Journal of Social Economics Research
2020 Vol. 7, No. 1, pp. 1-11
ISSN(e): 2312-6264
ISSN(p): 2312-6329
DOI: 10.18488/journal.35.2020.71.1.11

THE ROLE OF SOCIAL SECURITY PROGRAM FOR ENHANCING SENIORS' LONGEVITY

Hatem Bata[1+]
Amaechi Nwaokoro[2]
Earnell Seay[3]

[1,2,3]*Albany State University, Albany, Georgia.*
[1]*Email: hatem.bata@asurams.edu Tel: 229-5002124*
[2]*Email: amaechi.nwaokoro@asurams.edu Tel: (229)500-2132*
[3]*Email: Earnell.Seay@asurams.edu Tel: (229)500-2134*

(+ Corresponding author)

Article History
Received: 4 November 2019
Revised: 13 December 2019
Accepted: 16 January 2020
Published: 19 February 2020

Keywords
Economics and social values
Financial economics
Social economics
Personal wealth and their distribution
Policy
Social security and public pension
Health inequality.

JEL Classification:
A13, B26, B55, D31, F68, H55, I14.

ABSTRACT

The United States' social security system seeks to lower seniors' probability of death. Given this strategic goal, the argument for the support of a government- managed social security program still shows greater promise than the program's privatization. Americans seem to have greater wellness and longevity under the current government-run social security program. In fact, this program could explain the declining probability of death since the inception of the program. Conversely, many supporters of privatizing the social security system would highlight the huge opportunity costs for their contributions to the social security funds. Yet, many seniors may not withstand the possibility of sustaining financial losses in the volatile financial market. On the other hand, the proponents of the current government-run social security program may overlook potential interest and capital gains that could be realized if the contributions are invested in the private financial market. In a nutshell, social security is widely accepted as a part of the social safety net of the country aiming to improve senior citizens' wellness and longevity. The social security, as a government-run institution may have come to stay.

Contribution/Originality: This study is one of very few studies which have investigated the relationship between the senior's probability of death explaining the senior's wellness and longevity in the presence of the social security program.

1. INTRODUCTION

The American government strive to improve the welfare and wellbeing of its citizens. This tendency has led to the development of various programs and work- related laws. In 1935, most of the legislation impacting the citizens' social safety and particularly social security evolved as an outgrowth of a Great Society initiated by President Franklin Roosevelt (Social Security Administration, 2005). The social safety net from the social insurance program provides retirement, disability, and survivors' benefits which is administered by the United States Social Security Administration (SSA, 2005). More specifically, the program provides American families with economic security at critical and hard times resulting in the diminishment of premature mortality (SSA, 2005).

Post-World War II era witnessed the expansion of social safety programs to include more benefits of the Great Society (SSA, 2005). Among these social development programs are workman compensation, provision of income to parents with dependent children, minimum wage, Medicare and Medicaid, environmental laws, Financial Exchange and Security Commission, Federal Deposit Insurance Corporation, Full Employment Act 1946, and Full

Employment and Balanced Growth Act of 1978 (SSA, 2005). Most Americans, regardless of their political affiliations, have embraced the benevolence of these programs and of the applicable laws. Social security program has been however, most controversial of all these development programs.

The social security program requires most United States workers to pay a social security tax out of their earnings into the social security fund. Receiving the related benefits is based on each worker's contribution to the fund. If an individual did not provide sufficient contributions, the benefits would be based on the individual's need and circumstances (Liebman and Feldstein, 2002). The program is so important that it is frequently talked about during presidential elections, and especially when there is a discussion or debate for viable options to keep the program solvent and long lasting. According to Campbell (2002) less affluent Americans are more likely to participate in the political process by voting and by writing letters to their legislators concerning social security than would their more wealthy counterparts. The concern for the less affluent Americans shows that the lower-income seniors are more likely to be dependent on the social security program than the affluent ones (Campbell, 2002). By not opting out of the program, the majority of American workers seem willing to defer the current consumption by paying the social security taxes (Moon and Mulvey, 1996). By deferring consumption and paying for the social security tax, they expect to maximize their lifelong wellness, longevity, and happiness. In essence, they prefer a suppressed current consumption by paying the social security taxes when they are able-bodied and young so that they have sufficient funds at retirement ages when their health deteriorates (Moon and Mulvey, 1996).

Social security relates to a seniors' purchasing power, especially during the retirement years. Purchasing power of any particular group explains the group's capability to afford the basic necessities and qualitative healthcare for achieving considerable wellness and longevity. Considerable wellness and healthiness is expected to lower the mortality rate of the seniors. Senior workers may find themselves at lower positions due to their diminishing labor productivity and their income. In the absence of a social security program, seniors may not be able to maintain their incomes and lifestyles acquired during their younger years.

The disabled who may in all likelihood, contributed partially or nothing at all to the social security program would be severely worse-off without the social security program providing disability income. A severe negative impact of disability income constraints would place those with disabilities in precarious conditions in a postindustrial era. Therefore, it would be very hard to accept that the "invisible hand" of the competitive market economy would handle the needs of the disabled without adequate tax subsidized incomes.

The importance of the social security program cannot be overemphasized especially in wartime and in the immediate post year period (Puckett, 2010). Without the funds from the social security program, war casualties and their dependents would lack the expected income to live their lives. If the financial worries of those disabled by war are not alleviated, one would expect American war efforts that are based on the voluntary recruitment of personnel to fail (Puckett, 2010).

According to costs and benefits theory; most resources are scarce and most benefits must come with some given costs. A citizen's opportunity cost for contributing into the social security program is the related deductions from the individuals' work earnings. These contributions are financial resources that could be applied to the current consumption to enhance the individuals' current utility levels. Alternatively, the resources could be invested in bonds with the expectation of some interest or in stocks for the expectation of some dividend. Since contributing to the social security program is federally mandated and automatically deducted from the payroll, most people are unaware of the deduction or oblivious about what they are giving up by investing in the social security. That which is given up could be the sacrificed investments by not choosing or cashing on the alternative instruments of bonds or stocks. By continuously making contributions into the program, the working adults tend to believe that the benefits from the program may exceed all the related opportunity costs. Growing older with less economic worries, as enabled by the program, affords seniors the ability to properly manage their personal wellness and longevity. A relatively enduring economy is based on robust spending, consumption, consumer confidence, and citizens' wellness. Americans would therefore, spend their working incomes knowing that they have social security incomes to access upon retirement age or when physically challenged.

The goal of this research, therefore, is to assess the relationship between the senior's probability of death that explains the senior's wellness and longevity in the presence of the social security program. The following is the organization of the rest of the study. Section two discusses the argument for the institution of the social security program; section three presents the challenges that could increase the mortality rates of both the seniors and physically challenged. Section four presents the graphical issues of the social security; section five outlines the persisting argument against the institution of social security. Section six addresses the data and methodology employed as well as the results of the study; and the study's conclusion and the future direction of the research are presented in section seven.

2. LIKELY PERSISTING ARGUMENT FOR THE INSTITUTION OF SOCIAL SECURITY PROGRAM

It was noted that lifestyle factors such as adequate income for a balanced diet, and exercise play an important role in successful aging than genetics in improving of the aging process (Rowe and Kahn, 1997). The social security program aims to minimize the probability of death of seniors by providing some degree of financial security. The institution of the social security is expected to maintain seniors' successful aging process by enabling seniors to afford to make decisions that improve health, wellness, and longevity. In this context, an examination of successful aging involves the study of the intricate quality of life issues including the prevention of diseases and disability, the preservation of high physical and cognitive functions, and continued engagements in social and productive activities (Rowe and Kahn, 1997). These requirements of successful aging may essentially demand that seniors need to have financial security.

Living a healthy life style by eating a well-balanced diet and exercising may reduce the high senior's mortality rate. Furthermore, men and women who are obese have higher lifetime healthcare expenditures than the members of the same age cohort within normal weight range at age 65 (Yang and Hall, 2008). Thus, the absence of an institution such as the social security program may lead to consumption of unhealthy diets, higher healthcare expenditure, increased poverty, and higher probability of seniors' death. With Social Security, senior citizens are able to acquire nutrition and wellness factors improving their well-being, innovations, and longevity.

Before the establishment of the social security program, seniors were retiring poor or working beyond the retirement age (National Research Council (U.S.), 2001). Life entailed a lot of struggles where seniors made tradeoffs between their medication, healthy food, and other necessities. Poverty related struggles due to old age could lead seniors to be permanently trapped in a vicious cycle of attempting to address their physiological needs. Therefore, many seniors did not have the financial resources to live healthy life styles. Furthermore, their financial situation would probably worsen whereby their wages or income stagnate due to severe inflation or recession (NRC(U.S.), 2001). The social security program provides the social safety net for income protection of the seniors to mitigate these problems.

The changes that a person faces when transitioning from productive career to retirement may potentially be puzzling, confusing, and depressing (Timmermann, 2018). Initially, retirees may feel relief from the daily psychological pressures of work, but later they may feel empty inside because they have lost focus, structure, and status (Timmermann, 2018). Social security provides cushion against seniors' declining quality of life and healthcare costs that could spike, especially towards the end of their lives (Yuanshan *et al.*, 2017).

3. SOCIAL SECURITY IMPACT ON ALLEVIATING INCOME-CONSTRAINTS, HEALTH-DISPARITY, AND MORTALITY CHALLENGES FACED BY SENIOR CITIZENS AND PHYSICALLY CHALLENGED

Demographers in many studies have shown that social class and wealth are tied to life expectancy. Thus, the rich have longer lifespan than the poor (Antonovsky, 1967). Data shows that this mortality disparity gap has been widening since the Second World War (Antonovsky, 1967). According to Antonovsky (1967) the well-to-do are more likely to live longer than do the underprivileged ones. Researchers have found a life expectancy gap of approximately twenty years between the poorest and richest areas of Hamilton Ontario (DeLuca and Kanaroglou, 2015). Nemeth (2017) has conducted a meta-analysis of several studies comparing lifespan and lifespan inequality and found strong negative correlations. Wealth constraint may adversely impact seniors 'access to good medical care, preventive medical action, health knowledge, seeking medical help, affordability of healthy food, and ability to exercise (Antonovsky, 1967).

Income inequality has grown drastically to heights not witnessed before the Great Depression (Bor *et al.*, 2017). A team of researchers examined life expectancies of the richest and poorest in the US between 1980 and 2015; they discovered that not only is the health gap widening, but health is becoming more strongly linked to financial status (Bor *et al.*, 2017). Seniors tend to have limited mobility; therefore, the distance they have to travel to access healthcare facilities is important. The closer the seniors are located to healthcare services, the higher the probability that they will take advantage of the healthcare establishments' services to manage their health better. Miller *et al.* (2015) have found that healthcare facilities are more likely to be located in wealthy neighborhoods. Therefore, the rich seniors would travel less than the poor ones to access healthcare services to achieve adequate healthcare and less mortality rate compared to the poor seniors.

Nevertheless, income-assistance from the government has also contributed to lowering the mortality rate of seniors. In the 1900's, the average Americans lived for only 49 years and most working people died on the job (Greider, 2005). The social security program could be described as a provider of an extended citizenry inclusiveness for more equitable distribution of healthiness and economic output. This equity would seem more plausible than that expected from the free market economy that is directed by the price mechanism and profit motives. Since 1935, when Social Security was ratified, the average life expectancy has increased to 61years (Greider, 2005). The Social Security program has elevated the American inclusiveness to address a common issue of poverty among the seniors and among those that are physically challenged. Currently, Most seniors would most likely desire that the social security program be permanent and for the funds to be locked up in a "secured safe" to guarantee benefit. They would also likely say that the era of citizen poverty and of the indifference toward those that have severe life challenges is over.

By paying benefits to those that are qualified, the program may truncate perpetual economic struggles especially of those that are economically challenged. With the institution of the social security program, the burdens of life on those that are physically challenged are not left to their families that may have other costs to address. Thus, providing social security to the seniors and income assistance to those that are physically challenged especially in the post American industrial era is a worthy pursuit.

Most employers are reluctant to guarantee employees fixed incomes in order to reduce their labor costs. Furthermore, there is a risk that seniors may not have enough income to support a comfortable lifestyle and to afford increasing medical expenses. This risk increases with early retirement being retirement before 62 and decreases after 67 (Retirement Income Adequacy at Large Companies: The Real Deal, 2010). Seniors face several risks when they retire. These risks include inflation risks, market volatility risk, healthcare costs risks, and long term care costs risks (Port, 2015). Inflation and market-volatility risks could only be mitigated by sound financial planning.

Given the uncertainty and the risks in the economy, people would incur huge cost by giving up their time, effort, and money to have professional financial advisors to assess the return on their private and social security investments. Inadequate calculation of the probabilities of, and returns on, these investments may cause some capital losses. Important financial decisions about retirement on how to save, how to invest, and when to retire are made by workers, not by employers (Weierich *et al.*, 2011). The return assessment may need to take into consideration that the capital gains may be taxed at very high rates. Due to many unknowns and risks, these key financial management decisions could be very complicated with considerations on allocating investment funds, buying or selling real-estates, and saving for children's education (Weierich *et al.*, 2011). Fluctuations in the stock market could lead to many seniors' vulnerability and many could lose their savings (Greider, 2005). In addition, many people close to retirement age do not have enough savings to finance retirement; median retirement savings of this group is about $27,000 (Greider, 2005).

However, healthcare costs and long term care costs risks may not be managed easily due to the many uncertainties involved. Unplanned healthcare costs can potentially have a strong negative impact on the best retirement saving plan (The Effects, 2011). Even planned healthcare costs are increasingly facing financial challenge due to medical cost inflation and the high uncertainty on the future of government programs. Hence, healthcare costs may be the biggest obstacle to a financially secured retirement.

The government may pay for many of the essential medical services through Medicare, yet seniors have to pay for some services such nursing home residency (De Nardi *et al.*, 2012). Hence, many seniors are being careful with their money as they age and live longer (De Nardi *et al.*, 2012).

4. THE GRAPHICAL ISSUES OF SOCIAL SECURITY

The preceding arguments tend to support of the institutionalization of the social security program. One could state that the social program provides positive effects on the citizens' wellness and longevity and therefore is likely to be retained for years to come. Figure 1 lends some empirical supports to the preceding argument.

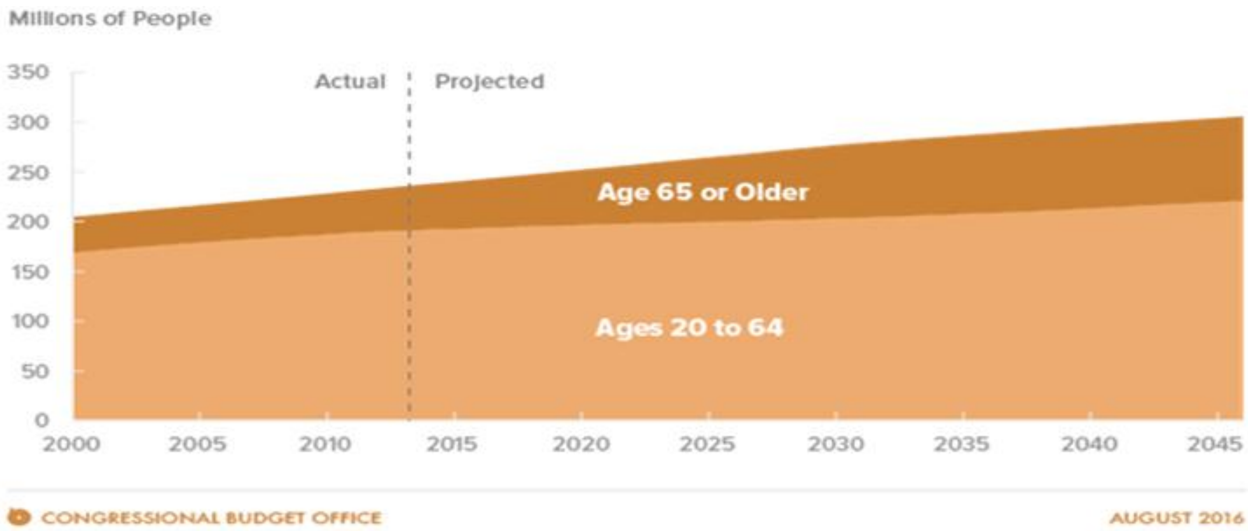

Figure-1. Population, by age group.

As seen from the Figure 1, as more people experience an increased in life expectancy, the percentage of the population that is 65 and older increases. Specifically, between 2016 and 2046, this share of this population is expected to increase from 15 percent to 21 percent. Thus, the government would need to disburse increased amounts to support social security benefits and on healthcare programs (Congressional Budget Office, 2016). Without the increased disbursement, the financial stability provided to seniors by the social security program may be threatened.

The Social Security Act of 1935 mandated that workers would receive benefits after they retired from their economic activities. Social security is financed by payroll taxes that are deposited into a trust fund where benefits are paid out. Initially, there were more young healthy workers depositing money into the fund than the retirees withdrawing benefits (Bongaarts, 2004). The retired to worker ratio is expected to reach 0.46 in 2050; a substantial 70 percent increase from 0.27 in 2000 (Bongaarts, 2004). For a pension plan to be considered fully funded, the relative assets ought to exceed or be equal to the benefits provided. However, social security is severely underfunded (Novy-Marx and Rauh, 2009). This, in turn, may force the government to pay less than adequate amounts due to the beneficiaries (Novy-Marx and Rauh, 2009).

5. LIKELY PERSISTING ARGUMENT AGAINST THE INSTITUTION OF SOCIAL SECURITY PROGRAM THAT TARGETS RETIREMENT FUNDS PRIVATIZATION AS BEING AN ALTERNATIVE TO THE SOCIAL SECURITY PROGRAM

It has been observed that social security benefits may not be sufficient to finance retirement, because it only pays 45% of pre-retirement income (De Nardi *et al.*, 2012). Consequently, many Americans have decided to take personal responsibility to save more for their retirement needs (Greider, 2005). It has been noted that Individual Retirement Accounts (IRAs) can be established at financial institutions that allow an individual to save for retirement with the incomes being tax-free or are on tax-deferred basis. Eligible assets could be accessed from an employer-sponsored plan, such as a 401(k) or 403(b), or an IRA. Other clients may use a defined-contribution plan in which certain amounts or percentages of money are set aside each year by employers for the benefit of their eligible employees. The defined-contribution places restrictions that serve to control when and how each employee can withdraw these funds without penalties. An employer/sponsor promises defined benefit, specified pension payment, lump-sum (or combination thereof) are becoming rare.

The retirement of a large baby boom generation will cause the costs of social security to increase drastically during the next several decades (Feldstein and Liebman, 2002). The ratio of retirement costs to Gross Domestic Product (GDP) will stay elevated, since there would be a consistent increase in the percentage of retirees in the population. In the United States, the Social Security Program estimates that the cost of the program will rise from about 10 percent of covered earnings now to 15 percent of earnings by 2030 and to more than 18 percent of earnings in 2050 (Feldstein and Liebman, 2002) . Social security costs are projected to mushroom after 2050, increasing the total current federal government spending by twenty percent and even up to forty percent in the federal personal income tax (Feldstein and Liebman, 2002). Currently the unfunded present value of Social Security promises totals about $9 trillion (Genakoplos *et al.*, 2000). Hence, many opponents of the program may correctly emphasize the potentially higher future costs of the programs.

Private retirement account could remove the uncertainty of the current government-controlled program. According to a Gallup Poll (2015) sixty percent of currently working adults believe that they will not receive Social Security benefits when they retire. With private retirement accounts, individuals will be paying into funds that they would control and know exactly how much is saved. With an increasing number of retirees, a government-controlled fund may be exhausted before the retirees would receive the benefits they have earned. Since the government is vulnerable to political pressure, it may reduce benefits or change the age of eligibility at any time.

Private retirement accounts could give workers the contractual right to maximize their retirement benefits. This right is thought not available from the current Social Security system (Tani, 2008). In the 1960, the US Supreme Court case Flemming v. Nestor, a retiring legal immigrant eligible for social security benefits after paying into the system for 19 years, was denied his social security retirement money after being deported for being a member of the Communist Party (Tani, 2008).

Due to the bull market character of the Stock Market, some analysts may support investing the Social Security Trust Fund in the market. Many citizens who have gained high returns on market investments are pondering why they have earned so much less on their contributions to Social Security instead of investing their funds in the stock market (Shiller, 2006). The average annual real return on stocks over the past 90 years (as approximated by the S&P 500) was 9.4 percent, while the corresponding return on intermediate term government bonds was 2.3 percent (Shiller, 2006). On the other hand, the return on social security is between 1.2 and 1.5% (Genakoplos *et al*., 2000). Unplanned privatization could however, subject the investment funds to the volatility of the financial market (Shiller, 2006).

Privatization of social security funds could permit the diversification of investments available to the lower income households in particular that are not familiar with a diversified capital market investment portfolios (Genakoplos *et al*., 2000). With a creation of personal retirement accounts, the government could provide for individuals to invest a part of their Social Security contributions in private accounts (Rudolph and Popp, 2009). Also, employees could direct two percent to four percent of their pay roll social security taxes into individual retirement accounts (Williamson, 2002). With fund privatization, citizens would be involved in making rational investment decisions and would have control on how their retirement contributions are invested (Ferrara, 2003). Fund privatization would give workers more freedom in making investment choices, as compared to a mandatory government-operated system that tends to reduce individual responsibility by weakening the important relationship between effort and reward, and between personal responsibilities and personal rights (Pinera, 1995). In addition, a shift to a more private retirement pensions would depoliticize investment options and individuals would have more control over their own investments.

If Americans were able to invest their retirement funds as they wish, more money would be invested into the financial market and in the stock market (Ferrara, 2003). Private investments would in turn, potentially lead to more savings investment that could substantially boost the economic growth in terms of job growth, higher wages, and overall income (Ferrara, 2003).

Private accounts would allow the wealth of a person who worked hard and did not live long enough to enjoy their retirement savings be inherited (Tanner, 1996). The present social security system may not be fair to people who live shorter lives by collecting less of their earned benefits compared to people who live longer lives. Also, many people who worked hard but lived shorter lives will not be able to gain the fruits of their hard work or transfer the savings to family members (Tanner, 1996). Personal accounts will provide the options to bequeath assets to the identified heirs upon death, options that are missing from the social security program (Tanner, 1996).

6. DATA AND METHODOLOGY

The data for the period of 2000 to 2012 employed in this study were obtained from various sources[1]. The several additional factors bearing on the study methodology are as follows: a) while the probability of death represents the chance of the seniors dying in the presence of the social security program, the life expectancy is the average yearly lifespan of the seniors; b) the beneficiaries' variable is the yearly number of individuals that benefits from the program; c) the average payment variable is the yearly amount paid into the program; and d) the claims

[1]The Aaa Bonds rate is retrieved from http://research.stlouisfed.org/fred2/series/AAA ,

Social security as a % of overall government on health retrieved from

http://data.un.org/Data.aspx?q=social+security+&d=WHO&f=MEASURE_CODE%3aWHS7_134

Mortality rate and life expectancy retrieved from https://data.worldbank.org/indicator/SP.DYN.LE00.IN

National healthcare spending in Billions retrieved from https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends andReports/NationalHealthExpendData/NationalHealthAccountsHistorical.html

US retirement savings retrieved from https://www.ici.org/research/stats/retirement variable is the yearly amount claimed from the program. Table 1 provides the descriptive statistics of the series on the probability of death, life expectancy, beneficiaries, average payment, claims variable, cost of healthcare, and "AAA" bonds interest rate. Generally, the nominal interest rate has been very close to zero and therefore there was no inflationary pressure during the period. For analytical purpose, the series are relatively transformed by dividing each observation per series by the base year's observation of the particular series[2]. This transformation enables all the series to be accommodated in the graph of two- dimensional plane. The extent to which each of these variables relates to the probability of death could define the level of the healthiness and wellness of the seniors.

Table-1. Averages and standard deviation of the series.

Series	Average	Standard deviation
No. of beneficiaries	49961605.46	3722801.984
Probability of death	0.55308	0.03479
Life expectancy	77.727017	0.7264776
Claims	356839.1	79574.19
Claims (%)	0.084962	0.008967
Contribution (%)	0.248052	0.015513
AAA rate	5.787	1.122

Theoretically, the senior's probability of death (Pd) can be stated as a function of the social security claims (claims) given the social security contribution (contribution) as:

$$Pd = f(claims/contributions).$$

The descriptive empirical relationships between the variables are evidenced by the data trends shown in Figures 2 and 3. Figure 2 exhibits the time series for the probability of death, life expectancy, claims, and beneficiaries.

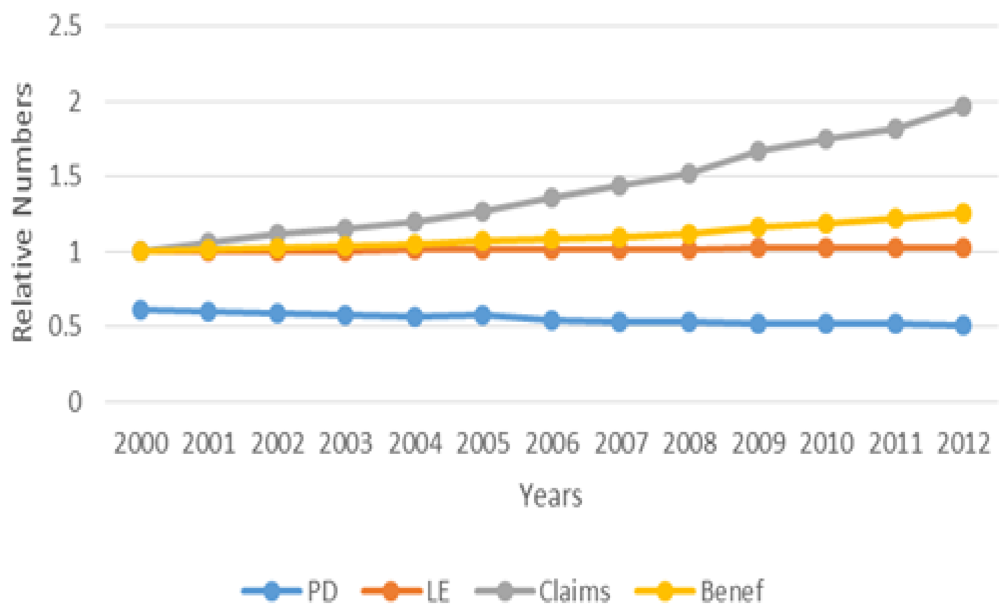

Figure-2. Time series of probability of death, life expectancy, claims, & beneficiaries.

[2]Define a relative value as Xt/X2000 where Xt is the observation of period t and X2000 is the base year's observation.

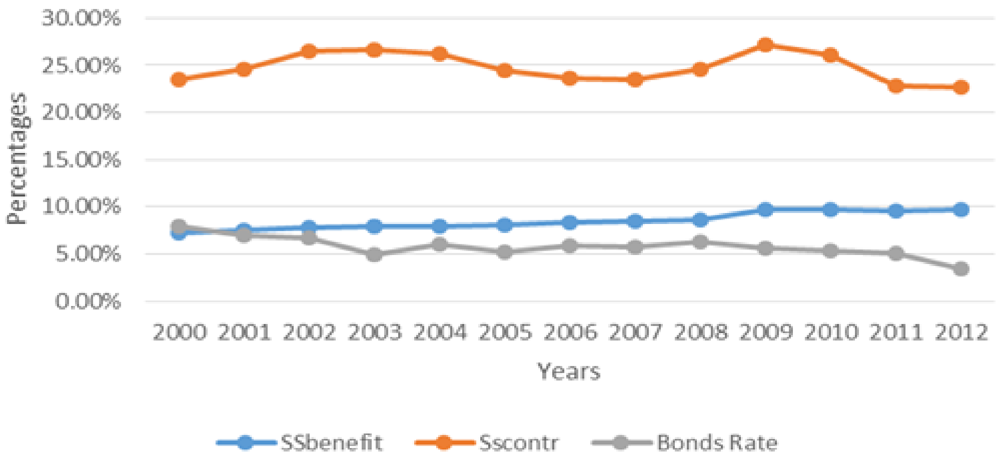

Figure-3. Time series of social security benefits, socail security, contributions, & bonds rates.

As shown by the data of Figure 2, as the beneficiaries, life expectancy, and claims factors increase, the probability of death tends to decrease. Particularly, for the 2008s, the claims factor increase faster than do other factors and it rises as more people (beneficiaries) participate in the program. Therefore, social security benefits program could be said to enhance life expectancy, healthiness and wellness.

As shown by the data trends of Figure 3, the yearly percentage growth of social security contributions, though declining in the recent years, is greater than the percentage growth of the social security benefits. The declining contribution between 2004 and 2007 could be reflecting the consequences of the recession during that period and it increased as the economy improved. Specifically, the period of 2009 witnessed the highest increase in both the contribution and benefit variables. Though, the benefit factor has an increasing trend throughout the period, it is entirely and vertically below the trend of the contribution factor. Specifically, in the 2009, contribution increased by about 26% while the benefits increased by about 10%. This inequality warrants the question regarding the transition to a private sector investment option. Note that the individual percentage growth of the contributions and of the benefits factors is greater than the bonds rates representing the opportunity costs of participating in the social security program. From this perspective social security could be said to provide seniors' peace of mind and is therefore desirable; since its growth value exceeds the bonds' interest rates.

7. CONCLUSION AND FUTURE STUDY

This study has empirically established a strong link between social security and seniors' longevity. The researchers were able to present arguments for the importance of The Social Security Program as part of the national safety net. The Social Security Program tends to minimize the probability of death of seniors because it provided financial security that makes health choices possible. The researchers have covered the state of social security and briefly reviewed the cons and pros of privatization of social security.

Future researchers could attempt to dive more in depth in the options of creating a more financially sustainable social security through partial funds privatization by creating a sovereign wealth fund that is invested in the stock market. Future research may explore the risks and opportunity cost for not investing in the stock market. A detailed analysis in future studies would assist to distribute investments in social security and in private investments.

Finally, it seems that the majority of American workers, regardless of their political beliefs have accepted that the program has come to stay. Therefore, adult workers are willing to defer the current consumption by paying social security taxes. Social security is usually addressed especially during presidential elections with respect to privatization of the social security funds, and for individuals to choose retirement investments relative to their lifestyles. The opportunity cost (forgone interest earnings) by not investing in private investments seems to be increasing and is still a concern especially during presidential elections. However, empirical analysis here would suggest that social security is unequivocally a part of life for most Americans.

Funding: This study received no specific financial support.
Competing Interests: The authors declare that they have no competing interests.
Acknowledgement: All authors contributed equally to the conception and design of the study.

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