The Relationship between Personality and Older Americans' Ownership of Annuity Income: A Latent Profile Analysis

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Imagine you are a world-class economist who has just been awarded the Nobel Prize and asked to give a lecture as part of your acceptance. What would you say in your speech? As part of his lecture, Franco Modigliani (1986) noted that "it is a well-known fact that annuity contracts, other than in the form of group insurance through pension systems, are extremely rare. Why this should be so is a subject of considerable current interest" (p. 709). This phenomenon became known as the annuitization puzzle or annuity puzzle for short (Benartzi et al., 2011) and has persisted. Referencing data from the Health and Retirement Study (HRS) in their recent paper, Arapakis & Wettstein (2023) state that roughly 10 percent of older adults in America receive annuity income during their lives. This phenomenon is puzzling because economists have long demonstrated the optimality of annuitization for lifetime consumption (Davidoff et al., 2005; Yaari, 1965). One of the primary benefits annuities can provide is a guaranteed source of retirement income that cannot be outlived (U.S. Securities and Exchange Commission, n.d.).

An individual's personality may play an influential role in the decision to purchase an annuity contract. However, to the best of our knowledge, only one study has examined this relationship (Cherry et al., 2025). This is a significant gap in the literature. The purpose of this study was to explore the link between personality profiles and the ownership of annuities to increase our understanding of the psychological phenomena that may help explain the annuity puzzle. The following research question was examined: Are the personality profiles of older Americans associated with their ownership of annuities?

Many researchers have explored the annuity puzzle and contributed to our understanding. In their review paper, Ramsay & Oguledo (2018) group potential explanations for the puzzle found in the literature into "rational" or "behavioral" categories. The rational explanations include adverse selection in annuity markets, the presence of bequest motives, self-annuitization, the inability of insurers to hedge against longevity risk, insufficient understanding of annuity products, and concerns about rising medical expenses. Included in their list of behavioral or psychological explanations are mental accounting, anxiety from considering one's mortality, loss aversion, the availability heuristic, and concerns about illiquidity.

As the purchase of annuities is not widely observed, psychological factors, rather than rational ones, may be more salient in this decision and need to be considered (Cherry et al., 2025). Personality is a psychological factor that could influence the annuitization choice. Cherry et al. (2025) found empirical support for this notion through the discovery of a significant relationship between the personality trait of conscientiousness and having an annuity. Utilizing individual personality traits as predictors in statistical models can be problematic as traits contend for shared variance (Merz & Roesch, 2011) and have been found to act as suppressors and confounders for one another, which can obscure their true effects (Lai et al., 2025). Rather than using a variable-centered approach, a person-centered approach, such as Latent Profile Analysis (LPA; Masyn, 2013), can be used to model personality (Exley et al., 2022). Using the Big Five personality traits (Costa & McCrae, 1992), LPA can uncover personality profiles within a sample (Exley et al., 2022; Fu et al., 2024; Merz & Roesch, 2011). As these profiles represent groups of individuals that share distinct combinations of personality traits, using them as statistical predictors can mitigate the issues that may arise when examining the effects of individual personality traits.

Based upon the review of the literature, a conceptual framework was developed to guide the present study. The conceptual framework comprised rational and behavioral predictors of annuity ownership. The following hypotheses were generated for the study:

H1: The Big Five personality traits will form three or more latent profiles.

H2: Latent profiles of personality will distinctively predict annuity ownership.

This paper utilized data from the Health and Retirement Study (HRS). In 2006, the HRS

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introduced a self-administered questionnaire that was left behind after the conclusion of Core Interviews for respondents to complete (Smith et al., 2023). This questionnaire is referred to as the Leave-Behind (LB), and its purpose is to collect psychosocial data on participants. The LB is administered every biennial survey wave on a rotating basis to one of two random 50% samples of respondents to the core survey. One complete cross-section of LB data is obtained by combining two waves. In this study, the 2018 and 2020 waves were used to form one cross-section of data. All variables in this study were measured in the year that the respondent completed the LB. The final sample size for the LPA was 9,783. For the logistic regression, the final sample size was 9,139.

The dependent variable was annuity ownership. If a respondent reported receiving any non-zero amount of annuity income, this variable was coded as 1. Otherwise, the variable was coded as 0. The key independent variable was personality. The Big Five personality traits were measured in the LB using 31 items from the International Personality Item Pool (IPIP) and MIDUS (Smith et al., 2023). Responses to each item range from "1 = A lot" to "4 = Not at all". Scores for most items are reverse-coded. Scores for all items associated with each personality trait are then averaged to receive the personality trait score. Personality profiles representing unique combinations of the Big Five personality trait variables were identified using LPA. Each respondent was assigned to only one profile. For the logistic regression, each personality profile variable was coded as 1 or 0 to reflect the respondent's membership.

Continuous control variables include age, age squared, number of chronic health conditions, inverse hyperbolic sine of household net worth, and number of children. Categorical control variables include gender, romantic partnership status, race, having a college degree, household income quartiles, the receipt of social security income, the receipt of defined-benefit pension income, the presence of a bequest motive, employment status, ownership of whole life insurance, and having health insurance.

Two weighted, inferential analyses were conducted in this study. The data were cleaned using Stata version 17. The Big Five personality trait variables, HRS weight variables, and ID variable were then imported into Mplus version 8.11 to conduct an LPA and identify personality profiles. In LPA, several models with different numbers of profiles or classes are estimated and compared to determine which one fits the data best (Tein et al., 2013). Models with one to five profiles were compared. After selecting the model to retain, the corresponding personality profile variables were imported into Stata 17 and used as predictors in a logistic regression with annuity ownership as the outcome variable.

Given similar findings, profile names found in the literature were utilized (Exley et al., 2022; Robins et al., 1996).

Profile 1 (n = 593) was titled Undercontrolled. This group was characterized by high neuroticism and low levels of extroversion, openness, agreeableness, and conscientiousness.

Profile 2 (n = 6,076) was titled Resilient. This group was characterized by low neuroticism and high levels of extroversion, openness, agreeableness, and conscientiousness.

Profile 3 (n = 3,114) was titled Overcontrolled. This group was characterized by medium levels of neuroticism, extroversion, openness, agreeableness, and conscientiousness.

To explore if personality profiles predicted the likelihood of owning annuities, a logistic regression was estimated. The model was statistically significant. A personality profile was found to be a statistically significant predictor of annuity ownership. Holding all else constant, the odds of receiving annuity income were greater for the Undercontrolled compared to the Resilient.

Several control variables were also found to be statistically significant predictors. Age was identified as having a non-linear association with annuity ownership. Holding all else constant, those in the second, third, and fourth income quartiles were more likely to have annuities than those in the first quartile. Holding all else constant, those who were married or partnered and owned whole life insurance were less likely to own annuities. Those who were white were more likely to have annuities.

In response to this study's research question, yes, personality profiles of older Americans are related to their ownership of annuities. With the identification of three personality profiles as the optimal solution for the LPA, Hypothesis 1 was supported. This finding mirrors previous research using HRS data (Fu et al., 2024). Holding all else constant, the odds of annuity ownership were higher for the Undercontrolled compared to the Resilient. Therefore, Hypothesis 2 was supported. The identified personality profiles were similar in nature to those found by Exley et al. (2022), but some differences were present. Notable differences include the percentage membership for the profiles and group means for extraversion and neuroticism. This divergence may stem from differences in the composition of the samples and the treatment of model variances and covariances. The findings support the idea that personality is associated with annuity ownership among older adults, which Cherry et al. (2025) identified

in the individual trait of conscientiousness.

There are several implications that can be drawn from this study. It illustrates the utility of using a person-centered approach, latent profile analysis with correlated residuals, to model personality. This technique can mitigate issues that arise from the correlations between individual personality traits and address violations of the local independence assumption for LPA. This paper contributes to the emerging body of financial planning research using LPA to model personality profiles. Additionally, financial planners should consider assessing their clients' personalities as part of the data-gathering process to provide them with tailored suggestions and guidance based on existing research. Consumer education on lifetime income from annuities is needed. These products are important tools in the financial services ecosystem that can help mitigate negative outcomes associated with rising longevity risk.

Limitations for the study include the cross-sectional nature of the analysis. As such, causal relationships cannot be established. Additionally, annuity ownership is operationalized by the current receipt of annuity income. Those who own annuities and are not yet receiving income (such as a deferred annuity) are not able to be identified in this study. Also, owning an annuity is a relatively rare event in the sample data. Logistic regression may underestimate the probability of these events (King & Zeng, 2001). Future research examining the association between personality and annuity ownership longitudinally is needed.

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