Safe Savings Rates: A New Approach to Retirement Planning over the Lifecycle

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by

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Abstract

Focusing on a “safe withdrawal rate” and then deriving a “wealth accumulation target” to achieve by the retirement date is the wrong way to think about retirement planning. Such a formulation isolates the working (accumulation) and retirement (decumulation) phases. When considered together, the lowest sustainable withdrawal rates (which give us our idea of the safe withdrawal rate) tend to follow prolonged bull markets, while the highest sustainable withdrawal rates tend to follow prolonged bear markets. The focus of retirement planning should be on the savings rate rather than the withdrawal rate. The “safe savings rate” may be based on historical simulations as the savings rate which proves sufficient to support the desired retirement expenditures from a lifecycle perspective including both the accumulation and decumulation phases. Safe savings rates derived in this manner are less volatile than withdrawal rates and imply a lower ex-post cost to having been overly conservative. Unlike the 4 percent rule, there is not a universal "safe savings rate," but guidelines can be created. Starting to save early and consistently for retirement at a reasonable savings rate will provide the best chance to meet retirement expenditure goals. Actual withdrawal rates and wealth accumulations at retirement may be treated as almost an afterthought in this framework. But the savings plan should be adhered to regardless of whether it seems one is accumulating either more or less wealth than is needed based on traditional criteria.

***JEL* Codes:** C15, D14, G11, G17, N21, N22

Keywords: safe withdrawal rates, retirement planning, lifetime perspective, safe savings rate, wealth accumulation targets, retirement spending goals, SAFEMAX, SAFEMIN

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Introduction

Using 65 years of data between 1926 and 1991, Bengen (1994) famously motivated the 4 percent withdrawal rule. Bengen (2006) later coined the term "SAFEMAX" to describe the maximum withdrawal rate, as a percentage of the account balance at the retirement date, which could be adjusted for inflation in each subsequent year and would allow for at least 30 years of withdrawals without exhausting one's savings during all of the rolling periods available in the historical data. More simply, the SAFEMAX is the maximum sustainable withdrawal rate (MWR) from the worst-case retirement year. Rightfully so, Bengen's study demonstrated how volatility in asset returns causes the "safe withdrawal rate" to fall below average historical asset returns. His study spurred the development of an entire cottage industry with numerous researchers investigating how retirees might safely increase their withdrawal rate. Such studies have overwhelmingly investigated retirement in isolation from the working phase that preceded it.

The Journal of Financial Planning published William Bengen's landmark study 17 years ago, setting into place an initial condition which influenced so much subsequent research. But I wonder how different our ideas about retirement planning might be if William Bengen had had access to a longer time series of historical data when he formulated his study. With more data, he might have decided to consider historical simulations that included both the working (accumulation) and retirement (decumulation) phases in one integrated whole. When considered as a whole, the historical data shows that, though the relationship is not perfect, the lowest MWRs (which give us our conception of the safe withdrawal rate) tend to occur after prolonged bull markets. Prolonged bear markets during the accumulation phase tend to allow for much larger MWRs. This tendency motivates a fundamental rethink of retirement planning, as worrying about the "safe withdrawal rate" and a "wealth accumulation target" is distracting and potentially harmful for those engaged in the retirement planning process.

Rather, it will be better to think in terms of a "safe savings rate" that has demonstrated success in financing desired retirement expenditures for overlapping historical periods including both the accumulation and decumulation phases. Put another way, someone saving at her "safe savings rate" will likely be able to achieve her retirement spending goals regardless of her actual wealth accumulation and withdrawal rate. As an added feature, the volatility of past lifecycle-based minimum necessary savings rates (LMSRs) is much less than that of MWRs, ranging between 9.3 and 16.6 percent over the historical period for our stylized baseline individual. In yet other words, I am suggesting that the following retirement planning process, which isolates the accumulation and decumulation phases, is not appropriate:

Step 1: Estimate the withdrawals needed from financial assets to pay for planned retirement expenses after accounting for Social Security, defined-pension benefits, and other income sources. Define these planned retirement expenses as a replacement rate (RR) from pre-retirement salary.

Step 2: Decide on a withdrawal rate (WR) you feel comfortable using based on what has been shown to be sufficiently capable in the historical data.

Step 3: Determine the wealth accumulation (W) you wish to achieve by retirement, defined as W = RR / WR.

Step 4: Determine the savings rate (SR) you need during your working years to achieve this wealth accumulation goal.

I suggest as a replacement, the following retirement planning process:

Step 1: This step is the same as above.

Step 2: Decide on a savings rate (SR) you feel comfortable using based on what has been shown to be sufficiently capable of financing your desired retirement expenditures in the historical data.

If one saves responsibly throughout her career, she will likely to able to finance their intended expenditures regardless of what withdrawal rate from her savings this implies. Of course a caveat must be included that the "safe savings rate" is merely what has been shown to work in rolling periods from the historical data. The same caveat applies to the "safe withdrawal rate" as well, as in the future we might experience a situation in which the safe savings rate must be revised upward or the safe withdrawal rate downward. It must also be clear that the findings about safe savings rates in this study are not one-size-fits-all. The study merely illustrates the principles at work by focusing on the case of a particular stylized individual. Real individuals will vary in their income and savings patterns, consumption smoothing needs, desired retirement expenditures, and asset allocation choices. This leaves an important role for financial planners to assist their clients in determining the "safe savings rate" that fits the client's particular life circumstances. This paper provides a framework to accomplish this task.

Methodology and Data

I use a historical simulations approach, considering the perspective of individuals retiring in each year of the historical period. In the baseline case, an individual saves for retirement during the final 30 years of her career, and she earns a constant real income in each of these years. A fixed savings rate determines the fraction of this income saved at the end of each of the 30 years. Savings are deposited into an investment portfolio which is allocated 60 percent into large-capitalization stocks (S&P 500) and 40 percent into Treasury bills. The investment portfolio is rebalanced to the targeted asset allocation at the end of each year.

In the baseline case, retirement begins at the start of the 31st year, and the retirement period is assumed to last for 30 years. The accumulation and decumulation lifecycle is 60 years. Withdrawals are made at the beginning of each year during retirement. The underlying 60/40 asset allocation remains the same during retirement, as does the annual rebalancing assumption. Withdrawal amounts are defined as a replacement rate from final pre-retirement salary. After accounting for Social Security and other income sources, I assume that the baseline individual wishes to replace 50 percent of her final salary before retirement using withdrawals from her accumulated wealth. Withdrawal amounts are adjusted each year for the previous year's inflation. Portfolio administrative and planning fees are not charged, and I do not attempt to account for taxes. A particular savings rate was successful if it provided enough wealth at retirement to sustain 30 years of withdrawals without having the account balance fall below zero. Actual wealth accumulations and withdrawal rates may vary substantially for different retirees.

The data for annual financial asset returns between 1871 and 2009 are from Robert Shiller's website (http://www.econ.yale.edu/~shiller/data.htm). With these 139 years of data, we are able to consider 30-year careers which are followed by retirements beginning in the years 1901 to 2010. As well, we are able to consider 30-year retirements beginning between 1871 and 1980. When we wish to consider a 60-year lifecycle with 30 years of work followed by 30 years of retirement, we are able to consider 80 overlapping periods with retirements beginning between 1901 and 1980.

Safe Withdrawal Rates

Figure 1 shows the historical maximum sustainable withdrawal rates (MWRs) for 30 years of inflation-adjusted withdrawals with a 60/40 asset allocation. MWRs have historically exhibited significant volatility. The 1877 retiree enjoyed the highest MWR in history (10.04 percent), but by 1906 the MWR had fallen to 4.41 percent. It rose again to 9.78 percent in 1921, and then declined to 4.59 percent in 1929. After further gyrations, it fell to 4.15 percent in 1937, and then rose to 8.42 percent in 1949. Another precipitous decline followed, and the SAFEMAX value (the lowest MWR in history) of 4.08 percent was experienced by the 1966 retiree. By 1980, the MWR had risen again to 7.95 percent.

Regarding the volatility of MWRs, Figure 2 shows a very close relationship in which the MWR tends to fall after a year with high real portfolio returns, and the MWR rises after negative returns. The figure plots annual real returns on a 60/40 portfolio against the percentage point change to the MWR over that year. The fitted regression line shows that on average, the MWR falls in years that real portfolio returns exceed 5.6 percent.

Figure 1
Maximum Sustainable Withdrawal Rates (MWR)
For 60/40 Asset Allocation, 30-Year Retirement Period

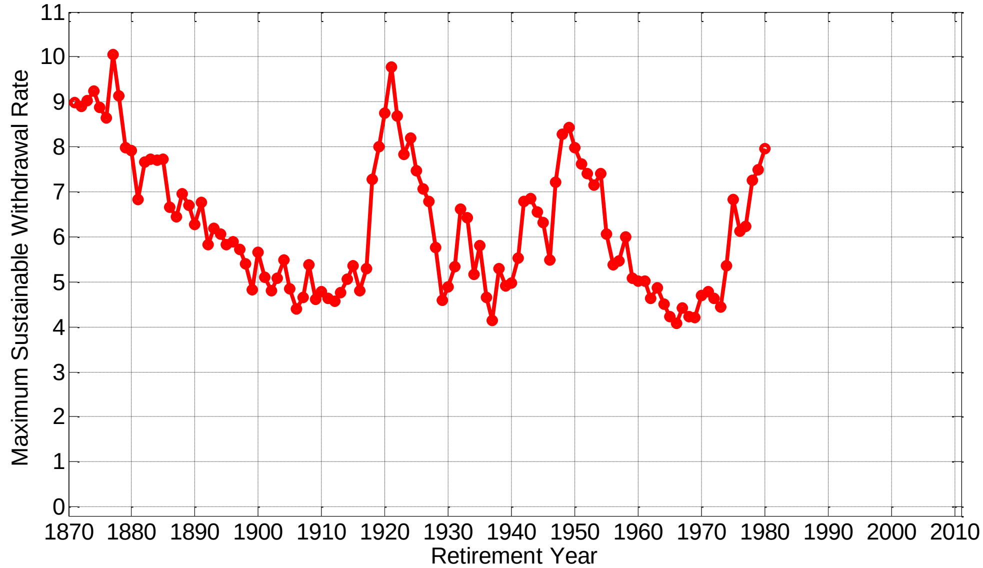
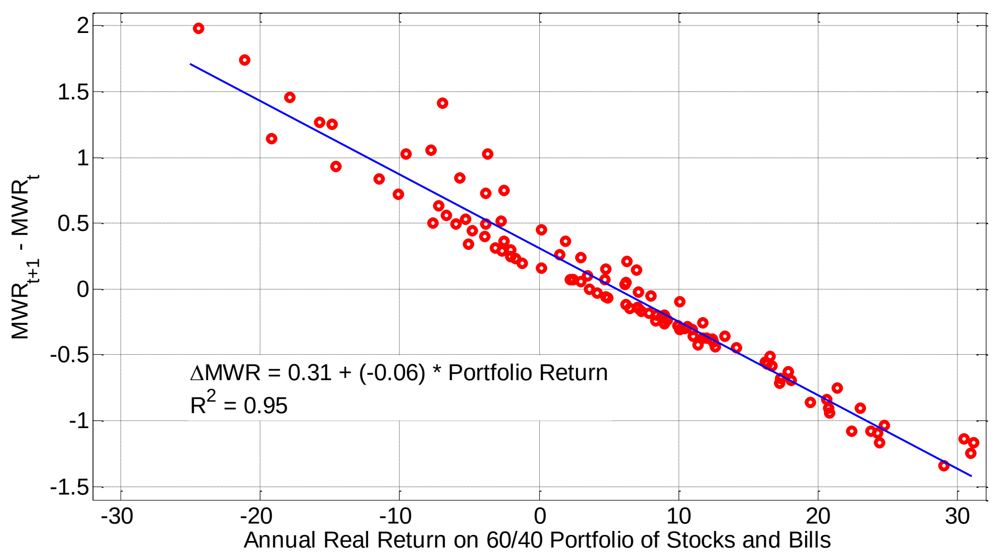


Figure 2
Change in Maximum Sustainable Withdrawal Rates vs. Real Portfolio Returns
For 60/40 Asset Allocation, 30-Year Retirement Period



Minimum Necessary Savings Rate to Achieve a Fixed Wealth Accumulation Goal

The next step in developing this article's thesis is to briefly considering turning Bengen's SAFEMAX calculations on their head and to calculate a safe savings rates in isolation from the following retirement period. I calculate the minimum necessary fixed savings rate required over a 30-year career to achieve a wealth accumulation target at the retirement date. I consider a person wishing to replace 50 percent of her final salary with withdrawals from her savings portfolio. This person wishes to play it safe and hopes to save enough so that her desired expenditures represent a 4 percent withdrawal rate from her accumulated wealth. Therefore, she must accumulate wealth that is 12.5 (= 50/4) times her final salary.

Figure 3
Minimum Necessary Savings Rate (MSR) To Accumulate 12.5 x Final Salary
Maximum Sustainable Withdrawal Rates (MWR)
For 60/40 Asset Allocation, 30-Year Work Period, 30-Year Retirement Period

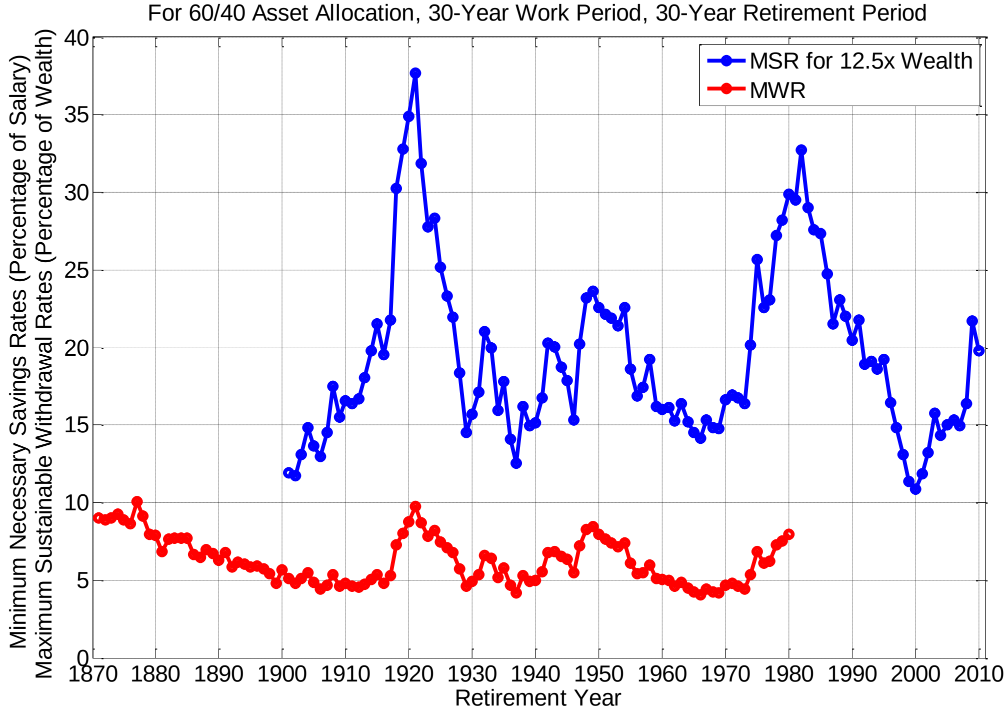
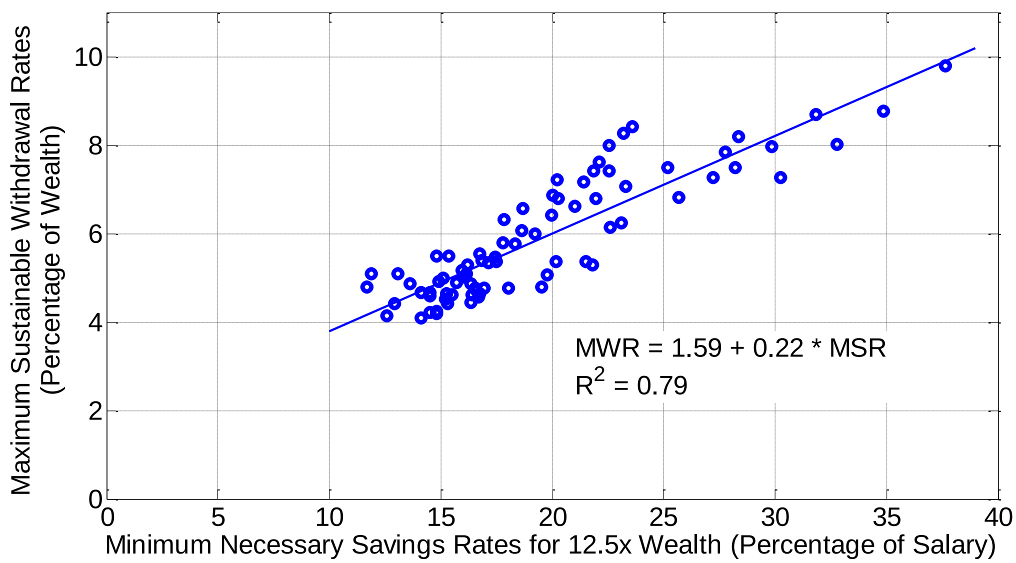


Figure 3 shows the path of minimum necessary savings rates (MSRs) for 30-year careers to achieve the fixed wealth accumulation goal. These MSRs are volatile and can be quite high. The necessary fixed savings rates over 30 years exceeded 20 percent in 42 of the 110 post-career retirement years. They were over 30 percent for new retirees between 1918 and 1922 and in 1982. But what is also fascinating and important to note is how the pattern of these MSRs closely follows that of the corresponding MWRs. For instance, the largest MSR of 37.7 percent occurs for someone retiring in 1921, but that is also the year which allows for the largest MWR of 9.78 percent during the time period in which data for both series is available. As well, retirement years that experienced relative lows for MWRs also experienced relative lows for MSRs. The MSR for 1929 was 14.5 percent, for 1937 was 12.6 percent, and for 1966 was 14.1 percent. These retirement years experienced MWRs of 4.59 percent, 4.15 percent, and 4.08 percent, respectively. More recently, the 2000 retiree enjoyed the lowest MSR in history. This individual only needed to save a fixed 10.89 percent of her annual salary over a 30-year career to be able to retire with accumulated wealth equal to 12.5 times her final salary. We will not know the corresponding MWR for the 2000 retiree until the end of 2029.

Figure 4
Comparing MSRs and MWRs by Retirement Year
For 60/40 Asset Allocation, 30-Year Work Period, 30-Year Retirement Period



The relationship between MSRs and MWRs is further illustrated in Figure 4, which shows that the amount of variation in MWRs explained by MSRs is 79 percent. Because the observations for this figure are from overlapping periods, formally determining the statistical significance of this relationship is a complex issue. This article proceeds under the assumption that the relationship seen in Figure 4 is meaningful and can be expected to continue in the future.

An Integrated Lifecycle Approach for Savings and Withdrawals

Now we are ready to integrate the working and retirement phases to determine the savings rate needed to finance the planned retirement expenditures for rolling 60-year periods from the data. The baseline individual wishes to withdraw an inflation-adjusted 50 percent of her final salary from her investment portfolio at the beginning of each year for a 30-year retirement period. Prior to retiring, she earns a constant real salary over 30 working years, and her objective is to determine the minimum necessary savings rate to be able to finance her desired retirement expenditures. Her asset allocation during the entire 60-year period is 60/40 for stocks and bills.

Figure 5

Minimum Necessary Savings Rates Under Isolated and Integrated Approaches
For 60/40 Asset Allocation, 30-Year Work Period, 30-Year Retirement Period, 50% Replacement Rate

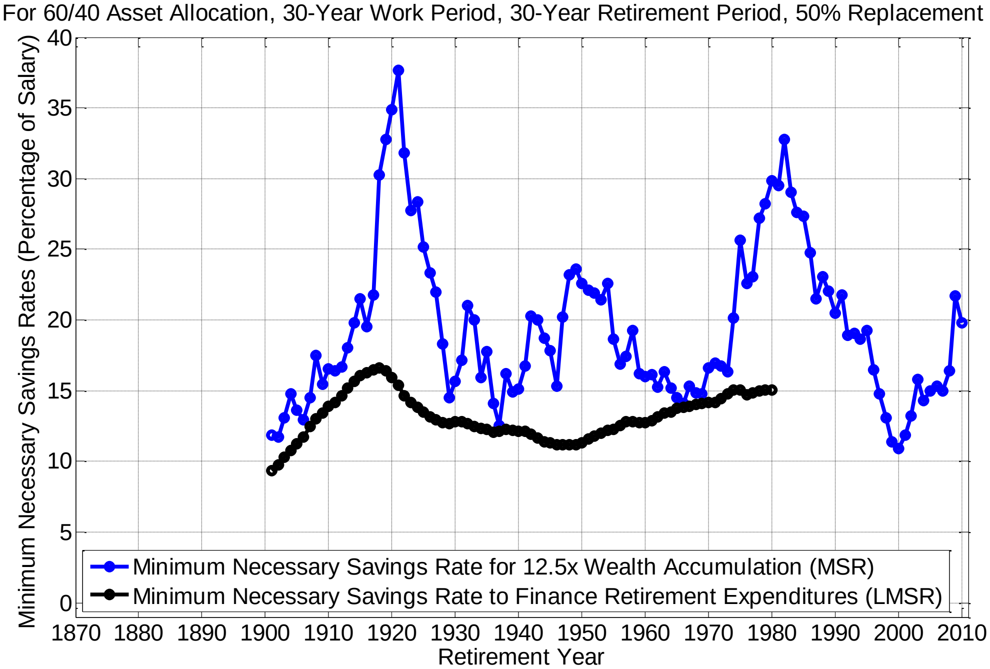


Figure 5 provides these results, showing both the savings rate needed to accumulate 12.5 times final salary (this is the MSR described in the previous section) and the lifecycle-based minimum savings rate needed to finance her desired expenditures (LMSR). The black LMSR curve is the main contribution of this paper, as it shows from rolling historical periods the minimum necessary savings rate for the accumulation phase to pay for the desired retirement expenditures. In the context of Bengen's original study, the maximum value of the LMSR curve (which is 16.62 percent in 1918) becomes the SAFEMIN savings rate from a lifetime perspective that corresponds to Bengen's SAFEMAX withdrawal rate. Had the baseline individual used a fixed 16.62 percent savings rate, she would have always saved enough to finance her desired retirement expenses, having barely accomplished this in the worst-case retirement year of 1918.

Retirement planning in the context of the LMSR curve is less prone to making large sacrifices in order to follow a conservative strategy. In the context of safe withdrawal rates, if someone used a 4 percent withdrawal rate at a time that would have supported an 8 percent withdrawal rate, she is sacrificing 50 percent of her potential retirement spending power. But in the context of safe savings rates, if someone saved at a rate of 16.62 percent at a time when she only needed to save 9.34 percent (this is the lowest LMSR value, occurring for the 1901 retiree), she is sacrificing only a little over 7 percent of her annual salary as surplus savings. She will usually also find that she still has funds remaining after a 30-year retirement period, but she was indeed able to afford her desired expenditures. In the period since 1926, which is used in most withdrawal rate studies, the differences in LMSR values are even smaller. The lowest LMSR value was 11.2 percent for retirees between 1946 and 1949, while the highest LMSR value (the SAFEMIN from the limited sample) is 15.1 percent for the 1975 and 1979 retiree.

To provide further intuition for these findings, Figure 6 and Figure 7 show what would have happened for our stylized individual who saved with a fixed 16.62 percent savings rate in each rolling historical period. First, Figure 6 essentially demonstrates my earlier claim about the lack of importance for "wealth accumulation targets" and "safe withdrawal rates" in this new framework. We can see with a 16.62 percent savings rate that the wealth accumulation at retirement varies quite dramatically over time. The lowest wealth accumulation was 5.52 times final salary for the 1921 retiree, while the highest wealth accumulation was 19.07 times final salary for the 2000 retiree. For that unfortunate 1921 retiree, the low wealth accumulation implies a required withdrawal rate of 9.06 percent to be able to withdraw the desired 50 percent replacement rate of final salary. But indeed, the actual MWR for the 1921 retiree was 9.78 percent. As another example, the 1966 retiree experienced the lowest MWR in history (4.08 percent). But with a 16.62 percent savings rate, the 1966 retiree accumulated wealth of 14.71 times final salary, which required that she only use a withdrawal rate of 3.4 percent to meet her retirement spending goals.

Figure 6

Wealth Accumulation and Withdrawal Rates with a 16.62% Savings Rate

For 60/40 Asset Allocation, 30-Year Work Period, 30-Year Retirement Period, 50% Replacement Rate

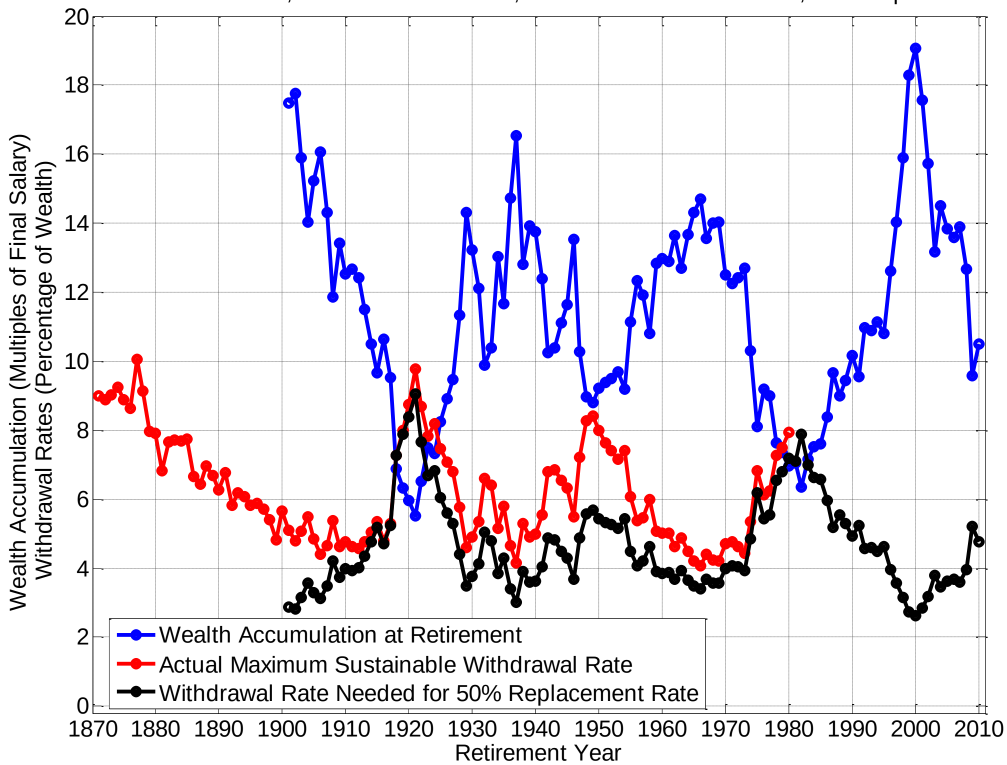
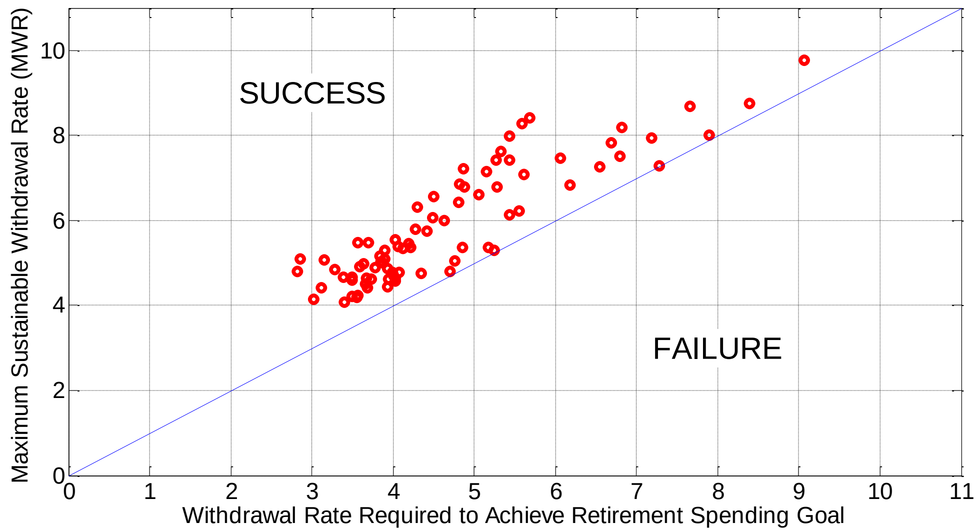


Figure 7 further illustrates that using the SAFEMIN savings rate, regardless of the wealth accumulation at retirement, was always sufficient to finance the desired retirement expenditures. The actual MWR, which could not be known until 30 years after retirement, was always higher than the withdrawal rate required from accumulated savings. The year that the required and actual withdrawal rates were the same, which was 1918, is what defines 16.62 percent was the SAFEMIN savings rate.

Figure 7
Comparing MWRs with Required Withdrawal Rates After Using a 16.62% Savings Rate
For 60/40 Asset Allocation, 30-Year Work Period, 30-Year Retirement Period, 50% Replacement Rate



Potential Tragic Consequences of the Traditional Retirement Planning Approach

The traditional retirement planning approach, represented here as targeting a wealth accumulation at retirement equal to 12.5 times final salary, has potentially tragic consequences. Using the SAFEMIN savings rate that worked in every historical circumstance, Figure 5 provided a basis for determining that in 59 percent (65 out of 110) of the historical rolling 30-year work periods, the retiree had accumulated wealth less than 12.5 times final salary. In 15 cases, accumulated wealth was even less than 8 multiples of final earnings. Though the SAFEMIN savings rate was shown to always have worked, under the traditional approach, these seemingly low wealth accumulations may have discouraged someone from continuing to save, or may have caused someone to needlessly delay their retirement. Those saving for retirement during bad market conditions may have felt unnecessary angst as their wealth target faded from reality, when in fact post-retirement market conditions would have probably allowed for a higher withdrawal rate and lower required wealth.

On the other hand, in recent years, wealth accumulations have been high. They exceeded 12.5 times final earnings between 1996 and 2008, with the high of 19.07 times final earnings available for the 2000 retiree. Those saving for retirement during these bull markets may have achieved the traditional wealth target earlier than expected, which may have caused people to either cut back on their savings or even retire early, while unbeknownst, post-retirement market conditions may result in a lower than expected sustainable withdrawal rate. This is a particular concern for recent retirees who may be overly reliant on the notion that a 4 percent withdrawal rate is safe.

Pfau (2010b, 2010c, and 2010d) provides a trio of studies which each use a different methodology to question the safety of the 4 percent rule, especially for retirees from the past decade. Pfau (2010b) introduced the use of the Dimson, Marsh, and Stanton dataset with financial market returns for 17 developed market countries between 1900 and 2008, in order to investigate safe withdrawal rates from an international perspective. That study finds that even with unrealistically favorable assumptions, the 4 percent rule provided safety only in 4 of the 17 countries. Pfau (2010c) shows that retirees in 2000 are exhausting wealth in the 10 years after their retirement at a faster pace than any previous retirees, at least in nominal terms. Pfau (2010d) develops a regression model to predict the maximum sustainable withdrawal rate using a measure of the cyclically adjusted price-earnings ratio, the dividend yield, and the nominal bond yield at the retirement date. That study finds that the traditional 4 percent withdrawal rule is likely to fail for recent retirees.

The current study indicates, though, that recent retirees will have the opportunity to fair better should they use the "safe savings rate" approach rather than following the traditional guidelines to achieve a particular wealth accumulation target. Figure 6 showed that between 1996 and 2008, the required withdrawal rates based on accumulated wealth with a 16.62 percent savings rate were under 4 percent. The unprecedented bull market of the 1990s would have allowed the 2000 retiree to accumulate 19.07 times her final salary, which implies a required withdrawal rate of only 2.62 percent. It is worth mentioning again though, that just as Bengen's SAFEMAX is derived from past data and future retirees (post-1980) could still experience lower MWRs, the same caveat applies to the SAFEMIN savings rate that it could end up increasing for post-1980 retirees. As long as the actual MWR is above 2.62 percent, then the 2000 retiree will be okay by following these guidelines. At least, should the MWRs for recent retirees fall dramatically below 4 percent as Pfau (2010d) suggests might happen, the consequences of having followed this new approach to retirement savings would have been less tragic than following the traditional retirement planning approach.

SAFEMIN Savings Rates with Varied Assumptions

As the concept of "safe savings rates" is not one-size-fits-all, Table 1 provides a brief introduction to show how the SAFEMIN savings rate varies based on assumptions about asset allocation and the duration of the accumulation and decumulation phases. The most important feature of the table is the overwhelming importance of starting to save early. For the baseline 60/40 asset allocation, 30-year retirement, and 50 percent replacement rate, someone saving for 40 years can enjoy a SAFEMIN savings rate of 8.77 percent, compared to 16.62 percent for 30 years of saving, and 35.91 percent for 20 years of saving. As well, SAFEMIN savings rates naturally increase as the retirement duration increases, but the table shows that the rate of increase is much less than observed for changing accumulation phase durations. Increasing the replacement rate to 70 percent also does show significant increases in SAFEMIN savings rates compared to the 50 percent baseline. Finally, more aggressive asset allocations allow for a smaller SAFEMIN savings rate, though this type of feature is generally true for studies based on U.S. historical data. This does not necessarily imply that higher stock allocations will be a good idea for conservative investors.

Table 1: SAFEMIN Savings Rates

		Retirement Phase								
		40/60 Fixed Asset Allocation			60/40 Fixed Asset Allocation			80/20 Fixed Asset Allocation		
Replacement Rate = 50% of Final Salary		20 Years	30 Years	40 Years	20 Years	30 Years	40 Years	20 Years	30 Years	40 Years
Accumulation Phase	20 Years	31.98	39.5	47.02	30.94	35.91	38.92	30.52	34.45	35.94
	30 Years	15.64	19.33	22.19	13.88	16.62	18.63	12.85	15.14	16.54
	40 Years	10.26	12.42	13.84	7.57	8.77	9.22	6.26	7.39	8.06
Replacement Rate = 70% of Final Salary		20 Years	30 Years	40 Years	20 Years	30 Years	40 Years	20 Years	30 Years	40 Years
Accumulation Phase	20 Years	44.78	55.3	65.82	43.31	50.28	54.49	42.73	48.24	50.31
	30 Years	27.07	31.06	31.06	23.37	26.08	26.08	21.2	23.16	23.16
	40 Years	14.36	17.38	19.38	10.6	12.27	12.91	8.76	10.35	11.28

On the issue of asset allocation, most recently, Schleef and Eisinger (2011) update earlier findings which support high stock allocations near retirement in order to maximize the probability of reaching a particular wealth accumulation goal. However Pfau (2010a) already demonstrated that when considering wealth accumulation in a utility maximizing framework that places more weight on avoiding extremely low wealth accumulations, risk averse investors may favor decreasing stock allocations near retirement. Pfau (2011) also demonstrated that risk averse investors may also prefer lower stock allocations even compared to a "reverse glide paths" scenario. Pfau (2010b) and Dimson, Marsh, and Stanton (2004) also describe how well assets performed in 20th century U.S. data relative to most of the other 16 developed market countries with available financial markets data. Looking forward, financial planners and their clients must consider whether they will be comfortable using higher stock allocations based on the impressive and perhaps anomalous numbers found in the past U.S. data. This is particularly poignant as the

U.S. is currently experiencing lower than average dividend yields and above average cyclically adjusted price-earnings multiples. For this reason, Bogle (2009) is very skeptical about basing stock return expectations on their historical performance.

Conclusions

This study can be interpreted as providing a resolution to the “safe withdrawal rate paradox,” which David Jacobs (see Jacobs, 2006) and Michael Kitces (see Kitces, 2008) developed independently. Consider the following. At the start of 2008, Person A and Person B both have accumulated $1 million. Person A retires and with the 4 percent rule is permitted to withdraw an inflation-adjusted $40,000 for the entirety of her retirement. In 2008, both Person A and Person B experience a drop in their portfolio to $600,000. Person B retires in 2009, and the 4 percent rule suggests she can withdraw an inflation-adjusted $24,000. The paradox is that these seemingly similar individuals experience such different retirement outcomes.

To resolve the paradox, I am suggesting that we shift the focus away from the safe withdrawal rate, and instead toward the savings rate that will safely provide for the desired retirement withdrawal amounts. Had both these individuals saved in accordance with the “safe savings rate,” they will both likely be able to withdraw the same desired amounts. Though they will experience different withdrawal rates, the withdrawal rate exists as almost an afterthought for this framework. This study further suggests that focusing ones savings toward trying to achieve a particular withdrawal rate at retirement, which therefore calls for achieving a corresponding wealth accumulation goal, may have been counterproductive for countless individuals. Recent Americans may have not saved enough or retired early because an outstanding market performance may have brought them to their traditional wealth accumulation goals earlier than expected. At the same time, someone saving during a bear market who is nowhere near reaching a traditional wealth accumulation goal may have given up saving or needlessly delayed their retirement, when it is precisely such individuals who could have enjoyed higher withdrawal rates. A proper study of this matter requires considering an individual's entire lifecycle including the accumulation and decumulation phases.

The findings here suggest a new research agenda, which in many ways could parallel the research agenda that developed after the pioneering work of Bengen (1994). Further research is needed to show the impacts of different asset allocation strategies, and for the inclusion of additional financial assets such as small-capitalization stocks, international stocks and bonds, Treasury Inflation-Protected Bonds, and real estate, for example. Another fundamentally important point is to consider lifecycle asset allocation strategies which change the asset allocation based on age, as Pfau (2010) shows the potential importance of these strategies in reducing risk during the accumulation phase. The assumption in this research of a fixed asset allocation throughout the accumulation and decumulation phases provides a starting point that is probably not realistic for most individuals. Another important early step is to incorporate fees and taxes into the analysis. Revisions to the safe savings rate must also be considered with respect to uncertainties about future salary and retirement spending needs. Research is also needed to consider more realistic salary profiles and variables savings rates designed to allow for consumption smoothing in the manner described by Kotlikoff (2008). A study such as Ibbotson, Xiong, Kreitler, Kreitler, and Chen (2007) could be updated to produce savings guidelines after incorporating Social Security benefits for different income levels, and after solving for replacement rates in terms of net pre-retirement income less savings. Guyton (2004) also made an important contribution regarding how to increase safe withdrawal rates using dynamic withdrawal strategies that respond to market conditions. Such strategies could also be explored from the lifetime context described here, as it may be the case that it is possible to start with a lower savings rate if one is willing to increase it in response to particular market conditions.

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