Research Roundup

By Kerry Pechter *Thu, Jan 6, 2022*

Almost every controversial subject in the US today--from Fed policy to machine learning to immigration--contains an element or theme related to retirement policy. The articles reviewed in this month's Research Roundup are proof of that.

The field of retirement finance can sometimes seem hyper-specialized and remote from everyday life. But almost every major popular issue in the US contains at least an element or theme related to retirement policy.

Today's edition of Research Roundup is evidence of that. Overlaps between retirement and "machine learning," human decision-making, monetary policy, and immigration are central to the five academic papers we feature this month.

Here are questions and issues that these papers answer or address:

- How machine learning could lead to smarter target date funds
- One way the rich get richer: they buy stocks. But why?
- Putting the 'Fed put' in perspective
- French lessons: How plan participants in France make investment decisions
- Immigrants can help Americans grow old at home

How machine learning could lead to smarter target date funds

Machine learning (ML, aka artificial intelligence) involves chips and software that imitate human decision-making, only faster and at greater scale. The possible applications of ML in financial services are endless—but still largely unrealized.

A research team at two big universities has been exploring the use of ML technology to help investors build better portfolios, both during their careers and during retirement. ML could lead to mass-customization of portfolios, they believe, and to smarter target date funds (TDFs).

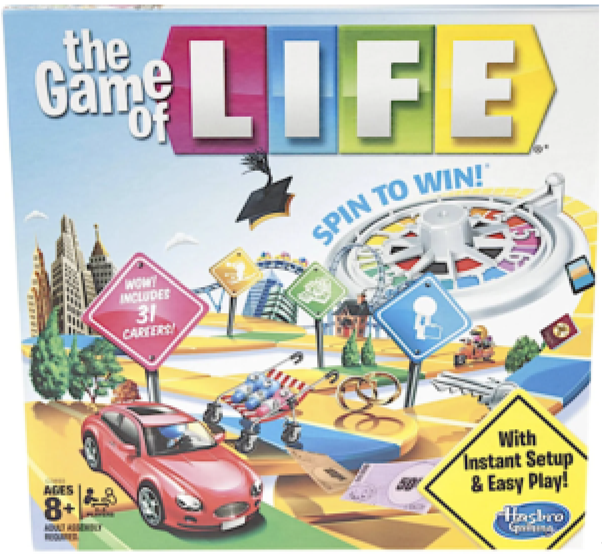
Jonathan Parker

The team, including Jonathan A. Parker and Aaron Goodman of MIT, along with Victor Duarte and Julia Fonseca of the University of Illinois at Urbana-Champaign, published its findings in a new paper, "Simple Allocation Rules and Optimal Portfolio Choice over the Lifecycle" **(NBER Working Paper w29559)**.

The paper concludes that current TDF design leaves investors under-weighted in equities during retirement. A typical TDF in today's market might call for an equity allocation of 50% or less at age 65 and after (and some people believe TDFs should hold zero equities at retirement). The authors' ML analysis recommends 60% equities would provide more disposable spending in retirement. "The average optimal share in equity declines linearly to about 60% at retirement, after which it is roughly constant," they write.

"We think TDFs do well in the first half of life, but are too conservative in the second half of life," Parker told *RIJ* recently. According to the paper, "While TDFs may lead households to avoid worse mistakes, because they impose the same portfolio on everyone of the same age, there is scope for substantial improvement—2% to 3% of consumption—from more individualized financial advice or from more customized TDFs."

The heart of the paper, however, is its exploration of ML's applicability to fund design, financial advice, and robo-advisor platforms. The authors see ML enabling a mass-customization process where ML-driven software might annually tweak the asset allocations of smart TDFs in response to changes in client-specific variables, such as "non-traded labor income risk, home ownership and mortgages, health and mortality risks, pension income, family dynamics, liquidity needs, and taxes."



"We're building a 'Game of Life,' and asking an algorithm to play it," Parker said. "It would be simple to encode this into a robo-advisor, with the goal of maximizing the average return and minimizing the variants." Instead of a software "recipe" for successful investing, the investor gets a "trained apprentice" who thinks like a human advisor (more or less).

"You could develop a TDF that doesn't condition on age, but instead on the state of the market," Parker told *RIJ*. "This methodology, could be embedded in advisors' desktops or online for people to play with."

Parker stressed that the equity allocation of a retirement portfolio would be higher than for non-retirement accounts, because of differences in investment horizons. An appropriate equity allocation for young adults saving in taxable accounts for down payments on homes might be as low as 30%, but as high as 90% in a tax-deferred retirement savings account.

One way the rich get richer: they buy stocks. But why?

Reviewing data from some 70,000 401(k) plans for the 2009 to 2019 decade, a team of researchers at Harvard recently tried to find correlations between the average equity allocations in plans and the demographics of the plans.

Mark L. Egan and Alexander MacKay of Harvard Business School and Hanbin Yang from Harvard University published their findings in a December 2021 paper, "What Drives Variation in Investor Portfolios? Evidence from Retirement Plans" (**NBER Working Paper 29604**).

The team found that average equity allocations were higher in plans with relatively more wealthy and college-educated participants, and lower in plans with relatively more older and minority participants.

These differences were associated with different levels of risk aversion and different beliefs about the financial market. “Wealthier and more educated investors tend to have more optimistic expectations about the market,” the paper said. “Older investors, retirees, and minorities tend to have more pessimistic expectations about market returns.” Variation in beliefs and risk aversion explain 52% of the variation in equity exposure, the investigators concluded.

The differences in these attitudes varied by industry. “Investors who work in riskier sectors, as measured by the equity beta of their sector, tend to have more optimistic beliefs,” the paper said.

“Investors from the most optimistic sector, Real Estate, expect the market return to be 40% higher than investors from the least optimistic sector, Accommodation and Food Services.” Investor beliefs also appeared to depend on past market returns, and on the recent financial performance by their employers. They became “more optimistic about the stock market following strong financial performance from their employer.”

Optimism and low risk-aversion didn’t always go together. “Investors in the Information Sector have the highest equity allocations but are only in the 60th percentile in terms of investor expectations of market returns,” the paper said. The authors found no significant correlation between a plan’s demographics and the number of equity funds the plan offers.

Perhaps reflecting the so-called wisdom of crowds, the investment returns expected by the plan participants proved highly accurate. “The average expected return over our sample is 11.50%,” the authors noted. “The compound annual growth rate (CAGR) of the S&P 500 over the period 2009-2019 was 11.22%.”

Putting the ‘Fed put’ in perspective

Do low interest rates help or hurt the economy?

As the Federal Reserve contemplates a modest tightening in 2022—by tapering its bond purchases and raising interest rates perhaps three times—observers wonder if such inflation-fighting moves might trigger a stock market correction or a credit crisis. It has happened before.

In a new **NBER paper**, four European economists review past financial crises and ask:

Should a central bank deviate from its objective of price stability to promote financial stability? The short answer is: Yes and no.

“The effect of monetary policy on financial stability is ambivalent,” write Frederic Boissay of the Bank of International Settlements, Fabrice Collard, of the Toulouse School of Economics, Jordi Gali, of Spain’s Centre de Recerca en Economia Internacional, and Cristina Manea of the Deutsche Bundesbank.

“On the one hand, loose monetary policy can help stave off financial crises. In response to the Covid–19 shock, for example, central banks swiftly lowered interest rates and acted as a backstop to the financial sector. These moves likely prevented a financial collapse that would otherwise have exacerbated the damage to the economy,” they write.

“[But] discretionary monetary policy actions, such as keeping policy rates too low for too long and then unexpectedly and abruptly raising them toward the end of an investment boom, can lead to a financial crisis.
“The financial sector is paradoxically more fragile when the central bank commits itself to backstopping the economy.” Why? Because such backstopping “eliminates the negative wealth effects associated with financial crises, raises the capital stock, which makes the credit market more vulnerable, and slows down the downward adjustment of capital that would be necessary to eliminate the existing imbalances,” the paper said.

“On the other hand, empirical evidence shows that, by keeping their policy rates too low for too long, central banks may entice the financial sector to search for yield and feed macro-financial imbalances.”

French lessons: How plan participants in France make investment decisions

A new study from researchers in the US and Brussels yields the behavioral-finance insight that participants are more likely to opt out of a plan when confronted with decisions they don’t like.

That was one of the findings in “Choice Overload? Participation and Asset Allocation in French Employer-Sponsored Savings Plans.” **NBER Working Paper 29601**), by James Poterba (MIT economist and president of the National Bureau of Economic Research) and two Belgian economists.

“French employers have wide discretion in structuring employee saving plans. All plans must offer medium-term investments, which cannot be accessed for five years. Employers may also offer long-term investments that cannot be accessed until retirement," the paper said.

"When plans include a long-term option, participation is lower than when the plan offers only more liquid medium-term investments. The presence of a long-term saving option also reduces the take-up of the plan's default investment allocation, which must include a long-term component," it continued.

"One interpretation of the findings, consistent with the theory of choice overload, is that some employees are unwilling to forego the liquidity of the medium-term option but find it costly to make an active election when they opt out of the default, and therefore choose not to participate in the plan at all."

The authors noted that, because French workers still get most of their retirement income from the national pay-as-you-go pension (similar to Social Security but more generous), they rely relatively less on their defined contribution plan savings (though most participate). "French firms have more discretion in setting match rates than their US counterparts," the paper said, "in part because the stakes are lower and most retirement income is provided through a public pay-as-you-go pension system."

Immigrants can help Americans grow old at home

In areas where more low-education immigrants have entered the US workforce, the chance that US-born elderly will be able to live in their own homes goes up, according to new research from Kristin F. Butcher of Wellesley College, Tara Watson of Williams College, and Kelsey Moran of MIT.

In the **NBER working paper 29520**, "Immigrant Labor and the Institutionalization of the US-Born Elderly," the three academics report that immigration provides "an abundance of less-educated labor that can substitute for the elderly individual's (or their family's) labor…, potentially shifting the choice of technology for elderly care-giving away from institutions. Immigration affects the availability and cost of home services, including those provided by home health aides, gardeners and housekeepers, and other less-educated workers, reducing the cost of aging in the community."

More specifically, "a 10 percentage point increase in the less-educated foreign-born labor force share in a local area reduces institutionalization among the elderly by 1.5 and 3.8 percentage points for those aged 65+ and 80+, a 26-29% effect relative to the mean," they write.

“The estimates imply that a typical U.S-born individual over age 65 in the year 2000 was 0.5 percentage points (10%) less likely to be living in an institution than would have been the case if immigration had remained at 1980 levels.” But benefits for the elderly come at the expense of lower pay for certain workers.

“Commuting zones with high predicted levels of immigration have lower wages among the less-educated workforce and increased employment of health and nursing aides. We see similar impacts for other less-educated occupations that may support home-based care, such as housekeepers and gardeners,” the paper said.

“Home health aides are especially likely to see positive employment effects, and nursing home aides also experience effects depending on the specific measure. Licensed practical nurses have wage reductions but do not have employment increases, suggesting a reduction in labor demand. Registered nurses command higher wages and have, if anything, lower employment levels when immigration is higher.”