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## THE DECISION TO RETIRE: 3D CONCEPTUAL MODEL AND RESEARCH REVIEW

### Summary

The decision to retire has life-altering implications for finances, health, and well-being in later life. It is clear that advancing our understanding of the retirement decision process requires a holistic and integrative perspective that considers factors in all three domains.

The goal of this paper is to present a systematic framework for organizing, evaluating, and understanding the numerous factors involved in retirement decisions. This paper is designed for professionals, practitioners, and researchers who wish to understand the 3D Model of retirement decision-making in full detail.

A companion paper aimed at professionals and practitioners offers practical advice for improving the retirement decision process.

## Introduction and Overview

The decision to retire has life-altering implications for finances, health, and well-being in later life. As a result, researchers have devoted a great deal of attention to understanding how individuals make this critical decision (For a discussion, see Shultz & Wang, 2011). Past studies work traditionally focused disproportionately, if not exclusively, on how finances affect the decision to retire. But it is becoming increasingly evident that financial factors do not dominate retirement decisions. Indeed, many workers approach and enter retirement without sufficient savings, while some individuals delay retirement despite being financially prepared (Federal Reserve, 2013; Rhee & Boivie, 2015). Evidence also implicates the role of health and psychological factors, although the latter category has received disproportionately less empirical attention.

It is clear that advancing our understanding of the retirement decision process requires a holistic and integrative perspective that considers factors in all three domains. Attendant insights will guide and support the development of tools that can help individuals make informed and effective choices about when to retire, and will also inform practices by which employers can help with the transition process.

The goal of this paper is to present a systematic framework for organizing, evaluating, and understanding the numerous factors involved in retirement decisions. Because our focus is on individuals' decisions, we discuss situations only in which the employee has control over the timing and nature of their retirement, as opposed to being forced to retire via layoffs or workforce reductions.

This paper is designed for professionals, practitioners, and researchers who wish to understand the 3D Model of retirement decision making in full detail. In Section 1, we provide an overview of the 3D Model, which categorizes influential factors by domain and mechanism. In Section 2, we discuss (a) key factors within each domain; (b) demographic factors that directly and indirectly affect retirement decisions; (c) recent secular trends that enhance the salience and weight of certain factors over time; and (d) the moderating role of decision-making styles and competence. We conclude with a discussion of the key knowledge gaps within the existing literature and offer recommendations for future research.

A companion paper (Stanford Center on Longevity, 2016) aimed at professionals and practitioners offers practical advice for improving the retirement decision process.

## SECTION 1

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### The 3D Model of Retirement Decision Making

Based on a systematic review of the existing empirical research literature on retirement decision making, we propose a novel conceptual model of retirement decision factors. The 3D Model posits that retirement factors fall into three primary and semi-discrete domains, each of which invokes a specific question:

“Can I afford to retire?” (financial)

“Do I need to retire?” (health)

“Do I want to retire?” (psychological)

The 3D Model further categorizes decision factors based on the mechanisms by which they operate:

- Push factors are negative factors related to work (e.g., perceived ageism) that encourage individuals to retire, or negative factors that compel individuals to continue working (e.g., financial necessity or anxiety).
- Pull factors are positive factors related to the perceived benefits of retirement (e.g., valuing leisure time) that lure individuals to retire, or positive factors that encourage continued work (e.g., job satisfaction).
- Barriers are factors that prevent individuals from retiring (e.g., a lack of retiree health insurance).
- Enablers are factors that facilitate the retirement transition (e.g., Social Security and pension benefits).
- Triggers are temporal factors or events that serve to “tip” individuals over the edge from working to retirement, such as reaching age-related milestones (e.g., Social Security eligibility at age 62 or Medicare eligibility at age 65).
- Overriders are factors that dominate the decision to retire, independent of all other factors (e.g., devastating health shocks).

Note that, to date, push-pull terminology has been used to describe the terms that affect an individual’s decision to retire or not. In this paper, we’ve expanded the framework to also include factors that induce individuals to continue working.

As discussed in the following section, these mechanisms vary in terms of the relative impact or strength they have in the decision process. For instance, push factors are relatively weak compared to overriders.

The following table depicts how various factors fit into the context of the 3D Model. It should be noted, however, that this is not intended to be a complete list of factors but rather a representative sample of factors that previous research has identified as important. Section 2 provides an in-depth discussion of a broader range of factors.

## Factors Influencing the Decision to Retire

Domain			
Mechanism	Financial	Health	Psychological Well-being
<b>Push</b>	Economic recession	Poor personal health	Unpleasant or stressful work environment
<b>Pull</b>	Buyout package; early retirement features	Good personal health (although this can also be a pull factor to continue working)	Leisure valuation
<b>Barrier</b>	Insufficient savings; difficulty converting savings to retirement income	Need to pay for care of a family member; lack of retiree health insurance	Fear of social loss
<b>Enabler</b>	Pension; retirement work opportunities; retirement income program in DC plan	Retiree health insurance	Retirement readiness program
<b>Trigger</b>	Social Security eligibility; retirement plan eligibility	Medicare or retiree medical plan eligibility	Birth of grandchildren; retirement of friends and relatives; need to provide care to family member
<b>Override</b>	Layoff; job loss	Health shock	Family disruptions

Although the 3D Model categorizes factors by domain and mechanism, it shows that certain factors inherently transcend categories. For instance, health insurance coverage reflects both financial and health-related domains, emotions such as fear and anxiety are inherently psychological but can be induced by financial and/or health factors, and health shocks can act as triggers or overrides (depending on their severity).

The model also posits that factors vary in their scope; some factors, such as leisure attitudes, are entirely personal and controllable, while other factors, such as pension plans, are products of the environment and outside of workers' control. Other factors reflect both personal and environmental forces, such as job satisfaction.

In addition, the 3D Model maintains that retirement decisions reflect a broad constellation of factors within and across domains as opposed to individual factors. This central tenet is consistent with empirical evidence of direct linkages between psychological, health-related, and financial aspects of retirement (Shultz & Wang, 2011). As discussed in Section 2, this perspective emphasizes the importance of additive effects, whereby combinations of factors influence the odds of retirement as well as interactions, whereby the weight or mechanism of one factor depends on another factor.

Finally, the 3D Model posits that the extent to which a given factor influences the decision process depends critically on a number of personal characteristics, including demographic factors (e.g., gender, socioeconomic status, race, and ethnicity), personality traits, and decision-making styles (see Section 2 for discussion). For instance, men and women may be affected differently by caregiving obligations, while financial considerations are likely to have a greater influence on decisions among people who are highly conscientious and skilled in numeracy. Thus, the effect of a given factor on the decision to retire appears to vary from person to person, and we will highlight these individual factors above and beyond the 3D model.

## SECTION 2

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### The 3D Model: Decision Factors

At its core, the 3D Model acknowledges that many factors influence a person's decision to retire. In this section, we systematically review the factors within each domain (financial, health-related, psychological) and discuss some of the empirical findings that support and shape the model. We focus specifically on factors that quantitative research has shown to associate with and/or predict retirement decisions, intentions, and planning, as opposed to factors suggested only by anecdotal evidence.<sup>1</sup>

#### Financial Factors: “Can I afford to retire?”

Throughout much of the 20th century, retirement was conceptualized as a purely financial decision (for a review, see Shultz & Wang, 2011). Economic perspectives on the decision to retire assumed that individuals would retire as soon as they had enough savings to afford retirement, and considerable evidence indicates that individuals do take into account their current and projected finances when making the decision to retire (for a discussion, see Feldman & Beehr, 2011). Individuals appear to consider such personal financial factors as pre-retirement income, accumulated retirement savings, investment assets, and anticipated retirement earnings and income. Sufficient financial assets can serve as “pull” factors that induce employees to retire earlier, whereas insufficient assets can “push” individuals to continue working.

At the level of organizations, individuals also take into account potential income sources from employer retirement plans and pensions, which impact the likelihood and timing of retirement (e.g., H. Kim & DeVaney, 2005). For instance, generous pension benefits are historically associated with earlier retirement ages, and retirement decisions are tightly clustered around the triggers of pension eligibility milestones (e.g., Hardy & Quadagno, 1995; Mollica & DeWitt, 2000). Broadly speaking, financial incentives associated with retirement, including anticipated pension benefits, shape retirement intentions to a greater extent than health factors do, according to some analyses (Van Houtven & Coe, 2010).

At the societal level, Social Security benefits play a similar role in the decision to retire (Samwick, 1998). Social Security serves as a major source of income—if not the most important one—for the majority of retirees in the United States and provides a powerful age-related trigger in the decision to retire (Coile & Gruber, 2007; Helman et al., 2015). Prior to the introduction of Social Security, the rate of retirement steadily increased with age in later life; after its implementation, there was a dramatic increase in retirement rates at the “full” retirement age of 65 (Costa, 1998). Subsequent changes in the structure of Social Security also precipitated significant changes in retirement timing. For instance, the introduction of an “early” retirement age of 62 created an additional artificial spike in retirement (Coile & Gruber, 2007), while the increase in full retirement age from 65 to 66 resulting from the 1983 Social Security reform led to a modest increase in average retirement age (Behaghel & Blau, 2010). By contrast, increases in Social Security benefits during the 1980s contributed to a decrease in average retirement age (Anderson, Burkhauser, & Quinn, 1986).

<sup>1</sup>Anecdotal evidence and qualitative research suggests other factors may play a role (e.g., wanting to go “out on a limb”)

In addition to considering their personal finances, individuals making the decision to retire also appear sensitive to macroeconomic conditions and shocks. Throughout the 20th century, the average retirement age ebbed and flowed in response to labor market conditions, such as the unemployment rate (Bosworth, 2012; Gorodnichenko, Song, & Stolyarov, 2013), as older workers were “pushed” into retirement by the increased difficulty of re-entering the workforce after employment gaps (Flippen & Tienda, 2000). Economic shocks, such as the recessions that occurred in the 1970s and 2000s, had the opposite effect of delaying retirement for older workers, who suffered considerable losses to their retirement savings during these decades (Anderson et al., 1986; Gorodnichenko et al., 2013; McFall, 2011; Sass, Monk, & Haverstick, 2010). High interest rates appear to promote earlier retirement because they’re viewed by pre-retirees as enablers (Feldman & Beehr, 2011), whereas low interest rates may delay retirement decisions.

The availability and affordability of health insurance also looms large in retirement decisions. Individuals are more likely to retire (and do so earlier) when they have access to retiree health coverage plans through their employer or their spouse’s employer; this availability serves as a powerful pull factor (Blau & Gilleskie, 2001; Karoly & Rogowski, 1998; Mermin, Johnson, & Murphy, 2007). By contrast, workers who currently have employee health insurance plans—particularly more generous ones—delay retirement in order to retain these benefits (Dwyer, 2001; O’Rand & Farkas, 2002). In contrast, the lack of health insurance in retirement serves as a significant barrier in the decision process. In fact, more than 40% of older employees expect to work during retirement in order to maintain their health benefits (Pitt-Catsouphes & Smyer, 2005). It’s not surprising, therefore, that eligibility for Medicare at age 65 is a clear trigger for retirement (Coile & Gruber, 2007). Evidence also suggests that lowering the eligibility age to 62 would significantly increase retirement rates among workers who do not have access to employer-sponsored retiree health plans (Johnson, Davidoff, & Perese, 2003).

There is a great deal of debate among researchers over the amount of savings needed to retire comfortably and, consequently, over how many individuals are financially prepared to retire (for a review, see Munnell et al., 2014). At one end of the debate are optimistic models which propose that 84% of pre-retirees will be financially prepared when they reach retirement age (Scholz et al., 2006) or that 71% of current retirement-age individuals are financially prepared to retire (Hurd & Rohwedder, 2011). On the other end of the spectrum are pessimistic models that indicate that nearly half (45%) of households aren’t financially ready to retire at “full retirement age” (Munnell et al., 2012), underscoring a clear need for employers, financial institutions and governments to help workers understand the issues involving retirement preparedness.<sup>2</sup> Inconsistent advice surrounding financial preparedness also extends into the world of consumer finance, where one popular rule of thumb suggests that individuals should have at least 10 times their ending income in savings at the time of retirement (Fidelity, 2015) while another recommends 11 times income by age 65 (Aon Hewitt, 2014). And this uncertainty over the correct amount of retirement savings may influence the retirement decision in and of itself by elevating fear and anxiety among pre-retirees (see the discussion of emotional factors below). What is certain is that many individuals retire before age 65 despite having insufficient finances, while many others continue to work beyond age 65 despite having more than enough assets to retire comfortably (e.g., Federal Reserve, 2013). These trends underscore the reality that adequate finances are neither necessary nor sufficient pre-conditions for individuals to retire; non-financial factors must therefore play a role in the decision process.

<sup>2</sup> These inconsistencies reflect fundamental differences in statistical models and assumptions about whether individuals can adaptively reduce their spending.

## Health-Related Factors: “Do I need to retire?”

Individuals consider an array of health-related factors when deciding whether and when to retire, including their own physical, cognitive, and emotional health as well as the health and caregiving needs of their spouses (for a discussion, see Feldman & Beehr, 2011). In fact, Munnell and colleagues (2015) recently argued that health is the single most important factor in the retirement decision, with work-related, familial, and financial factors playing lesser roles. Substantial evidence indicates that individuals in relatively poor health are significantly more likely not only to retire but to retire at an earlier age than those who are in relatively good health (for a meta-analytic review, see Topa et al., 2009). According to some analyses, physical and mental health factors influence the retirement decision to a greater extent than financial factors (Dwyer & Mitchell, 1999; McGarry, 2004) and have effects above and beyond those of motivational factors such as job satisfaction (Topa et al., 2009). For example, individuals with chronic physical and mental conditions such as heart disease, cancer, Type 2 diabetes, and depression retire at significantly earlier ages than their healthy counterparts (Doshi, Cen, & Polsky, 2008; Karpansalo et al., 2005; McGarry, 2004; Shultz & Wang, 2007).

Not only do current health and chronic disease states affect the decision to retire, but acute health changes and shocks appear to alter existing retirement plans as well (e.g., Munnell et al., 2015). Individuals who experience declining physical health prior to their intended retirement age are significantly more likely to retire earlier than planned (Anderson et al., 1986), whereas heart attacks and new disease diagnoses predict the increased likelihood of retirement (Coile, 2004). The effects of poor health and health shocks on retirement appear to largely reflect corresponding impairments in functional status. In fact, individuals are significantly more likely to retire if their functional limitations worsen over time versus remain stable, while workers who experience health shocks without functional impairment are no more likely to retire (Dwyer, 2001). In addition to physical limitations such as hearing loss (Fischer et al., 2014), cognitive impairments such as memory problems may push individuals into early retirement (Colsher, Dorfman, & Wallace, 1988).

In addition to personal health, retirement decisions also reflect spousal health and caregiving needs. Whereas poor personal health engenders early retirement, however, poor spousal health often has the opposite effect on retirement plans (for a review, see Johnson & Favreault, 2001). Additionally, individuals are less likely to retire if their spouses retire due to health problems and/or have declining health relative to individuals whose spouses are healthy (Dwyer, 2001). By contrast, employees are significantly more likely to retire early if they provide caregiving to a family member, and in some analyses, the effect of caregiving on retirement significantly outweighs that of income and health (Denaeghel, Mortelmans, & Borghgraef, 2011).

While health has a significant effect on retirement decisions overall, the magnitude of the effect varies based on demographic factors. Gender differences are especially pronounced. For instance, men appear far more sensitive than women to personal and spousal health shocks (Garcia-Gomez et al., 2013; Van Houtven & Coe, 2010), heart attacks are more likely to induce retirement among men versus women (Coile, 2004), and some analyses indicate that women are unaffected by their husband's health (Garcia-Gomez et al., 2013). The effects of caregiving also appear to vary by gender; however, findings are inconsistent across samples and studies. For instance, some research supports the prevailing wisdom that women are more likely to retire due to caregiving obligations than men (Dentinger & Clarkberg, 2002). On the other hand, two studies indicate that men whose wives are ill and/or require caregiving are more likely to retire early than women whose husbands are ill and/or require caregiving (Denaeghel et al., 2011; Johnson & Favreault, 2001). Because studies examining the role of caregiving in retirement decisions are scarce, the extent to which caregiving weighs on the decision process remains ambiguous.

In addition to gender, socioeconomic status and age appear to moderate the effects of health on retirement. For instance, poor health is more likely to provoke retirement among wealthier individuals versus poorer individuals, who tend to become unemployed or go on disability rather than retire (Flippen & Tienda, 2000; Garcia-Gomez et al., 2013). Workers aged 70 and older are particularly affected by changes in health status (Haider & Loughran, 2001).

As illustrated above, there are several mechanisms by which health factors influence the decision to retire. Health can serve alternatively as a push factor (e.g., by increasing the burden of working), a trigger (e.g., sudden health shocks), an enabler (e.g., having sufficient health to work), or as a barrier to work itself (e.g., in cases of severe health-related impairments and caregiving obligations). For a narrow subset of the population, health plays a major, if not dominating, role in the decision to retire. But aside from individuals who are simply too unhealthy to work, health status has only a modest effect on the decision to retire.

## Psychological Well-being Factors: “Do I want to retire?”

Most traditional research on the decision to retire overlooked psychological factors in favor of financial and health-related factors, but in recent years, researchers have increasingly explored the role of attitudes and perceptions (for a review, see Shultz & Wang, 2011). This new wave of research has focused disproportionately on work-related factors (e.g., job satisfaction), devoted less attention to the role of retirement-related factors (e.g., leisure orientation), and largely ignored the role of broader psychological factors, such as emotions, decision-making styles and competence, and personality. As we discuss below, substantial research on judgment and decision making suggests that the latter factors have a great deal to contribute to our understanding of retirement decisions.

*Work-Related Attitudes.* The bulk of research on work-related factors has examined how job satisfaction influences retirement timing. Despite numerous empirical studies, however, results are inconsistent. Some studies find that high job satisfaction predicts delayed retirement (e.g., Gobeski & Beehr, 2009), others report the opposite effect (e.g., Davies & Cartwright, 2011), and yet others find no association between satisfaction and retirement decisions (e.g., Taylor & Shore, 1995). A recent meta-analysis by Topa and colleagues (2009) synthesized findings across the research literature and concluded that job satisfaction has no overall effect on retirement decisions but does have a moderate effect on retirement planning (higher job satisfaction was associated with less planning). These findings are consistent with the notion that the impact of job satisfaction on retirement decisions may depend on other factors. For instance, job satisfaction may have diverging effects on retirement among workers with sufficient versus insufficient savings.

Although job satisfaction doesn't systematically predict retirement decisions, specific work-related attitudes do appear to play a role. Research on these psychological push factors indicates that workers expect to retire earlier if they perceive their job conditions to be unpleasant (Hardy & Quadagno, 1995), including as a function of perceived ageism (Schermuly, Deller, & Busch, 2014; Thorsen et al., 2012; Volpone & Avery, 2013); if they feel alienated with their work and/or careers (Kilty & Behling, 1985); if they perceive limited opportunities for professional development (Thorsen et al., 2012); and if they expect future layoffs at their company (Mollica & DeWitt, 2000). Workers' self-perceptions of work-related motivations and abilities also predict retirement intentions, such that individuals anticipate earlier retirement if they feel tired of work (Beehr, Glazer, Nielson, & Farmer, 2000; Bidewell, Griffin, & Hesketh, 2006); if they perceive themselves as old relative to their peers (Cleveland & Shore, 1992); and if they believe they are underperforming and/or unable to keep up with the mental and physical demands of their job (Thorsen et al., 2012). By contrast, positive work-related factors serve to “pull” employees to work longer. Specifically, employees are more likely to delay retirement if they perceive their jobs as intrinsically motivating and rewarding (Gobeski & Beehr, 2009; Kilty & Behling, 1985); if they are satisfied with their social interactions and if they feel more involved, committed and loyal to their jobs and organizations (Davies & Cartwright, 2011; Sejbaek, Nexø, & Borg, 2013; Taylor & Shore, 1995; Topa et al., 2009).

The effects of subjective job attitudes on retirement appear to parallel the effects of objective job characteristics. For instance, jobs that impose greater physical demands, stress, and age discrimination are associated with the increased likelihood of retirement at earlier ages, whereas jobs that require social, cognitive, and technological skills are linked with later retirement ages (Angrisani et al., 2015). It should be noted, however, that in the United States, job attitudes and job characteristics play a much smaller role in retirement decisions than do health and finances.<sup>3</sup>

*Retirement Attitudes.* In contrast to the work-related factors that “push” individuals to retire, positive attitudes about retirement tend to “pull” employees into retiring earlier insofar as retirement represents a more desirable alternative to working (Topa et al., 2009). Workers who expect to retire at earlier ages tend to place greater value on and eagerly anticipate leisure activities and have greater confidence in their ability to adjust to retirement (Davies & Cartwright, 2011; Schmidt & Lee, 2008; but CF Taylor & Shore, 1995). Consistent with these findings, many retirees report that the desire to spend more time with family was a very important reason for retiring (Haider & Loughran, 2001). Evidence also suggests that individuals' personal intentions for retirement are particularly sensitive to their spouses' preferences and attitudes (Van Dam et al., 2009). For instance, 45% of women report that their husband influenced their decision to retire, although individuals tend to rate their spouses as having more influence over the decision than the spouses themselves report (Smith & Moen, 1998).

<sup>3</sup>By contrast, in the Netherlands work-related attitudes, perceptions, and social norms have such a significant impact on the decision process that they outweigh financial factors (Van Dam, van der Vorst, & van der Heijden, 2009).

*Emotions.* As illustrated above, existing models of retirement decision making assume that individuals evaluate the pros and cons of working versus retirement in a systematic and cognitive manner. But decades of research on behavioral economics and the psychology of decision making indicate that these types of complex decisions are highly susceptible to the influence of emotion (for a review, see Vohs, Baumeister, & Loewenstein, 2007). In fact, contrary to classical notions of emotions as being irrelevant and/or harmful to decision making, mounting evidence suggests that emotions are frequently beneficial to effective decision making and are arguably the “dominant driver of most meaningful decisions in life” (Lerner, Li, Valdesolo, & Kassam, 2015, p. 4).

Emotions serve as important goals and outcomes in decision making, driving individuals to optimize positive feelings and minimize negative feelings (Keltner & Lerner, 2010). Emotional states also have powerful effects on how individuals assess and choose among risky alternatives—even when the emotions themselves are irrelevant to the decision (Lerner et al., 2015). For instance, in one study, participants were induced to feel anxious by imagining a scenario in which they were awaiting news from their doctor that they might have cancer (Raghunathan & Pham, 1999). When they were subsequently asked in an unrelated questionnaire to make decisions among risky monetary gambles, they showed a stronger preference for relatively low-risk but lower-paying gambles relative to people who were in a neutral mood.

Emotions also serve as important markers of the subjective value of different choice options (Bechara, Damasio, Damasio, & Lee, 1999). How positively or negatively people feel about alternatives alters their perception of risk (Loewenstein, Weber, Hsee, & Welch, 2001) and ultimately guides their decisions (Slovic, Peters, Finucane, & MacGregor, 2005). For instance, when people are asked to evaluate different technologies that pose a mix of risks and benefits (e.g., nuclear power), the better they feel about the option, then the more weight they place on its benefits and the less risky they perceive it to be (Finucane, Alhakami, Slovic, & Johnson, 2000).

Because the decision to retire involves complex tradeoffs between uncertain outcomes and evokes considerable anxiety for many people (Fletcher & Hansson, 1991), there is little doubt that emotions play a critical role in retirement decisions. For instance, given the aforementioned link between anxiety and the preference for safe alternatives, it’s highly likely that individuals who experience greater financial worry delay retirement (i.e., a risky “unknown” option) in favor of working longer (i.e., the safe, “known” option). And because people hold inaccurate perceptions of their own financial preparedness (e.g., J. Kim, Kwon, & Anderson, 2005), it’s likely that many individuals who have sufficient savings delay retirement as a result of unwarranted anxiety over their finances. Identifying and alleviating these emotions may be a critical step in promoting adaptive decisions about retirement.

*Personality Traits and Decision-Making Styles.* The “Big 5” personality traits of openness, conscientiousness, extraversion, agreeableness, and neuroticism strongly predict the extent to which individuals will take risks (Nicholson, Soane, Fenton-O’Creevy, & Willman, 2005), how much they will avoid making major life decisions (Milgram & Tenne, 2000), and how well they will make high-stakes decisions with uncertain outcomes (Denburg et al., 2009). Broadly speaking, personality has been posited as an important factor in retirement decision making (Shultz & Wang, 2011), and emerging evidence suggests multiple pathways by which personality traits affect retirement intentions and timing (for a discussion, see Angrisani et al., 2013). Individuals who are highly conscientious expect to retire later (Löckenhoff, Terracciano, & Costa, 2009) and are more financially prepared for retirement in terms of both savings and knowledge (Hershey & Mowen, 2000; Hurd et al., 2012). The effects of conscientiousness on financial preparedness appear to be twofold: Highly conscientious individuals not only have more wealth than their low-conscientious counterparts, but they also appear to save at higher rates (Hurd et al., 2012). By contrast, individuals who are highly neurotic intend to retire earlier but are relatively unprepared financially (Hurd et al., 2012; Löckenhoff et al., 2009). It should be noted, however, that the associations between personality traits and retirement decisions are relatively modest compared to the effects of financial and health-related factors.

Complex decisions, including retirement choices, are affected not only by individuals’ personality traits but also by their decision-making styles (Bruine de Bruin et al., 2007). For example, some individuals rely more on “rational” information processing whereas others depend on “intuitive” gut feelings (Epstein et al., 1996); some individuals defer and/or delegate making decisions while others prefer to choose autonomously (Scott & Bruce, 1995); and some individuals habitually “maximize” by thoroughly

considering information in order to select the best possible option while others “satisfice” by striving for expediency in selecting an option that is “good enough” (Schwartz et al., 2002). And though decision-making styles have not been explicitly examined in relation to retirement decision making, it’s likely that these traits influence whether people engage with the decision at all or defer entirely, the process by which they make the decision, and their ultimate choices.

## Demographic Influences

Demographic characteristics such as age, gender, and socioeconomic status play a major role in the decision to retire (Shultz & Wang, 2011). Demographics have both direct effects, such that individuals with certain characteristics are likely to retire earlier versus later, and indirect effects, such that specific characteristics moderate the magnitude and/or consequences of financial, health-related, and psychological retirement factors.

*Age* is the most powerful demographic predictor of retirement decisions. When all else is equal, older individuals are more likely to retire than younger individuals (Coile & Gruber, 2007), whether as a direct result of “triggers,” such as reaching age-related milestones (e.g., Social Security or Medicare eligibility) or as an indirect result of age-related declines in health, cognition, and functional abilities. Spousal age also directly influences the retirement decision, such that husbands are significantly more likely to retire when their wives reach Social Security and Medicare eligibility age (O’Rand & Farkas, 2002), while individuals are less likely to retire if there is a significant age gap between themselves and their spouse (Denaeghel et al., 2011).

*Gender.* This factor has both direct and indirect effects on the retirement decision. For instance, women expect to (and typically do) retire at an earlier age than men (Mermin et al., 2007; Pienta & Hayward, 2002). They are also more susceptible than men to changes in macroeconomic conditions such as recessions and labor market shifts (Bosworth, 2012).

*Race and ethnicity.* Race- and ethnicity-based differences in retirement are well-documented and appear to result from minority disadvantages in health (Flippen & Tienda, 2000). Relative to whites, African-Americans and Hispanics are more likely to retire involuntarily and at earlier ages as a result of health-related functional impairment (Flippen & Tienda, 2000; Hayward, Friedman, & Chen, 1996; Pienta, 2003). For some minorities, the question of “Do I have to retire?” appears to outweigh questions of affordability and motivation regarding retirement.

*Family forms.* This factor has diverse effects on the retirement decision process. For instance, having children at home is associated with reduced likelihood of retirement (Pienta, 2003), whereas the birth of a grandchild can serve as a trigger for retirement (Lumsdaine & Vermeer, 2015). Generally speaking, married individuals tend to mirror their spouse’s retirement plans and decisions (Moen, Huang, Plassmann, & Dentinger, 2006; Parnes & Sommers, 1994) and typically retire at an earlier age than unmarried people (Mermin et al., 2007). This is especially true for couples who have high levels of marital satisfaction (Kubicek, Korunka, Hoonakker, & Raymo, 2010), which is thought to increase the allure of retirement.

*Socioeconomic status.* An individual’s occupation and education level are significant predictors of both the timing and type of retirement they will choose. For instance, white-collar workers generally retire later than their blue-collar counterparts (Flippen & Tienda, 2000; Haider & Loughran, 2001), partly because professional occupations impose less intense physical demands on people than manual labor does (Hill, 2002) and partly because white-collar female employees fear losing their social networks when they leave their jobs (Karp, 1989). Blue-collar workers not only retire earlier but are also more likely to experience involuntary retirement relative to professional and managerial employees (Shultz, Morton, & Weckerle, 1998). Similar trends are evident for educational levels, as higher-educated individuals tend to work longer than those with low education levels (Denaeghel et al., 2011), whether because of greater control over their schedules (Hill, 2002), higher resilience to economic shocks (Hacker, Rehm, & Schlesinger, 2013), and/or better health (Berkovec & Stern, 1991). In fact, some evidence even suggests that the effect of education on retirement is entirely explained by health, such that individuals with higher levels of education retire at later ages because they are in relatively better health (Flippen & Tienda, 2000).

## Decision-Making Competence

Research indicates significant differences between individuals in their decision-making competence (Bruine de Bruin, Parker, & Fischhoff, 2007), with important implications for the decision to retire. For instance, some individuals are highly skilled in numeracy and can easily interpret and process numerical information such as interest rates, some are more consistent in their perceptions of risk, and some are especially resistant to common decision biases such as framing and sunk cost effects (Bruine de Bruin et al., 2007). On the other hand, evidence suggests that financial illiteracy is rampant (for a review, see Lusardi & Mitchell, 2007) and that many individuals lack sufficient knowledge of basic financial concepts such as compound interest and inflation. Because of these inter-individual differences in decision abilities, it's likely that people vary in how much and how accurately they weigh different factors in the retirement decision process. For instance, individuals who are not highly skilled in numeracy are likely to be unmotivated and unable to accurately project their retirement incomes; they may subsequently rely on work- and retirement-related attitudes to guide their decisions.

## Secular Trends

More people now expect to work beyond age 70 and fewer people expect to retire before age 65 than at any time in the past 25 years (Helman et al., 2015). This secular trend in retirement expectations likely reflects underlying shifts in the factors that contribute to the decision to retire—in particular, dramatic changes in finance and health during the 20th and 21st centuries. Historical changes in financial factors include the dramatic shift in employer-sponsored retirement plans from defined-benefit, i.e., pension, to defined contribution structures, i.e., 401(k) plans (Gamble, Boyle, Yu, & Bennett, 2014); rising cost and complexity of healthcare (Kaplan & Porter, 2011); and historically low interest rates (Federal Reserve, 2015). More recently, the introduction of the Affordable Healthcare Act has removed the barrier of access to healthcare for many Americans but only partly mitigates the affordability barrier.

All of these trends are likely to increase the weight of financial factors and render decision-making competence more critical than ever. The upshot is that financial preparedness and security will be even more difficult to achieve than it already is, and many individuals will likely delay retirement as a result. There is already clear evidence that younger cohorts are less financially prepared to retire than older cohorts; this is because they will live longer in retirement but with reduced guaranteed income streams relative to their older counterparts (Munnell et al., 2012). These effects are likely to be compounded by phased changes to the structure of Social Security, including ongoing increases (through 2027) in the full retirement age that will delay a crucial trigger point, as well as declines in replacement rates (Munnell, 2015), which will decrease the pull of projected income streams in retirement. All of these factors have the effect of making retirement less affordable and more uncertain than ever.

At the same time, unprecedented increases in longevity over the past few decades mean that the average 65-year-old man now has a one in four chance of living at least 29 more years, while the average woman has the same chance of living an additional 32 years (Society of Actuaries, 2015). In other words, a substantial number of people who retire at the age of 65 will spend one-third or more of their lives in retirement. Consequently, individuals can retire later and still enjoy many years of leisure. But despite these dramatic increases in longevity over the past few decades, impairment and disability have remained relatively stable and chronic disease rates are, in fact, increasing (Freid, Bernstein, & Bush, 2012; Hung, Ross, Boockvar, & Siu, 2011). Nearly two-thirds of Americans over age 65 currently have multiple chronic conditions such as arthritis, diabetes, and heart disease (Ward, Schiller, & Goodman, 2014). Surprisingly, however, more than 80% of individuals age 65 - 74 report that they are fully capable of working, suggesting that they may not view sub-par health as an impermeable barrier to work (Lowsky, Olshansky, Bhattacharya, & Goldman, 2013). Employees who perceive themselves as physically capable of working may therefore choose to work longer or may feel forced to work longer for a variety of reasons: to remain engaged and continue social contacts, to improve their financial security in retirement, and/or to preserve affordable health benefits.

## Knowledge Gaps and Future Research Suggestions

Despite significant gains in our understanding of retirement decision making, important questions remain. First, the vast majority of research has examined the independent effects of factors within a single domain, such as how income and pensions predict retirement timing. Yet mounting evidence suggests powerful interactions between factors and across domains. For instance, the effect of income on retirement is moderated by demographic and psychological factors, for example, gender and leisure valuation, respectively (Bloom, Canning, & Moore, 2004; Denaeghel et al., 2011), and the impact of personality traits varies by gender and health status (Blekesaune & Skirbekk, 2012). But while these interactions between factors are compelling, they have received minimal attention in the research literature. As posited by the 3D Model, the three domains of factors influence the retirement decision process in tandem and in combination—rather than in isolation. Future research should carefully consider such interactions; such efforts will be essential to clarifying which factors apply across populations and which factors apply only to specific sub-groups.

In addition, existing research has typically conceptualized the retirement decision as a binary choice—i.e., work or retire—and focused on such outcomes as retirement intentions, planning, and timing (Wang & Shultz, 2010). Yet it is becoming increasingly evident that the decision to retire now involves a full spectrum of options, from full-time work to full-time leisure. As illustrated by the 3D Model, decision factors can increase or decrease the likelihood of work and/or retirement to varying degrees. In some cases, the net effect of competing push/pull factors may be to render intermediate options—i.e., neither full-time work nor full-time retirement—more compelling. Alternatives such as bridge employment, encore careers, part-time work, and volunteering are increasingly common and important paths for older workers, particularly in today’s economic climate. In fact, evidence suggests that bridge jobs now constitute the normative path from career jobs to full retirement for more than 60% of individuals, whereas abrupt and complete labor force exits are relatively rare (Cahill, 2012). Future research would benefit greatly from synthesizing the traditional focus on the temporal dimensions of retirement with analyses of the qualitative side, i.e., the “what” of retirement outcomes.

As illustrated above, there are many more open questions surrounding the impact of psychological factors than there are regarding finance and health (Topa et al., 2009). The effects of personality traits, gender, job performance, and joint decision-making (i.e., between spouses) have been proposed as important knowledge gaps for future research to address (Feldman & Beehr, 2011). And though there is much reason to believe that emotions and decision-making styles and competence play a critical role, empirical tests of these predictions are lacking.

Finally, the vast majority of research on the decision to retire infers whether factors affect the decision to retire based on the extent to which they correlate with and/or predict decision outcomes such as early versus late retirement. As illustrated above, this approach yields valuable insights into the wide range of factors that may well influence the decision, though it suffers from the caveat that correlational findings do not imply causation. On the other hand, a few studies have explicitly asked pre-retirees to report the extent to which various factors affect their decisions (e.g., EBRI Retirement Confidence Survey, Society of Actuaries Survey). This approach has the benefit of identifying factors that directly impact the decision, but it is constrained by the fact that people often have limited self-insight into their own thought processes (for a review, see Dunning, 2012). Ideally, future research would integrate these approaches into a simultaneous investigation of both implicit and explicit decision factors.

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## About the Center

The mission of the Stanford Center on Longevity is to redesign long life. The Center studies the nature and development of the human life span, looking for innovative ways to use science and technology to solve the problems of people over 50 in order to improve the well-being of people of all ages.

Working as a catalyst for change, the Center identifies challenges associated with increased life expectancy, supports science and technological research concerning those challenges, and coordinates efforts among researchers, policy makers, entrepreneurs, and the media to find effective solutions.

The Center was founded in 2006 by two of the world's leading authorities on longevity and aging. Laura Carstensen PhD, professor of psychology, is the founding director, and Thomas Rando MD, PhD, professor of neurology and neurological sciences, is deputy director. The Center received its initial funding from Richard Rainwater.

The Financial Security Division, directed by senior research scholar Martha Deevy, brings a unique interdisciplinary perspective to financial security issues facing our society by rethinking the perceived problems around population, focusing on retirement planning and the need to work longer. By understanding the role that research, education, and policy can play in solving these issues and looking at the problems from multiple perspectives, the division drives the dialogue forward in order to facilitate a healthier state of long-term financial security for the individual and society.