**Introduction**

There are a multitude of factors that influence workers’ retirement prospects throughout their careers at both the social and personal level. Retirement readiness is a complicated outcome that exists at the intersection of demographics, social factors, health, social participation, work, financial status, and preferences.\(^1\) One of the most significant factors that will change how individuals plan for retirement is the increase in life expectancies that is taking place over time and the risk of outliving retirement savings that this introduces.\(^2\)

With life expectancies growing and recent events such as the COVID-19 pandemic bringing a new level of financial precariousness to many individuals’ lives, the time has come for individuals, employers and policy makers to re-examine the traditional career path toward retirement that steps through distinct phases of education, working through a single career, and fully retiring in one’s mid-60s. More individuals will need to work longer to secure a more financially stable future, while finding ways to make extended working lives more dynamic, flexible, and engaging. It is critical for legislators, policymakers, leaders of the community, and anyone with an interest in building a better future for everyone as they grow older to understand how individuals are preparing for retirement under these new circumstances and what types of support will leave them best prepared for a fulfilling and stable retirement. Such changes will improve the lives of people as they age while supporting and growing the local, regional and state economies – reducing the dollars needed in state and federal programs that traditionally support older people who run out of money in their last years of life.

Toward that end, Changing the Narrative (CTN) Colorado has revisited some of its earlier investigations into data collected by the Bureau of Labor Statistics (BLS) Consumer Expenditure Survey (CE), which provides data on income, expenditures, and demographic characteristics of individuals in the United States.\(^3\) This data was used to model the savings habits of individuals fitting a variety of profiles and to evaluate how well they were prepared for an extended period of retirement. The outputs of the modeling exercise were then used to trace the career development of two fictional personas and the strategies they pursued in order to fully prepare for longer retirement periods.

This investigation into retirement readiness revealed the following key takeaways:

- **Median retirement savings are significantly behind recommended levels for Millennials, Generation X and Boomers:** The median retirement savings balances of respondents are significantly behind what they should be in order to ensure that individuals are prepared for the traditional retirement\(^4\) lasting from one’s mid-60s to mid-90s (as defined in Fidelity Investments’ model that recommends having saved 10 times one’s final annual income before retiring). While respondents do appear to make saving for retirement a larger priority as they grow older, the peak saving rate of 5.6% is significantly behind the recommended rate of 15%.

- **Black and Latino Millennials are at an especially high risk of outliving their retirement savings:** While none of the groups studied are on track for having sufficient savings for retirement, Black and  

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4. For the purposes of this paper, “traditional retirement” is defined as an individual completely stopping all professional work in their mid-60s and living off of Social Security, pension payouts, and retirement savings for the rest of their lives. When an analysis calls for an age to be specified, 67 is used as it is the full retirement age for collecting full Social Security benefits for individuals born in 1960. Note that the age at which individuals can collect full Social Security benefits varies with their birth year, as does the actual retirement age for many individuals.
Latino Millennial respondents appear to be the most at risk groups for running out of funds early in retirement. Respondents belonging to these groups are saving at rates significantly lower than Baby Boomers of the same groups were at their age. If this trend continues, their Social Security payouts and savings will not be sufficient for financing a traditional retirement, let alone one that takes into account increasing life expectancies. Even under the assumption that these individuals are able to aggressively cut their spending to the bare essentials, Black and Latino Millennials are projected to deplete their savings by ages 80 and 74, respectively.

- **Life expectancies in the US are growing at modest rates, but the number of individuals expected to live to 100 is growing significantly:** Life expectancies in the US are lagging behind other wealthy countries, but they continue to grow, and members of younger generations have much higher chances of living to 100 than members of older generations. This implies that over time individuals will need to consider alternative approaches to retirement, as traditional recommendations are based on models that assume a lifespan reaching 93 years.

- **Extended work lives can have a material impact on financial security and quality of life:** An analysis of two fictional personas demonstrated how individuals can extend their working lives in order to address any shortcomings in retirement readiness that could threaten their financial security and quality of life as they age. Continuing to work part-time or full-time past one’s mid-60s can help individuals ensure that they have the necessary funds to last them through continuously growing lifespans, while simultaneously making sure that they have sufficient resources to maintain their pre-retirement quality of life.

The paper proceeds to examine these findings in more detail and their consequences via the following sections:

- **Highlights of results from modeling exercise:** This section shares highlights from the previously mentioned analysis of BLS CE data, including more details on the conclusions summarized above.

- **New policies and practices:** This section discusses policies and practices that stakeholders can encourage in order to help individuals address challenges associated with getting late starts on retirement saving and preparing to live longer lives.

- **Taking alternative paths to retirement:** The findings from the modeling exercise and the previously discussed new policies and practices are illustrated in concrete terms through the description of two fictional individuals taking new approaches to overcoming savings deficits and preparing for longer periods of retirement.

- **Appendix – Detailed results of modeling exercise:** Finally, this section provides more detailed findings from the modeling exercise for readers interested in taking a peak “behind the scenes” of the analyses that informed the other sections.
Highlights of results from modeling exercise

One overriding conclusion appears to be true for every group studied—most individuals approaching retirement age are not financially prepared for retirement, and younger generations are on track to be similarly ill-prepared unless they manage to follow a different financial path. These shortfalls are likely to have an exacerbated impact on individuals' financial stability during retirement as their lifespans increase. And extrapolating further, such shortfalls may cause these individuals to rely on state and federal programs for support—and/or tap into financial support from their adult children which will lessen the retirement savings of future generations.

Median savings balances are well behind traditional targets for all generations

Data reported to the BLS allows for a comparison between what households headed by individuals from each of the three generations should have saved according to the traditional model and what they have actually saved (see the Appendix for a detailed discussion on the assumptions that lie behind recommended savings levels). The chart below shows that this gap exists for each age and generation studied. The decrease in the recommended savings balance that takes place for Baby Boomers between ages 57 and 58 is caused by a decrease in the median income for households at that age—the Appendix explores changes in income over time and the possible impacts of ageism in more detail.

Figure 1: Recommended retirement savings account balances compared to actual savings account balances reported to BLS CES, 2018 USD. Source: BLS CE, 2013-2018
Black and Latino Millennials have especially precarious retirement savings
While none of the groups studied are on track to have sufficient savings to cover the recommended 45% replacement rate of their income (see the Appendix for a more detailed description of the recommendations associated with the traditional path to retirement) or their non-discretionary expenses, some groups such as Latinos and Black individuals face more severe shortfalls than the general population. The same structural factors that impact these groups’ access to industries that offer high wages and workplace benefits in turn act as obstacles to retirement readiness. In particular, Black homeowners pay significantly higher mortgage interest payments, mortgage insurance premiums, and property taxes than their white counterparts do, a difference that accounts for more than half of the difference in retirement savings between these two groups. Similarly, Latinos are far more likely than the general population to be employed as contingent workers—the self-employed, part-timer workers, and those employed by temporary staffing—that are ineligible for benefits that help the general population save for retirement.

All of these structural factors contribute to the reality that Black and Latino Millennials face especially precarious futures when it comes to financing retirement. (For brevity, this section summarizes results for Latinos, though Black Millennials are in very similar circumstances. Please see the Appendix for more detailed analyses of both groups). One way in which this reality manifests is that Latino Millennials are saving significantly less than Latino Baby Boomers were at the same age (1.5% of income versus 3.7%).

This slow start to saving indicates that Latino Millennials are projected to experience significant shortfalls between what their expected annual retirement savings payouts are likely to be and their non-discretionary expenses. Social Security payouts will make up some of this difference, but these individuals will still likely need to find supplemental resources in order to cover their non-discretionary expenses. If these individuals are unable to find supplemental sources of income and are forced to withdraw from their savings at a higher than recommended rate in order to cover their expenses, they are expected to run out of funds at age 75, more than a decade before the Millennial life expectancy of 87. Each year that an individual spends in retirement without sufficient funds to cover their expenses creates an additional strain on family members and means-tested assistance programs such as Medicaid, Old Age Pension, Home Care Allowance, Low Income Energy Assistance, and others.

Longer lives exacerbate the precarious state of retirement readiness
Estimating life expectancies is a complicated task with several different approaches, but by any measure chosen the overall conclusion is clear—younger generations are expected to live longer than older generations. Whenever an assertion is made regarding life expectancies, it is important to understand the nuances behind this topic and how they can produce varying results depending on the method chosen. The table below presents life expectancies at birth (i.e., the age newborns of each generation can expect to live to) and life expectancies at age 65 (i.e., the age members of each generation can expect to live to once they have reached 65 years of age). Life expectancies at birth will be lower than life expectancies at age 65 because

individuals who die before turning 65 will bring down the average lifespans used to calculate the former measure.

The other nuance to consider is whether the life expectancies being presented are based on period or cohort calculations. Period calculations use mortality rates from a single year and apply those rates throughout the rest of an individual’s life, while cohort calculations factor in the fact that mortality rates for specific age groups will change over time.\(^9\) For example, consider the case of a newborn in the year 2000. The period life expectancy for this individual would assume that they would have the same odds of surviving their 70\(^{th}\) year as a person who is 70 years old in the year 2000. The cohort life expectancy for this same individual, on the other hand, would attempt to estimate the odds of this individual surviving their 70\(^{th}\) year in the year 2070. Cohort life expectancies therefore tend to be higher than period life expectancies because they attempt to factor in advances in healthcare, while period calculations are more “conservative.”

Table 1: Cohort life expectancies by generation. Source: Social Security Administration\(^10\)

<table>
<thead>
<tr>
<th>Generation</th>
<th>Starting Birth Year</th>
<th>Ending Birth Year</th>
<th>Life Expectancy at Birth</th>
<th>Life Expectancy at 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby Boomers</td>
<td>1946</td>
<td>1964</td>
<td>75.5</td>
<td>84.7</td>
</tr>
<tr>
<td>Generation X</td>
<td>1965</td>
<td>1980</td>
<td>78.3</td>
<td>86.0</td>
</tr>
<tr>
<td>Millennials</td>
<td>1981</td>
<td>1996</td>
<td>81.0</td>
<td>86.9</td>
</tr>
</tbody>
</table>

While these improvements in life expectancy may appear modest at first glance, it is important to remember that these capture the average number of years of life individuals can expect, and that averages can hide important developments occurring at the periphery. The average life expectancy in the US may not be growing rapidly enough to radically alter individuals’ retirement planning, but the number of people living to ages 95 and 100 is growing significantly, which could impact how people approach retirement.

Trends in this concept known as survivorship indicate that individuals should be increasingly taking seriously the possibility of living through their mid and late 90s, and planning their retirement accordingly. The figure below summarizes how the number of individuals per 100,000 surviving to ages 95 and 100 has been growing significantly between Baby Boomers, members of Generation X, and Millennials. For each group of 100,000 Baby Boomers, there are expected to be 1,511 individuals surviving to age 95—contrast this with Millennials, who are expected to have 5,043 individuals surviving to age 95 out of each group of 100,000. That means that Millennials are over three times as likely as Baby Boomers to survive to 95. The difference between the generations becomes even more pronounced when considering survivorship to 100. For each group of 100,000 Baby Boomers, there are expected to be 199 survivors at age 100—Millennials are expected to have 1,150 individuals surviving to age 100 out of each group of 100,000. Millennials are therefore nearly five times as likely as Baby Boomers to survive to 100.

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Figure 2: Number of survivors per 100,000 at ages 95 and 100 by generation. Source: US Department of Health and Human Services\(^{11}\)

New policies and practices

The results from the modeling exercise show that many individuals’ retirement prospects are being threatened on two fronts—they are falling behind the recommended savings levels for a traditional retirement, and there are growing numbers of people who will run out of retirement savings as they live past the life expectancies used to build the traditional retirement models. A great deal has changed since Social Security was first established in 1935—at that time, life expectancy was just under 60 and 64 for men and women, respectively. Since then, life expectancy has grown by more than 2 decades, and greater proportions of the population are surviving to retirement age. Policymakers and other stakeholders will therefore need to think creatively about new policies and practices that can be used to help individuals facing these circumstances plan ahead for a changing retirement landscape.

One way in which these individuals can be supported is through initiatives that improve the opportunities to choose to continue working until the age that fits their unique needs and circumstances. Ensuring employment opportunities throughout individuals’ 50s, 60s, 70s, and beyond will help them continue to grow their retirement savings and delay withdrawals as long as possible. Such initiatives could include:

- **Funding for continuing education**: Policies that make it easier for individuals to return to school throughout their work lives can give individuals the opportunity to explore new careers and/or opportunities to generate income at later stages of their lives.

- **Funding for upskilling and training**: Policies or programs that make it easier for individuals to get a skills tune-up or specialized training that allows them to move into 21st century jobs that likely require a better understanding of technology or expertise in unique industries (e.g. renewable energy) will have similar benefits for older workers’ career stability.

- **Public-private partnerships designed to create awareness of evolving lifespans**: There is an opportunity to promote programs that can help employers and older adults maximize potential benefits associated with longer lifespans. Such programs include:
  - Internships, apprenticeships, or returnships for older adults: The design, development and promotion of internships, apprenticeships or returnships for older adults may help those who have left the workforce and are returning or are considering changing careers.
  - ‘Contractor+’ work patterns: These arrangements allow older workers to undertake project-based contracts with some or all of the benefits offered to more traditional employees such as life and health insurance, access to training, etc.
  - Sabbatical programs: These programs allow older employees to take breaks to explore new career paths, enhance education, and have new life experiences that can ultimately improve worker health, avoid burnout, enhance productivity upon return, and help workers explore opportunities for securing additional sources of income.
  - Mentorship rotations pairing older and younger workers: Setting up rotations where younger workers are mentored by older workers helps to ensure that the valuable skills and experience of the older workers are adequately captured and passed along to a younger generation. These relationships also help to combat ageist attitudes that can lead to older workers being pushed out of working before they are ready.

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• **Direct grants and zero-interest loans for entrepreneurs**: Making it easier for interested individuals to strike out on their own and form their own businesses will allow for greater flexibility later in their lives if they decided to extend their careers.\(^\text{16}\)

Real-world examples of more comprehensive governmental programs that focus on the older adult worker include the following programs in Kansas and Singapore:

- **Older Kansas Employment Program (OKEP)**: Created by the Department of Aging, OKEP is funded by the Kansas legislature and is designed to provide employment placement services to Kansans 55 years of age and over, with emphasis on employment in the private sector. The program was first started in 1996; funding in FY 2019 was $502,500. The Kansas Older Worker Taskforce is created through charter with a 15 to 30-member committee that recommends and allocates the OKEP funding. In 2017, 2,432 older adults were served.

- **WorkPro – Singapore National Workers Federation (SNEF)**: The WorkPro scheme is jointly developed by the Singapore Ministry of Manpower (MOM), Workforce Singapore (WSG) and in consultation with the Singapore National Workers Federation (SNEF). It was introduced in 2013 and enhanced in 2016. Singapore has the second fastest aging population in the world after South Korea, and the global financial hub is growing more dependent on its older residents as birth rates fall and foreign labor is restricted. The program was designed to provide grants to incentivize actions focused on the older population with grant options entitled Age Management, Job Redesign, and Work-life. These grants focus on enhanced well-being and health, safety, and job redesign, with a significant focus on flexible work including flexi-place and flexi-load arrangements, as well as multi-generational workforces. More than 650 Singapore companies have received grants totaling up to $425,000 per company from WorkPro to augment local manpower, foster progressive and age-friendly workplaces, and strengthen the Singaporean core.

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Taking alternative paths to retirement

With it being apparent that so many groups of people are unprepared for retiring in their mid-60s—especially given the increasing odds that many of them will live to 100—it makes sense for individuals to start to consider new approaches to retirement, and for policymakers and employers to consider how to best support people considering these alternative paths. Consistently working for the same employer (or even remaining in the same professional sector) before fully retiring in one’s mid-60s is no longer a reality for large sections of the population. Saying that individuals will have to simply delay retirement does not get at the root of the issue, as many people face savings gaps that will likely be insurmountable even with an additional decade of working years—realistic solutions to these gaps should allow for flexibility in individuals’ lives and provide for stimulating means of extending their working lives.

This section of the paper presents the life experiences of two hypothetical Coloradans—Osita and Fariha—as they follow a path to retirement that is more complicated than the traditional education-work-retirement pipeline. Their retirement prospects as they weave in and out of various life scenarios are estimated using the same data and models explored previously in order to illustrate how new ways of approaching career development can leave people better prepared for retirement.

Osita changes careers and starts his own business

Osita is a 25 year old Black Millennial in the year 2020 who has been struggling to make ends meet in the midst of the COVID-19 pandemic. Prior to the pandemic, his main source of income came from working as a server in a restaurant—since the pandemic forced his former employer to shut down, he has delivered restaurant food and groceries on several freelancing apps. His total income during this time period comes to $14,533 per year (the median income for a Millennial low-wage worker at this age modeled from BLS CE data), and he has not been able to save any of this income for retirement.

It is not surprising that Osita has been unable to save for retirement, given that his income actually falls short of what his non-discretionary spending is expected to be given his circumstances.

Figure 3: Osita’s progress toward covering $14,890 of non-discretionary expenses with annual income of $14,533. Source: Colorado Secure Savings Plan Board

Osita returns to school
In his early 30s, Osita starts studying for a degree in medical coding—he continues to freelance in the gig economy to cover his living expenses during this time period, and he takes out a series of federal student loans in order to cover tuition and other expenses. He graduates with a sizable amount of debt, but he finds the Public Service Loan Forgiveness Program to be an attractive means of managing this debt, and he is able to find a position at a 501(c)3-registered clinic in Denver. The starting pay is at the lower end of the spectrum for this type of work—$36,816\(^{18}\)—but he is able to go on the Income Based Repayment plan to keep his student loan payments down to 10% of his income and earn credit toward loan forgiveness.

With living expenses and student loan payments, his living situation remains tight, and he is only able to save 2.8% of his salary (the median amount of Black individuals in this generation and age group). This situation continues for the next ten years as Osita maintains steady employment but only receives modest raises and is unable to save a larger portion of his income. After returning to school and increasing his income through gaining a specialized skill, he is able to start making some progress toward saving for retirement, but he is still severely behind recommended levels.

**Figure 4: Osita's actual savings balance between the ages of 25 and 43 versus target savings balance based on income**

Student loan forgiveness enables increased saving
After ten years of faithfully making payments on the Income Based Repayment plan, Osita has the remaining balance of his loans forgiven. He now has an additional 10% of his income freed up with no corresponding increases in expenses, which he is able to put toward his retirement savings. He is now saving 13.5% of his income each year, which is just under the 15% recommended by Fidelity Investments. Nonetheless, he is still significantly behind what he would need to save in order to make up for his late start.

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\(^{18}\) Average Entry-Level Medical Coder Hourly Pay in Denver, Colorado. (n.d.). PayScale. Retrieved October 12, 2020, from [https://www.payscale.com/research/US/Job=Medical_Coder/Hourly_Rate/64d94683/Entry-Level-Denver-CO](https://www.payscale.com/research/US/Job=Medical_Coder/Hourly_Rate/64d94683/Entry-Level-Denver-CO)
Osita returns to the gig economy as an independent consultant

By age 49, Osita has accumulated 15 years of experience in medical coding, and has developed an interest in the systems and theories that lie behind streamlining this process for organizations. He decides that he wants to explore this interest further, and decides to offer his services as an independent consultant to clinics and other organizations in the area that want to improve their medical coding practices. He takes advantage of a zero-interest small business loan offered by the state of Colorado designed to encourage entrepreneurs in order to establish himself as an independent contractor, and since he no longer has to commute into the office everyday he moves to Colorado Springs to save on expenses.

Osita finds that his time working as a freelancer when he was younger serves him well in this new path of working independently, and he is able to reduce his living expenses while maintaining income levels close to those he had before setting out on his own. He is able to take advantage of his decreased expenses and increase his retirement savings rate, which helps him close the gap from his ideal savings levels somewhat.

Figure 5: Osita’s actual savings balance between the ages of 25 and 65 versus target savings balance based on income
Osita takes a phased approach to retirement

Osita is able to maintain this business and even manages to grow it to the point where he is employing a handful of additional staff. He finds the work engaging, which, combined with his earlier financial instability, causes him to not even consider retirement until he turns 70 years old. At age 70 he has managed to save $314,623—substantially better than his Black peers (~$23,000) or the population as a whole (~$93,000), but still far short of the recommended $629,240.

He decides to take advantage of his self-employment to slowly draw down on the number of hours he spends working each week throughout his 70s through a combination of shifting more responsibilities to his employees and simply easing up on professional commitments. He does have to reduce his savings rate as his income decreases, but he is able to continue making modest contributions and is at least able to delay withdrawing from his savings until he turns 80.

Figure 6: Osita’s actual savings balance between the ages of 25 and 80 versus target savings balance based on income

This period of partial retirement means that Osita’s retirement savings are likely to last until he turns 99. Living this long may seem like a remote possibility, but male members of Osita’s generation have a 6.1% of living to 100 once they reach 65, which is slightly more than double the 3.0% chance male Baby Boomers have.¹⁹

The figure below shows what Osita’s post-60s retirement balance looks like compared to what it would have been if he had hit recommended savings targets and retired in his mid-60s (purple), and what it would have been had he retired in his mid-60s with the balance he had actually managed to accumulate (light green).

**Figure 7: Osita’s savings balance after 65 compared to what it would have been if he had hit recommended savings targets and if he had decided to embrace full retirement at age 67**

Osita having the opportunity to continue saving after his mid-60s, even if at a slower rate, and slowly easing up on his work responsibilities and income leaves him much better equipped to finance a longer lifespan than either the target scenario or traditional recommendations. He is also fortunate to enjoy relatively good health, with no major healthcare-related expenses coming up unexpectedly. If Osita fully retired in his mid-60s and withdrew the recommended 4.5% of his final balance each year (adjusted for inflation), he would run out of funds before his 93rd birthday. It’s true that he would enjoy a much higher standard of living during that time period if he had hit recommended savings targets (as opposed to having to work with his actual balance), but unless he had the foresight to stretch that balance over an extended period, he would run out of funds with many years left of retirement to finance.

The actual path that Osita followed leaves him much better prepared to make sure his savings last an extended period while still maintaining a consistent quality of life. No guide to retirement assumes that all expenses are covered by savings withdrawals, with a general rule of thumb being that withdrawals from retirement savings should replace 45% of pre-retirement income, with other resources such as Social Security making up the difference. This 45% rule of thumb can be used to estimate the total amount of retirement funding that Osita will have available each year after retiring, which can then in turn be compared to the estimated post-retirement spending for individuals making Osita’s final income.

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These estimates reveal that Osita is well-positioned to finance his retirement without significant sacrifices to his quality of life. He is estimated to have $36,000 in retirement resources available per year, just under his expenses of $37,000. He would have been in better shape if he had reached the recommended 10x his income before retiring, but as previously discussed, even hitting this target would be no guarantee that his savings would last late into his 90s without careful budgeting.

Overall, while Osita was never able to fully make up for his late start building up savings for retirement, he was able to make enough of a recovery that he will be provided a degree of security throughout his late 90s. This recovery was made possible by being able to return to school and start a new career in his 30s, as well as being able to build a small business that allowed him to ease his way into retirement.
Fariha enjoys support from her employer in order to gain new experiences and ease her way into retirement

Fariha is a 56 year old working in accounts receivable earning $68,377 (the median income for Denver\(^{23}\)) and at this stage of her life she has managed to save $233,818 for retirement (the median retirement savings balance for Baby Boomers at age 56 as calculated from BLS CE data). While this puts her in a position to be better prepared for retirement than many, she is still significantly behind the recommended 7x her annual salary by this age.

**Fariha gets a wake-up call after a financial wellness check**

Fariha had long been aware that she was falling behind on her savings, but the reality of the situation didn’t set in until her employer began rolling out retirement readiness and financial wellness checks for their staff. After creating a new budget, she is able to increase her savings rate to 33%, allowing her to make significant progress toward making up this shortfall in the coming years.

![Figure 9: Fariha’s actual savings balance compared to target savings balance from ages 56 to 60.](image)

**Taking a teaching sabbatical uncovers new interests and a new source of income**

Given her savings deficit, Fariha starts to make plans to continue working past her mid-60s. Luckily, Fariha is fortunate enough to work for a company that has embraced novel strategies to help their staff prepare for the changing retirement landscape. She is excited about her employer’s “contractor+” program, which will allow her to continue to take advantage of her employer’s benefits package while being able to come on for shorter assignments, as opposed to working full time. This option appears to be an attractive means for easing into retirement while slowing the rate at which she has to withdraw from her savings, but she is still concerned that she will quickly lose motivation if she continues the same type of work that she’s been engaged in for many years.

Luckily, this concern has been built into her employer’s retirement readiness program, which includes accommodations for long-term employees who are interested in taking sabbaticals for public service and career exploration. Fariha therefore decides to take a one-year sabbatical to teach at a nearby business college. She has to reduce her income during this year, but she is able to step back into her old position and

\(^{23}\) Data USA: Denver, CO. (n.d.). Data USA. Retrieved October 12, 2020, from https://datausa.io/profile/geo/denver-co/#:~:text=In%202018%2C%20Denver%2C%20CO%20had,%2468%2C377%2C%20a%204.83%25%20increase
enjoyed the experience of teaching enough that she continues to teach part-time, thereby increasing her income and savings rates upon her return.

Figure 10: Fariha’s actual savings balance compared to target savings balance from ages 56 to 64.

Transition to contractor+
Upon turning 65, Fariha decides to take advantage of her employer’s previously described “contractor+” working arrangement, and slowly starts to draw down her working hours at her employer while continuing to teach part time. This allows her to continue to grow her retirement savings balance (albeit at a slower rate as her income decreases) well past the traditional retirement age. Each year she reduced the number of hours she works as a contractor+, before fully retiring at age 80.

Figure 11: Fariha’s savings balance after 65 compared to what it would have been if she had hit recommended savings targets and if she had decided to embrace full retirement at age 67.
Much like Osita, Fariha benefits from having a period of time where she gradually eases into retirement so that she can both continue to make contributions to savings and delay withdrawal from those savings. Since she had less of a deficit to recover from than Osita, this new approach to retirement actually gets her closer to the target savings balance of 10x annual income by the time she enters full retirement. This leaves her well equipped to finance an extended retirement with ample resources to finance her expected expenses.

*Figure 12: Estimated retirement funding available in various scenarios versus post-retirement expenses*

This improved retirement outlook was made possible thanks to Fariha having an employer that understood the importance of supporting their employees as they planned for the future, the impact that lifespans that extend past traditional models could have on their circumstances, and the high return on investment that comes with programs that keep older adults in the workplace. Fariha first realized that she needed to shift her focus more toward retirement after an employer-sponsored financial check-up. Her employer allowing her a sabbatical in turn gave her the chance to explore a new means of support—teaching—which would help keep her income and mental stimulation up as she worked past her mid-60s. Finally, her employer’s “contractor+” program gave her additional flexibility to continue to earn and save without committing to the same full time position she’s worked for many years. While Fariha clearly benefitted from her employer’s forward thinking when it comes to retirement, her employer in turn benefitted from the knowledge and expertise she was able to bring to her projects, as well as the experience she was able to impart onto her younger colleagues.\(^\text{24}\)


\[\text{https://hbr.org/2019/09/the-case-for-hiring-older-workers}\]
Conclusion

It is clear that many individuals are confronting two factors that are significantly threatening their ability to finance their retirement—insufficient balances in retirement savings accounts that fall short of expert-recommended levels throughout their working years and the increasingly good odds they have to outlive the ages used in building traditional retirement models. The consequences of retirement savings shortfalls caused by either factor can be profound—individuals facing such situations may have to severely restrict the quality of their lifestyles and/or rely on support from family members, which has the risk of passing financial insecurity down through generations. They will also likely increase the strain on state-funded assistance programs, with one analysis suggesting that insufficient savings could lead to an additional $1.53 billion in state expenditures in Colorado by 2035.25

The situation for individuals is not hopeless, however, as demonstrated by the career paths of the fictional personas of Osita and Fariha. If individuals are given resources to better understand their financial health, explore ways to develop their career in novel ways, and are supported if they choose to explore opportunities to work longer, it is possible for them to greatly improve their retirement prospects all the way up to age 100, even if they do not manage to quite make up for savings shortfalls from earlier in their lives.

This is therefore a critical time for legislators, policymakers, employers, leaders of the community, and anyone with an interest in building a better future for everyone as they grow older to understand what sorts of policies and practices can be put into place to help individuals make up savings deficits and prepare for longer lives. Our traditional conception of retirement was developed many decades ago, when life expectancies were significantly lower than they are today, and larger proportions of the population are living to their late 90s than ever before—any effective approach to retirement must therefore be updated periodically with these changes in mind. If well-designed and accompanied by policies that allow workers to keep their stimulation levels high, the possibility of working longer in order to finance extended retirement periods can become more of a choice for individuals rather than a grim financial necessity. The popular uptake of alternative career paths that increase the financial stability of individuals approaching retirement ages will benefit the individuals themselves, their families, and society as a whole by decreasing the strain on resources that have to step in when savings fail to last a person’s entire life post-retirement.

Appendix – Detailed results of modeling exercise

Methodology and Results from Group 1: Individuals with median incomes and hitting recommended savings targets

The first analysis considers the retirement experience of a group of individuals with median incomes who have managed to hit recommended savings targets throughout their pre-retirement careers, and uses this first group to describe and illustrate the methodology used to model the remaining groups. Note that this section does not assess the typical retirement readiness of individuals, as it examines what their prospects would be if they managed to hit these savings targets—this is not the case for most individuals. Instead, this section evaluates the adequacy of traditional savings plans in the context of increased likelihoods to live past 93.

Modeling income and retirement savings across generations

The model used in this paper is built on data from the Bureau of Labor Statistics (BLS) Consumer Expenditure Survey (CE), which provides data on income, expenditures, and demographic characteristics of individuals in the United States.26 As a general principle, the model uses summary statistics to describe household income and savings for a particular age and generation (with age, generation, and other demographic characteristics corresponding to those of the reference person set by BLS). If data for a given age and generation do not exist yet (e.g., there are no 50 year old Millennials as of 2020), the model takes the most recent available data and extrapolates by assuming that they will follow a path similar to that of the Boomers, the generation for which the most complete dataset exists. Assuming that younger generations will follow a path similar to Boomers is a simplifying assumption, and it is likely that changing economic and social conditions will result in Millennials and members of Generation X having much different experiences. These results should therefore not be considered forecasts, and should instead be read as generally plausible scenarios that these younger generations could experience.

To illustrate, consider what the model reveals about what each generation’s expected income27 is at various ages. The Boomer curve consists of the actual median household income for each age and generation combination in the BLS CE dataset. The oldest Millennials and members of Generation X in the dataset are 37 and 53, respectively, so each data point up to those ages is a median of actual BLS CE data, while the data points after those ages are estimated assuming that their incomes will follow a path similar to the Boomers. All of the analyses produced by the model follow this general principle.

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27 Income as defined in the BLS CE includes income from wages as well as other sources, such as returns on real estate investments and public assistance.
It is worth noting that the BLS CE data suggests that incomes tend to increase with age until they level off in the mid-40s, and that a notable decline starts in the early 50s and continues up to 67, the full retirement age in order to collect full Social Security benefits for individuals born in 1960. This is consistent with research showing that 56% of workers experience an involuntary separation after age 50, and that only 10% of these workers will ever earn as much per week after their separation as before.  

**Recommended retirement savings levels from financial experts**

The analyses presented here will frequently reference the recommended retirement savings balance for a particular age—these recommended balances are based on income and the savings factors established by Fidelity Investments, as summarized below.

Figure 14: Recommended savings targets by Fidelity Investments

<table>
<thead>
<tr>
<th>Age</th>
<th>Savings Target as Multiple of Current Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>1x</td>
</tr>
<tr>
<td>35</td>
<td>2x</td>
</tr>
<tr>
<td>40</td>
<td>3x</td>
</tr>
<tr>
<td>45</td>
<td>4x</td>
</tr>
<tr>
<td>50</td>
<td>6x</td>
</tr>
<tr>
<td>55</td>
<td>7x</td>
</tr>
<tr>
<td>60</td>
<td>8x</td>
</tr>
<tr>
<td>67</td>
<td>10x</td>
</tr>
</tbody>
</table>

This approach to retirement assumes that an individual will withdraw 4.5% of the final savings balance each year of retirement, adjusted for inflation. It also assumes that the individual needs to replace 45% of their final income in order to maintain their standard of living, with the remaining income coming from Social Security or other sources. Individuals will need to save approximately 15% of their annual income in order to meet these targets.

Applying these recommendations to the estimated median incomes previously discussed produces the recommended savings levels shown below. Note that Fidelity Investments assumes a constant annual growth rate of 1.5% for income, while the model incorporates the decrease in income that workers over 50 commonly experience. An individual matching Fidelity Investment’s assumptions would therefore have a smoothly increasing curve rather than the more variable curve produced by the model.

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This model assumes that individuals start withdrawing from their savings when they fully retire at age 67, which coincides with the full retirement age defined by Social Security for individuals born in 1960. Each year they withdraw 4.5% of their final balance, adjusted for inflation. By following the recommended withdrawal amounts set by Fidelity Investments, all of the generations will run out of savings by age 93, as the model was designed.

This standard retirement model therefore appears to be sufficient for most Baby Boomers, members of Generation X, and Millennials. The picture changes, however, once one considers the concept of survivorship that was previously introduced. While planning to age 93 makes sense for many, the fact is that 1.5% of Boomers, 2.8% of Generation X, and 5.0% of Millennials need to plan for 95, and 1.2% of Millennials need to plan for an additional 7 years to take them to 100.
Group 2: Individuals with median incomes and savings rates

In reality, retirement savings rates fall far short of recommended levels

In reality, people are saving far less than the levels required to hit recommended targets for their savings before retirement. To achieve the savings milestones recommended by Fidelity Investments, individuals should be saving 15% of their annual income starting at age 25. An analysis of CE survey data reveals that the median savings rate consistently remains less than half that amount throughout individuals’ lives. While the median savings rate tends to increase with age, even at 67 years of age the savings rate is only 5.6%.

Figure 16: Median retirement savings rate by age. Source: BLS CE, 1990-2018

The savings gap appears to be a larger problem for Millennials. While individuals between the ages of 28 and 37 tend to save less than their older peers, Millennials are still saving at a lower rate than members of Generation X and the Boomers were at this same age.

Figure 17: Median retirement savings rate for individuals aged 28-37. Source: BLS CE, 1990-2018
This slow savings rate among individuals may be the result of a variety of factors. Millennials are carrying higher student loan balances than older generations did at this age\(^\text{31}\), and employer matching programs that help grow savings have declined over time.\(^\text{32}\)

This savings behavior suggests that each generation may be significantly falling behind recommended savings targets. If we apply the Fidelity target factors to the median incomes reported to the BLS CE and compare these target savings levels to what respondents reported as their actual savings balances, we can get a sense of the degree to which each generation is falling behind their target savings pace. The BLS only started collecting this data in 2013, preventing a study of the older generations’ behavior when they were younger, but the issue appears to be of universal concern.

Figure 18: Recommended retirement savings account balances compared to actual savings account balances reported to BLS CES, 2018 USD \textit{Source: BLS CES, 2013-2018}

Data related to the rate of retirement savings goes back to 1990, making it possible to model and estimate how the older generations changed their behaviors as they aged, which can then be used to predict how Millennials are likely to save. Assuming that Millennials and members of Generation X will follow a path similar to the one followed by the Boomers, and using existing data for these generations as starting points, we can estimate


what the final savings balance will be when individuals reach 67 (the full retirement age in order to collect full Social Security benefits for individuals born in 1960). Note that over time it appears that Millennials may come close to catching up to Boomers, and even surpass Generation X—nonetheless, all of the generations are expected to fall well short of recommended final savings balances by retirement age.

**Figure 19:** Modeled savings balance at age 67 compared to recommended savings balance at age 67, 2018 USD. *Source:* Model based on BLS CE, 1990-2018

<table>
<thead>
<tr>
<th>Generation</th>
<th>Median Modeled Savings Balance at 67</th>
<th>Median Recommended Savings Balance at 67</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby Boomers</td>
<td>$93K</td>
<td>$358K</td>
</tr>
<tr>
<td>Generation X</td>
<td>$90K</td>
<td>$393K</td>
</tr>
<tr>
<td>Millennials</td>
<td>$92K</td>
<td>$381K</td>
</tr>
</tbody>
</table>

Perhaps the most immediate way to understand how these savings shortfalls will affect the quality of individuals' lives is to convert each final savings balance to a monthly withdrawal amount and compare the expected monthly withdrawals to what they would be if an individual with a median income had managed to hit the recommended savings targets. These monthly withdrawals were estimated using the Fidelity Investments rule of thumb that each year an individual can withdraw 4.5% of their final savings balance, adjusted for inflation over time.

**Figure 20:** Modeled monthly withdrawals from retirement savings compared to monthly withdrawals if savings goals had been met, 2018 USD. *Source:* Model based on BLS CE, 1990-2018

<table>
<thead>
<tr>
<th>Generation</th>
<th>Expected Monthly Withdrawal from Savings</th>
<th>Recommended Monthly Withdrawal from Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby Boomers</td>
<td>$350</td>
<td>$1,341</td>
</tr>
<tr>
<td>Generation X</td>
<td>$339</td>
<td>$1,476</td>
</tr>
<tr>
<td>Millennials</td>
<td>$347</td>
<td>$1,427</td>
</tr>
</tbody>
</table>
In addition, these savings balances are likely to be insufficient to the expenses that retired individuals are likely to encounter. A recent analysis commissioned by the Colorado Secure Savings Plan Board estimated annual expenditures by income for households headed by an individual over 65 years old. Comparing annual withdrawals from savings balances to just non-discretionary expenses reveals that each generation will have to cover approximately $24,000 in non-discretionary expenses (including healthcare, utilities, telecommunications, food, personal care, mortgage or rent, automotive costs, and clothing) from sources other than retirement savings.\(^3\)

![Figure 21: Annual withdrawals from savings compared to annual non-discretionary expenses, 2018 USD. Sources: Model based on BLS CE, 1990-2018. Colorado Secure Savings Board, 2020](source)

Group 3: Individuals working low-wage jobs

Unsurprisingly, falling short of meeting sufficient retirement savings levels is more likely to happen to people working low-wage jobs. This analysis uses the Colorado Fiscal Institute’s definition of “a low-wage job as one paying less than what a full-time worker who supports a family of four would need to earn to live above the federal poverty level.” Records from the BLS CE were therefore compared to the US Census Bureau’s Historical Poverty Tables and were flagged as “low-wage” if household income was below the poverty threshold for a family of four for that year. It is worth noting that this is not equivalent to flagging households at the federal poverty level—for example, a household with one individual who is at the poverty threshold for a family of four would be flagged as a low-wage record, but would not be considered as being beneath the poverty threshold in other contexts.

Median incomes for this subgroup tend to move more erratically with age, possibly due to the reduced sample size. Nevertheless, there is a clear downward trend in income throughout the whole age span.

Figure 22: Median income (modeled and actual) of low-wage households by age, 2018 USD. Source: Model based on BLS CE, 1990-2018.

While households at this income level are saving significantly less than the general population, the gap between the generations is even more pronounced, with Millennials and members of Generation X expected to fall well behind Boomers by the time they reach 67. Nevertheless, all 3 generations are expected to be significantly behind their savings goals, even in the face of their savings targets being much lower than those of the general population. It is worth noting that the model is actually somewhat optimistic since it assumes that households are able to save at the median rate of their income group each year—in reality, it is more likely that many households will simply skip saving some years, resulting in an even more severe gap.

Figure 23: Modeled savings balance at age 67 compared to recommended savings balance at age 67 for low-wage earners, 2018 USD. Source: Model based on BLS CE, 1990-2018

If these trends continue, Millennials and Generation X will only be able to withdraw less than $100 per month.

Figure 24: Modeled monthly withdrawals from retirement savings compared to monthly withdrawals if savings goals had been met, low-wage households, 2018 USD. Source: Model based on BLS CE, 1990-2018

For Millennials and Generation X, this will result in a shortfall of just under $14,000 per year, nearly the entirety of their expected non-discretionary expenditures.
For low income workers, these shortfalls compared to non-discretionary spending put their already precarious savings at even greater risk, as their lower lifetime earnings means that their Social Security payouts are lower and they are likely to have to withdraw their savings faster than recommended. An individual following the median income path of a Millennial in this group can expect to collect $11,344 per year\textsuperscript{36} at full retirement. Assuming that they cover their remaining non-discretionary expenses by withdrawing from their retirement savings, that means that Millennials in this group are likely to run out of savings by age before they turn 74, more than a decade before their life expectancy at age 65 of 86.90.

Group 4: Black Populations

**Black individuals face lower incomes that hamper their ability to sufficiently save**

Modeling the incomes of Black individuals based on BLS CE data produces results consistent with findings from the wider literature, with each generation earning less than the population as a whole.

**Figure 27:** Estimated median incomes by generation and age, Black households compared to overall population, 2018 USD. *Source:* Model based on BLS CE, 1980-2018

Black individuals of each generation are saving at a slower rate than the overall population, with the gap between Black Millennials and Black Baby Boomers being especially pronounced. Between the ages of 28-37, Black Millennials are only saving 1.7% of their incomes, compared to 2.5% for Black Baby Boomers at the same age.
These lower savings rates mean that Black individuals face large shortfalls when compared to their expected non-discretionary expenses, each generation being close to the same situation as low-wage Millennials.

This situation means that Black Millennials, the generation with the longest life expectancy, will likely need to withdraw from their savings at higher than recommended rates in order to cover their non-discretionary expenses, which will have them run out of retirement savings at age 80, many years before the Millennial life expectancy at age 65 of 86.9.
Figure 30: Black Millennials' modeled retirement savings balance over time. Sources: Model based on BLS CE, 1990-2018. Colorado Secure Savings Board, 2020
Group 5: Latino Populations

**Latino Millennials face the compound problem of lower savings rates and higher expenses**

Latino individuals also tend to earn less than the general population over their lifetimes, although Generation X comes close to catching up to the population as a whole in their 50s.

*Figure 31: Estimated median incomes by generation and age, households with Latino origin compared to overall population, 2018 USD. Source: Model of BLS CE, 1980-2018*

The generational savings gap remains pronounced for Latino individuals, with Millennials and members of Generation X saving significant less than their older peers did at the same age.
Latinos, like every other group analyzed, are therefore likely to experience significant shortfalls between their recommended savings withdrawals and their annual non-discretionary expenses. This is especially pronounced when compared to Black individuals, as Latinos tend to have higher incomes than Black individuals which therefore leads to higher predicted non-discretionary spending.

These higher expenditures imply that Latino Millennials may run out of savings rather early into retirement, only lasting to age 75.
Figure 34: Latino Millennials’ modeled retirement savings balance over time. Sources: Model based on BLS CE, 1990-2018. Colorado Secure Savings Board, 2020


