ABSTRACT

This paper critically appraises the literature on the impact of the risk of incurring out-of-pocket health-care costs, primarily long-term care costs, on the value of annuitization and the optimal annuity share of financial wealth. A limitation of the literature is its focus on unmarried individuals. Care costs affect the finances of the surviving spouse and likely substantially increase the optimal annuity share for married couples because Medicaid spousal protection rules favor annuitized over unannuitized wealth. Models excluding housing wealth also understate the optimal annuitized share because housing wealth can be liquidated to pay for care costs, which reduces the need to retain liquid financial assets. Annuities providing enhanced benefits when in long-term care will likely appeal only to the upper-middle class; for lower-wealth households, much of the benefit of long-term care insurance accrues not to the policyholder but to the government in the form of lower Medicaid outlays

THREE KEY TAKEAWAYS

- Theoretical models of the impact of care costs on the valute of annuitization focus on unmarried individuals. Couples will likely value annuitization more highly because annuities protect their assets from Medicaid.
- Theoretical models that disregard a family's house also understate the value of annuitization because the house can sometimes be used to pay for care costs, thus reducing the need to preserve liquid financial assets.
- Bundling annuities with long-term care insurance will be attractive only to households that are sufficiently wealthy to be unlikely to ever qualify for Medicaid.

HOW DOES THE RISK OF INCURRING OUT-OF-POCKET MEDICAL COSTS AFFECT THE VALUE OF ANNUITIES?

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INTRODUCTION

Out-of-pocket health-care costs and long-term care (LTC) costs are two of the largest financial risks faced by middle-class older Americans. This paper reviews the literature on the impact of those costs on the value of annuitization and the optimal share of financial wealth to annuitize. The paper also reviews a related literature that quantifies the amounts households might theoretically be willing to pay for annuities that provide enhanced benefits while they are in care.

The studies reviewed assume an unmarried person. This review argues that the findings of these studies are of doubtful applicability to married couples. The review contends that care cost risk will substantially increase the optimal annuitized share of financial assets of married couples due to the operation of Medicaid spousal protection rules. This review also contends that models that exclude housing wealth likely understate the optimal annuitized share because some households can use housing wealth to pay for care, which reduces the need for them to preserve liquid unannuitized assets.

The review finds that the purchase of annuity riders providing enhanced benefits while in care will likely be optimal only for the upper-middle class because, for those at risk of becoming eligible for Medicaid, the health insurance program for the indigent, much of the policy benefits accrue not to the policyholder but to the government in the form of lower Medicaid outlays.

The remainder of this paper may be summarized as follows. The first section outlines the magnitude of the risk of incurring out-of-pocket LTC costs and the extent to which social and private insurance protects against these costs. Section II provides a non-mathematical description of the life-cycle model that underlies all the studies, and shows how the

assumptions of the modeler can affect the findings of the model. The third section reviews the studies. Section IV proposes directions for future research, and the concluding section suggests lessons for households and their financial advisors.

I. THE RISK OF OUT-OF-POCKET COSTS AND THE ROLE OF SOCIAL AND PRIVATE INSURANCE

One recent study finds that, at age 65, men and women have, respectively, a 44 and 58 percent risk of ever needing nursing home care, with average lifetime care durations, conditional on ever needing care, of 0.88 and 1.44 years, respectively (Friedberg et al. 2014). In 2019 the median monthly costs of a semi-private room in a nursing home and of a home health aide were $7,513 and $4,385, respectively (Genworth 2019). Medicare, the health insurance program for older adults, generally covers the cost of only relatively short-term skilled care, following hospitalization.[1] Few households possess private insurance against LTC costs; although many middle-class households possess sufficient financial resources to pay for some private care, most end up having their care costs paid by Medicaid once their wealth is depleted (De Nardi, French, and Jones 2015).

Medicaid is subject to a means test based on both assets and income; it has reimbursement rate caps that limit access to non-Medicaid care, which is generally perceived to be of higher quality. An understanding of the Medicaid means test is critical to understanding the benefit of annuitization to middle-class married couples.[2] Unmarried individuals receiving nursing home care are required to contribute almost all of their income and assets to the cost of care. Rules governing home health care for unmarried people are only slightly less stringent. In contrast, spouses of Medicaid recipients receive some financial protection under Medicaid spousal protection rules. In 2020 spouses are allowed to retain financial assets of between $25,728

and $128,640, depending on their state of residence. The spouse is also allowed to retain income of between $2,213 and $3,216 a month (Medicaid 2020). Importantly, Medicaid accords immediate annuities the same treatment as Social Security and defined-benefit pensions. The income from the annuity is counted toward the income test, but the expected present value of remaining lifetime benefits is not counted toward the asset test. An unmarried individual returning from a nursing home to live in the community will continue to receive their regular annuity income; after the death of a spouse who was receiving care, a surviving spouse will continue to receive annuity income, assuming the annuity is either on the survivor's life or the joint lives of both spouses.[3]

A simple example illustrates the potential benefit of annuitization to a surviving spouse. Consider a married couple with Social Security benefits of $2,000 a month and annuity income of another $2,000 a month. The household incurs $100,000 in care costs for a year and is located in a state that permits the community spouse to retain financial assets of $128,640, and that has an income allowance (minimum monthly maintenance needs allowance) of $3,216 a month. The annuity cannot be liquidated, so no contribution to care costs would be required under the Medicaid asset test. But a contribution would be required under the income test because the $4,000 monthly income exceeds the $3,216 income allowance. The annual amount the household is required to contribute to Medicaid care equals $9,408 (12 times the $784 by which the household's income exceeds the monthly income allowance). For a married couple in their 70s, the expected present value of a $2,000 monthly annuity is around $240,000. So, a reasonable comparison might be with a household possessing $240,000 in unannuitized financial wealth that produces income of (say) $1,000 a month. No contribution would be required under the income test because the household's $3,000 monthly income is less than the income limit. But the asset test would result in the household being required to pay all of the $100,000 care cost out of pocket, because, even after spending

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$100,000, the household's remaining wealth of $140,000 would still exceed the $128,640 asset limit.

II. THE LIFE-CYCLE MODEL UNDERLYING THE STUDIES

All of the calculations of the value of annuitization and the optimal annuity share of financial assets are based on applications of the life-cycle model of wealth accumulation and drawdown. Solving these models is computationally challenging, so that it may not be possible to incorporate every relevant factor; a complex model might obscure as much as it enlightens, because it might be unclear which factor is driving the results. In this section, I describe the model and highlight areas in which the modeler's assumptions might lead to biased estimates of the value of annuitization and the optimal annuity share of financial wealth.

The model assumes households derive utility from consumption. In any given period, the value of a marginal dollar of consumption decreases as consumption increases; that value might also depend on marital status and on whether the members of the household are healthy, or receiving home health care, or in a nursing home, however. The goal of households is to maximize the expected present value of the lifetime utility of consumption. They achieve this goal by choosing how much to consume each period and how to invest their financial assets.

The modeler makes assumptions about (1) whether the household enters retirement as an unmarried individual or a married couple, annual mortality risk, and whether mortality risk varies with health status; (2) health-care and LTC cost risk and financial market risk; (3) the investment and annuitization options open to the household; and (4) household preferences, including the strength of the preference for non-Medicaid care. Preference parameters can be based on previous literature or elicited from surveys and experiments.

Model outputs are of two types. The first are financial decisions that maximize the expected present value of lifetime utility, and that determine the share of wealth used to purchase annuities. Second are estimates of annuity equivalent wealth, defined in the literature as the percent or dollar amount by which financial assets must be increased so that a household that is prohibited from purchasing an annuity is as well off as one that is

able to annuitize the optimal or a particular share of its wealth.

A potential concern with care costs is the treatment of correlation with mortality risk. If care costs are positively correlated with mortality risk, an individual in a household who receives the bad news that their health is worse than expected also receives the paradoxically good news that they are unlikely to live as long as expected, which reduces the need of households that have not annuitized to make financial provision for care costs and reduces the health-care cost disincentive to annuitization. But some models, such as Turra and Mitchell (2008), treat the two risks as uncorrelated.

The assumptions made regarding annuitization and investment options are sometimes problematic. Some models impose the assumption that households face a one-time annuitization option at retirement and that the only annuity on offer is an immediate annuity. Others allow households to purchase annuities at any age or to purchase deferred income annuities, an annuity purchased at retirement with income starting at some advanced age. The concern is that omitting preferred options may result in the value of annuitization being understated. Deferred income annuities and additional annuity purchases may be effective ways of financing care costs that typically increase with age because the excess return of annuities over equivalent unannuitized assets depends on mortality risk, which also increases with age.

Also important is the decision of whether to include housing wealth in the model. An unmarried individual who requires nursing home care can sell her house, reducing the need to hold liquid financial assets. But a married couple cannot do so if the non-institutionalized spouse chooses to age in place.

The modeler must decide whether to include the option to purchase long-term care insurance (LTCI). Annuitization may be more attractive to households with LTCI because care cost risk and the associated need to preserve liquidity have been taken off the table. But the literature shows that purchase of any amount of LTCI may not be optimal over much of the wealth distribution because (1) policies suffer from high expense loads, measured in terms of the lifetime share of premiums paid out as benefits; (2) much of the benefit accrues not to the policyholder but to the government in the form of lower Medicaid disbursements; (3) some policyholders lapse, forgoing premiums paid; and (4) pol-

icyholders face the risk of premium increases (Brown and Finkelstein 2007, 2008; Hou, Sun, and Webb 2015). Consequently, omitting LTCI likely only matters when modeling the optimal decision of households in the upper part of the wealth distribution.[4]

The assumptions regarding household preferences are also problematic. Models of the annuitization decision that exclude health-care costs and LTC costs (Brown and Poterba 2000; Mitchell et al. 1999) implicitly assume that the value the household places on an additional dollar of consumption does not vary with age. But in models including these costs, the modeler needs to specify how health-care costs contribute to utility. Although nursing home charges include lodging and meals, home health care does not substitute for other items in the household's utility function: no one can eat home health care. But the household might be willing to accept lower non-health-related consumption when receiving home health care and much lower non-health-related consumption when in a nursing home. This would be true, for example, if the household members have less opportunity to participate in recreational activities. The modeler also needs to specify the value the household places on higher-quality non-Medicaid care because that value will influence the household's decision as to whether to spend down wealth and accept the risk of ending up in Medicaid care, or to preserve wealth to pay for non-Medicaid care. The effect of Medicaid aversion on the value of annuitization is theoretically ambiguous. Medicaid-averse households will want to preserve liquidity because most households would be unable to pay care costs out of monthly annuity income, but most health-care costs occur at advanced ages and annuities are a particularly cost-effective means of financing consumption at such ages.

Finally, the modeler needs to specify the value the household places on consumption when both spouses are alive relative to when only one spouse is alive, and the intertemporal elasticity of substitution, the willingness to accept lower consumption in some periods in return for higher consumption in other periods. Both these parameters will determine the willingness of the household to accept lower consumption when both spouses are alive to secure consumption for the surviving spouse and thus the optimal level of a joint and survivor annuity.

III. THE RESULTS OF THE STUDIES

Even in the absence of LTC and other uninsured medical cost risk, households facing an uncertain date of death must restrict their spending to avoid the risk of exhausting their wealth. Annuities eliminate this risk, and permit households to consume wealth that would otherwise pass as an unintended bequest. An extensive literature has shown that, even at prevailing expense loads, annuities generally increase household financial well-being (e.g., Mitchell et al. 1999).[5] Importantly, the value of annuitization is lower for couples than it is for single individuals because couples pool longevity risk within the household (Brown and Poterba 2000).[6] But the purchase of an annuity involves a loss of liquidity and affects Medicaid eligibility. Depending on the factors discussed in sections I and II, care costs might increase or decrease the value of annuitization to both unmarried individuals and married couples. The difference between the Medicaid treatments of annuitized and unannuitized wealth is stark and might be sufficient to overturn the Brown and Poterba (2000) finding.

Turra and Mitchell (2008) estimate the impact of uncertain LTC and health-care costs on the value of annuitization and the share of wealth that should be annuitized. The paper focuses on single individuals and assumes a one-time decision at age 65 as to whether and how much to annuitize in the form of an immediate annuity. The study finds that LTC and health-care costs reduce the value of annuitization and the optimal annuity share. The model disregards home equity and Medicaid, and assumes that the marginal utility of consumption does not vary with health status. All these

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4 Long-term care insurance coverage is even lower than would be expected from Brown and Finkelstein (2007, 2008). Lambregts and Schut (2020) surveys the literature on factors impeding the development of this market.
5 For a survey of the literature, see Alexandrova and Gatzert (2019).
6 Turra and Mitchell (2007) Table 7. The calculations assume the annuity is priced on a unisex basis, so that men and women face the same rates, priced using Society of Actuaries annuitant life tables assuming a zero load. The table reports that a male with 50 percent pre-annuitized wealth would optimally choose to annuitize 86 percent of total wealth, implying that 72 percent of unannuitized wealth is annuitized. The authors assume constant relative risk aversion. The value of three rests at the low end of the range reported in the literature, which tends to cluster between 2 and 10 depending in part on whether the estimates are derived from portfolio theory, purchases of insurance, economic experiments, or preferences over lotteries (Chetty 2003).

assumptions will bias the results against annuitization. But even with assumptions that create a bias against annuitization, it is still optimal for most people to annuitize substantial shares of their unannuitized wealth. Thus, assuming a coefficient of risk aversion of three (an average degree of risk aversion), a man age 65 with no functional limitations and who has 50 percent of his wealth annuitized through Social Security would annuitize 72 percent, rather than 100 percent of his remaining wealth in an annuity that was actuarially fair to individuals with annuitant mortality (Turra and Mitchell 2008, Table 7).[7]

Pang and Warshawsky (2012) also examine the decision faced by single individuals. As with Turra and Mitchell (2008), the model disregards home equity and Medicaid, and assumes that the marginal utility of consumption does not vary with health status. Pang and Warshawsky start by constructing a model in which households receive Social Security benefits, face no health-care or LTC cost risk, hold financial assets that they allocate between risky equities and a risk-free bond, but are unable to purchase annuities. They obtain the surprising result that the optimal share of financial assets allocated to equities increases with age. The explanation is that households draw down their financial assets quite rapidly with age so that at older ages financial wealth represents a smaller share of total wealth, including the expected present value of remaining Social Security wealth.[8] To maintain an optimal risk allocation of total wealth, they invest their remaining financial wealth more aggressively.

The authors then introduce health-care cost risk. As with Turra and Mitchell (2008), the only correlation between health-care costs and mortality is through the relationship both have with age. The authors find that the risk of having very low consumption net of health-care costs induces households to draw down their wealth more slowly and invest their financial assets more conservatively. The authors then introduce the option to annuitize all or part of their financial assets at any age. In contrast to Turra and Mitchell (2008), the individual can purchase annuities at any age. The authors present results with and without health-care cost risk; the impact of health-care costs can be deduced by comparing these two sets of results. In contrast to Turra and Mitchell (2008), health-care costs increase annuitization. In the absence of annuities, health-care costs increase both the amount of financial assets and the share allocated to risk-free bonds. At older ages, households prefer annuities to bonds because annuities offer a higher return due to the reallocation of consumption from those who die to those who survive. The additional return outweighs the loss of liquidity. Consequently, when annuities are available, the increased demand for risk-free assets is reflected not in an increased demand for bonds, but rather in an increased demand for annuities. The Pang and Warshawsky (2012) paper shows the importance of the model incorporating (1) the option to annuitize at any age, and (2) both a risk-free asset and a risky asset.[9]

Davidoff (2009) motivates his analysis with the empirical observation that households rarely downsize or exit home ownership absent a precipitating shock such as the death of a spouse or entry into a nursing home, but that exit from home ownership is relatively common following such events. He argues that home ownership acts as self-insurance against end-of-life costs, and that the availability of this self-insurance decreases the value of both annuities and LTCI. He considers a single, healthy man age 62, who transitions annually between three health states: healthy, moderately ill, and severely ill. The probability of dying depends on age and health state. The "severely ill" state corresponds to nursing home care. The man faces zero health-care costs when healthy, moderate uninsurable costs when moderately ill, and high but insurable costs when severely ill. At age 62 he faces two one-time choices: whether to purchase an annuity and whether to purchase LTCI. Prices for both products are actuarially fair. The key assumption

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7 The calculations assume the annuity is priced on a unisex basis, so that men and women face the same rates, priced using Society of Actuaries annuitant life tables assuming a zero load. The table reports that a man with 50 percent pre-annuitized wealth would optimally choose to annuitize 86 percent of total wealth, implying that 72 percent of unannuitized wealth is annuitized. The authors assume constant relative risk aversion. The value of three rests at the low end of the range reported in the literature, which tends to cluster between two and ten, depending in part on whether the estimates are derived from portfolio theory, purchases of insurance, economic experiments, or preferences over lotteries (Chetty 2003).

8 The optimal path is for consumption to decline at an annual rate equal to annual mortality risk multiplied by the intertemporal elasticity of consumption, which under CRRA utility is the inverse of the coefficient of risk aversion. After unannuitized wealth is exhausted, the household subsists on Social Security.

9 Variable immediate annuities offer the benefit of both mortality credits and the equity premium. Pang and Warshawsky (2012) would not obtain their result if they included variable immediate annuities in their menu of investment choices because households could separate the annuitization from the asset allocation decision.

is that the household can liquidate housing wealth and move into rented housing, but only when household members are moderately or severely ill.

The focus of the Davidoff (2009) paper is on the LTCI purchase decision, not on the annuitization decision. The paper reports willingness-to-pay for LTCI at various assumed annuitized fractions of wealth. But in reality the household jointly decides the share of wealth that should be annuitized and the level of LTCI coverage. The key question for the purposes of this literature review is, How does the availability of housing equity affect the annuity part of this joint decision? Davidoff reports annuity/long-term care equivalent wealth, the amount the person would be willing to pay for specified amounts of LTCI and annuity protection relative to a baseline of having no annuity or LTCI. Unfortunately, due to the focus on the LTCI purchase decision, Davidoff reports only the results for assumed annuity shares of financial assets of 0, 40, and 80 percent, and not the optimal share. The only way of gauging the impact of housing on the value of annuitization is to compare the ranking of the values of annuity/LTC equivalent wealth for the 0, 40, and 80 percent annuity shares, in each case assuming either 0 percent or the optimal amount of LTCI coverage. Comparing the second and fourth panels of table 2 in Davidoff (2009), as reported in table 1 of this paper, I fail to detect any consistent relationship between the availability of housing wealth and the optimal annuitized share of financial assets. When the house cannot be sold, annuity/LTC equivalent wealth varies little with the level of annuitization, regardless of whether the household does not hold LTCI or holds the optimal level of coverage. The same is true when the house can be sold and used to pay for care costs.

The Davidoff (2009) analysis does not incorporate Medicaid, rendering the results of questionable real-world validity. Medicaid decreases the value of LTCI because much of the policy benefits are taxed away by the Medicaid implicit tax (Brown and Finkelstein 2008). The findings should not be read as applying to married couples. The surviving spouse may have a strong preference for aging in place, so that the house will be available to meet only the care costs of the surviving spouse, while Medicaid spousal protection rules privilege both home equity and annuitized wealth.

The paper by Ameriks et al. (2008) also considers a single individual who faces age-varying probabilities of transitioning between three health states: good health, health problems, LTC. The probability of dying depends on age and health state. The model handles Medicaid by assuming that individuals in LTC who have exhausted their wealth receive a subsistence level of consumption. The model allows the degree of aversion to Medicaid care to vary, adjusting the assumed dollar value of this subsistence level of consumption so that the Medicaid-averse will place a low value on consumption while they are in a Medicaid nursing home. The key finding of the paper is that an increase in the degree of Medicaid aversion is associated with a smaller willingness to pay for annuities. The individual prefers to hold liquid wealth in order to pay for non-Medicaid nursing home care.

I raise two caveats about the Ameriks et al. (2008) study. The first is that it does not incorporate housing equity, which might increase the value of traditional annuities and decrease the value of combination annuity LTCI

TABLE 1: *Value of Annuity and LTCI under Different Assumptions Regarding LTCI Coverage and Accessibility of Housing Wealth*

Share of financial assets annuitized	0%	40%	80%
House cannot be sold, optimal LTCI coverage	$11,000	$9,000	$18,000
House cannot be sold, no LTCI coverage	0	$7,000	− $4,000
House can be sold, optimal LTCI coverage	$141,000	$141,000	$124,000
House can be sold, no LTCI coverage	0	− $3,000	− $9,000

Note: The household is assumed to own a house worth $200,000 and financial assets worth $100,000. The dollar amounts are the amounts the household would have to be paid to be indifferent between annuitizing the specified share of financial assets and not annuitizing, given the availability of housing equity and the assumed level of long-term care insurance coverage.

Source: Davidoff (2009) Table 2.

policies to the Medicaid-averse. The second is that the analysis is for single people, not for married couples. As analyzed above, annuities are an effective way of preserving wealth for the surviving spouse.

Two papers have explored the feasibility of offering an annuity providing enhanced benefits while in LTC (Spillman, Murtaugh, and Warshawsky 2003; Warshawsky, Spillman, and Murtaugh 2002). Stand-alone annuities suffer from adverse selection, with annuitants having substantially lower mortality than the population average. The authors estimate that a combination policy could be sold with minimal underwriting because individuals in poor health with a high expected present value of care costs can also expect to receive annuity income for fewer than average years. The concern is that much of the benefit of LTCI accrues not to the purchaser, but rather to the government in the form of lower Medicaid outlays so that, over much of the wealth distribution, single individuals would optimally choose not to purchase even an actuarially fair policy (Brown and Finkelstein 2008). Brown and Finkelstein (2004) report an even lower willingness to pay for married couples.

Ameriks et al. (2008) investigate willingness to pay for alternative annuity products. They consider a reversible annuity, an annuity that the individual could sell for its expected present value, based on age and health status, in the event of entering a nursing home. The authors find that the Medicaid-averse place a significantly higher value on this annuity than on a traditional annuity. The authors do not offer an explanation of why a product with a likely small surrender value would be so appealing. The likely explanation is that postponing entry to a Medicaid facility, even for a matter of months, and moving instead into a private nursing home has considerable value. The concern is that manufacturers offering this option would be exposing themselves to adverse selection not only on purchase, but also on surrender. Unattractive surrender terms might increase the level of adverse selection on surrender, necessitating either expensive underwriting or yet-more-unfavorable surrender terms..

Ameriks et al. (2008) also consider willingness to pay for the combination annuity LTCI product described above, priced on actuarially fair terms. The authors find that those who are not Medicaid-averse do not value this product, but that the Medicaid-averse place tremendous value on it. They do not report their results in sufficient detail to permit a benchmarking against Brown and Finkelstein (2008). But they focus on a hypo-

thetical individual who is relatively affluent by the standards of single individuals, who possesses a preexisting Social Security annuity of $15,000 a year and $200,000 in financial assets, a wealth level at which Brown and Finkelstein (2008) also found purchase was advantageous. It is possible that the product would have appeal mostly among the affluent, who would be more willing than low-wealth households to sacrifice general consumption to secure the means to pay for non-Medicaid care. A potential concern is the expense load manufacturers would need to impose. Brown and Finkelstein (2007) report LTCI expense loads that are high even before taking into account the effect of lapses that result in premium receipts, but without offsetting benefit payments. Further work is required to identify cost drivers and the extent to which some costs, such as underwriting costs, would be lower in a combination policy.

In recent years manufacturers have started to offer LTC riders on deferred annuities. The riders provide enhanced guaranteed lifetime withdrawal benefits when specified disability conditions are met. The product differs from that proposed by Warshawsky, Spillman, and Murtaugh (2002) and Spillman, Murtaugh, and Warshawsky (2003) in that the guarantees are embedded in variable annuities, which combine features of both investment and insurance products. Although Huang, Milevsky, and Salisbury (2014) have investigated the optimal age at which to initiate guaranteed minimum withdrawal benefits in a regular deferred annuity and Hsieh et al. (2018) provide a valuation algorithm for a deferred annuity including LTC benefits, I know of no study that applies the life-cycle model to figuring out the role of deferred annuities with LTC riders in postretirement asset drawdown.

IV. DIRECTIONS FOR FUTURE RESEARCH

My reading of the literature leads me to propose two directions for future research. First, research should investigate the impact of care costs on the value of annuities to married couples. Annuities appear to be an effective means of protecting the surviving spouse from impoverishment as a result of care costs, and this aspect of the annuitization decision has been neglected by the literature. The models should incorporate housing wealth, recognizing on the one hand the desire of older households to age in place and on the other hand the apparent use of housing wealth as a resource to fall back on when faced with care costs.

Second, research should investigate the value of deferred annuity guaranteed lifetime withdrawal benefit long-term care riders to households. The task is made more difficult because the types of rider offered differ from issuer to issuer, and unlike a traditional long-term care insurance policy where an insured loss precipitates a claim, modelers need to consider the optimal age at which to initiate withdrawals. Again, the focus should be on married couples, who represent the majority of households entering retirement.

CONCLUSIONS

Academic research has not yet reached and perhaps never will reach the point where models characterize all the financial risks and choices that households face in retirement, so that households and their advisors could plug in preference parameters to arrive at a set of optimal choices. The papers I have reviewed do not represent a basis for decision-making, but instead highlight important factors to consider when deliberating annuitization options.

For many households the risk of incurring out-of-pocket health and nursing home costs is a major risk that can dramatically affect the value of annuitization. Treating longevity and health-care cost risk as separate risks to be insured or self-insured separately will likely lead to suboptimal decisions. Households and their advisers need to consider how these risks interact.

Financial advisors may not fully understand how decisions taken at retirement may affect the ability of the household to afford non-Medicaid care in the future or the ability of the household to pass on assets to a surviving spouse. Perhaps households should seek the advice of an elder care attorney—not only at the point when the need for care arises, but also long before that, at the point of retirement when drawdown strategies are being implemented.

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