
TSP website	125	73.96%	73.96%
MyPay	27	15.98%	89.94%
I do not know	12	7.10%	97.04%
MOL	4	2.37%	99.41%
I choose not to answer	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%
How can you retrieve your login ID and password from TSP?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
E-mail/mail	136	80.47%	80.47%

I do not know	26	15.38%	95.86%
Telephone	5	2.96%	98.82%
I choose not to answer	2	1.18%	100.00%
Grand Total	169	100.00%	100.00%
If you were given this advice from a financial expert, which fund would you choose: Invest in the S&P 500 Index Fund?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
C Fund	69	40.83%	40.83%
I do not know	63	37.28%	78.11%
S Fund	24	14.20%	92.31%
I Fund	6	3.55%	95.86%
F Fund	4	2.37%	98.22%
I choose not to answer	2	1.18%	99.41%
G Fund	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%
If you were given this advice from a financial expert, which fund would you choose: Invest in the Bloomberg Barclay's U.S. Aggregate Bond Index Fund.	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
I do not know	71	42.01%	42.01%
F Fund	53	31.36%	73.37%
G Fund	19	11.24%	84.62%
C Fund	12	7.10%	91.72%
S Fund	6	3.55%	95.27%
I Fund	5	2.96%	98.22%
I choose not to answer	3	1.78%	100.00%
Grand Total	169	100.00%	100.00%
If you were given this advice from a financial expert, which fund would you choose: Invest in the fund that matches closest to the performance of the MSCI EAFE Index Fund (overseas stocks and bonds)?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
I Fund	81	47.93%	47.93%

I do not know	70	41.42%	89.35%
S Fund	7	4.14%	93.49%
F Fund	7	4.14%	97.63%
I choose not to answer	2	1.18%	98.82%
G Fund	1	0.59%	99.41%
C Fund	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%
If you were given this advice from a financial expert, which fund would you choose: To offset the weakening of the U.S. dollar, you should diversify your TSP portfolio to include which fund?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
I do not know	77	45.56%	45.56%
I Fund	54	31.95%	77.51%
F Fund	14	8.28%	85.80%
S Fund	11	6.51%	92.31%
C Fund	7	4.14%	96.45%
G Fund	4	2.37%	98.82%
I choose not to answer	2	1.18%	100.00%
Grand Total	169	100.00%	100.00%
If you were given this advice from a financial expert, which fund would you choose: In order to avoid market volatility, invest only in the fund that is guaranteed by the U.S. government?	**Mean**	**Std. Dev.**	**Range**
	N/A	N/A	N/A
	Frequency	**Percent**	**Cumulative**
G Fund	107	63.31%	63.31%
I do not know	56	33.14%	96.45%
F Fund	2	1.18%	97.63%
I choose not to answer	2	1.18%	98.82%
I Fund	1	0.59%	99.41%
C Fund	1	0.59%	100.00%
Grand Total	169	100.00%	100.00%

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