

National Institutes of Health  
National Institute on Aging  
Division of Behavioral and Social Research

# **PLANNING MEETING ON ECONOMIC DECISION MAKING IN AGING POPULATIONS**

National Research Council  
Board on Behavioral, Cognitive, and Sensory Sciences (BBCSS)  
and  
Committee on Population (CPOP)  
The Keck Center of the National Academies  
Washington, DC 20001  
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## **MEETING SUMMARY**

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## ACRONYMS AND ABBREVIATIONS

<b>Acronym</b>	<b>Definition</b>
AARP	Formerly the American Association of Retired Persons, Inc.
BBCSS	Board on Behavioral, Cognitive, and Sensory Sciences
BLSA	Baltimore Longitudinal Study of Aging
BSR	Behavioral and Social Research Program
CogEcon	Cognitive Economics Survey
CogUSA	Cognition and Aging in the USA
CPOP	Committee on Population
FICO	Fair Isaac Corporation (credit scoring model)
HRS	Health and Retirement Study
IRAs	Individual Retirement Accounts
LTC	Long-term care
MRI	Magnetic Resonance Imaging
NACA	National Advisory Council on Aging
NIA	National Institute on Aging
NIH	National Institutes of Health
NSF	National Science Foundation
PET	Positron Emission Tomography
PIN	Personal Identification Number
RFA	Request for Applications
SOBC	Science of Behavior Change

## WORKSHOP SUMMARY

The United States is experiencing a significant demographic change as the population of adults age 65 and older is rapidly increasing. Longer life expectancy, a shift from defined benefit to defined contribution retirement plans, and an increasingly complex insurance landscape demand sound decision making from older adults, even as many experience cognitive decline. Successful aging requires meeting the challenges of rising out-of-pocket medical expenses and long-term care services to support health and independence in old age. Financial and health decisions in mid-life and old age establish the resource base that families have to manage wellbeing.

The National Institute on Aging (NIA) Division of Behavioral and Social Research (BSR) has supported research on economic and health care decision-making in aging populations for more than a decade. BSR-sponsored research has shown that, in many cases, out-of-pocket expenditures at the end of life pose significant burdens on families of decedents, and that a large fraction of households do not have savings or other assets adequate to support their health care and long-term care needs. Therefore, improving economic and health care decision-making could be a key factor to improve the health and wellbeing of older populations.

On August 27, 2014, the National Research Council's Board on Behavioral, Cognitive, and Sensory Sciences (BBCSS) and Committee on Population (CPOP) convened a planning meeting, chaired by Robert Willis (University of Michigan), on economic decision-making in aging populations with the objective of bringing together a group of experts from multiple disciplines to consider the state of the field and research directions of significance to the NIA. Invited participants presented current research from a variety of social and behavioral fields and discussed priorities for future work. (See Appendix 1 for the workshop agenda and Appendix 2 for a list of meeting participants.)

Five prominent themes for future research emerged from the discussions:

- Fostering more interdisciplinary research and establishing formal interdisciplinary training programs or research apprenticeships.
- Connecting poor economic decisions with health and wellbeing outcomes.
- Validating and improving key assumptions of economic models.
- Improving the understanding of psychological processes and social and emotional motivations for decisions.
- Exploring new data sources, including from private-sector organizations, and connecting survey and laboratory research.

Participants also discussed potential interventions to improve decision-making and health/well-being, including:

- Simplifying choices and offering better defaults for insurance and financial products.
- Utilizing active choice to drive adoption of optimal delegation practices, such as power of attorney, living wills, and advance health and financial directives.

- Implementing just-in-time education for critical decisions that are infrequently encountered.

The workshop was organized into six sessions. This document briefly summarizes each session and synthesizes all discussions and recommendations in the final section.

## **BACKGROUND**

As the population of older Americans grows, individuals are increasingly aware of decision-making needs to maintain independence in older age. Changes in retirement savings vehicles, such as pensions, increase the importance of early planning and retirement savings decisions on the financial wellbeing of retirees. Individuals face decisions on health care and illness management, planning for end-of-life care, and many other competing financial demands throughout the lifespan. The NIA seeks to understand how economic decision-making affects health outcomes of older adults. In their opening remarks, Lisbeth Nielsen and John Phillips (NIA) discussed current and past research in this area and summarized lessons learned.

The NIA funds several relevant initiatives. A major focus is integrating multiple disciplines, such as psychology, neuroscience, and economics, to advance the understanding of mechanisms of aging and related changes in decision-making capabilities and connecting those to health and wellbeing outcomes. In 2006, for example, the NIA issued its first request for applications (RFA) on neuroeconomics of aging to examine the cognitive, emotional, and motivational capacities that older adults bring to the decision context and age-related changes in these processes and the neural systems that support them.<sup>1</sup> Initiatives in behavioral economics and retirement decision-making were launched in subsequent years.<sup>2</sup> The NIA also collaborates with other Institutes and Centers of the National Institutes of Health (NIH) through the Science of Behavior Change (SOBC) Common Fund Program to leverage basic science to help understand factors that inform choices about health.

Through these and other initiatives, the NIA has learned that important individual differences in economic behavior, or economic phenotypes, exist throughout the lifespan. How these observed phenotypes are determined remains a focus of study; important factors may include personality, risk propensity, cognitive styles, and social influences. Linking observed patterns of economic behavior to health outcomes remains a critical goal, and large population and intervention studies that measure economic phenotypes are needed. Understanding and improving economic decision-making in aging requires a process-oriented approach. Therefore, surveys and experiments are needed that test theoretically motivated hypotheses.

Thus far, the NIA's efforts to study the impacts of economic decision-making on health outcomes have been funded through special initiatives. Scientific review for interdisciplinary projects is a significant challenge. There is, however, momentum for BSR to continue supporting interdisciplinary research on economic decision-making: a recent review of BSR by

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<sup>1</sup> See RFA-AG-06-011: <http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-06-011.html>

<sup>2</sup> See RFA-AG-07-007: <http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-07-007.html>  
and RFA-AG-10-008: <http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-10-008.html>

the National Advisory Council on Aging (NACA) highlighted several priority research areas that relate directly to decision-making research.

The NIA's goals for the planning meeting were to develop a list of high-priority research topics that are aligned with BSR program goals, discuss ways to tighten the relationship between economic decisions and health outcomes, and lay the groundwork for a more in-depth workshop to further explore high-priority topics for BSR.

### **DEFINING THE SCALE OF THE PROBLEM**

This session focused on the impact of cognitive capacities on decision-making, including the process of cognitive decline and the complementary and interacting roles of fluid intelligence (the ability to process information) and crystallized intelligence (the ability to tap cumulative knowledge and experience). Fluid intelligence decreases steadily with age, while crystallized intelligence increases with age until a plateau around age 60. Both types of intelligence are used to solve problems, and some problems demand more of one type than the other. To understand how aging affects the ability to make a specific decision, it is necessary to understand the intelligence required to make that decision. Crystallized intelligence may also reflect gist processing, a form of learning that may be preserved in healthy aging.

### ***FINANCIAL KNOWLEDGE, FLUID INTELLIGENCE, AND INVESTMENT DECISIONS***

According to Robert Willis, economics and psychology may be synergistic for understanding patterns in decision-making. Although neoclassical economics predicts optimizing behavior well in simple supply and demand models, it performs poorly when applied to many economic activities that take place over the lifecycle. In such situations it is important to understand the causal determinants of behavior. The theory of human capital, which treats cognitive capacity as a producible human resource, and the psychology framework of fluid and crystallized intelligence, in which fluid intelligence is the ability to learn about new problems and crystallized intelligence is the accumulated relevant knowledge, offer parallel solutions for understanding more complex decision-making problems. Both theories consider multiple types of cognition that evolve over the lifecycle, and the theory of human capital also incorporates problem-solving effort.

In order to understand the relationship between cognitive ability and financial knowledge and outcomes, the Cognitive Economics Survey (CogEcon) and Cognition and Aging in the USA (CogUSA), both of which sampled respondents from the Health and Retirement Study (HRS), incorporated several tests of fluid and crystallized intelligence. The number series test, a measure of fluid intelligence, showed the strongest correlation with financial knowledge and behavior. Nonetheless, both fluid and crystallized intelligence were correlated with financial parameters and with each other. The observed correlation between the two types of intelligence can be understood through human capital theory: fluid intelligence, the ability to learn, is an input to crystallized intelligence, or knowledge capital.

***GOLDEN OR GRAYING? ECONOMIC DECISIONS AND COGNITIVE AGING***

In one case study that measured FICO (credit) scores and fluid and crystallized intelligence, Ye Li reported that FICO scores were positively correlated with age and with both types of intelligence, but more strongly with crystallized intelligence. FICO scores were most strongly correlated with financial literacy, which can be thought of as a domain-specific subset of crystallized intelligence. In this example, older adults fared better because of the greater relative importance of crystallized intelligence. Other financial tasks, such as credit card repayment choice and choice of health care plans, yielded similar results.

The effect of age on decision-making depends on the relative demands of tasks for each type of intelligence. Decisions that require greater fluid intelligence, such as unprecedented health care decisions, may disadvantage older adults. Interventions can reduce fluid processing burdens for some decisions. Offering fewer choices through filtering, better defaults, and calculators may facilitate better choices of insurance plans. Just-in-time education to boost domain-specific crystallized intelligence when it is needed is another solution, but may be inadequate for older adults with fluid intelligence decrements because lower fluid intelligence raises the costs of learning.

***COGNITIVE AGING IN THE BALTIMORE LONGITUDINAL STUDY OF AGING***

What constitutes the spectrum of “normal” aging, as opposed to cognitive impairment, remains poorly defined. Susan Resnick discussed recent evidence from autopsies and imaging studies, which suggests a high prevalence of preclinical Alzheimer’s disease that may affect cognition of undiagnosed older adults. A better understanding of preclinical disease markers coupled with observed changes in decision-making behavior may help predict individual trajectories of cognitive decline.

The Baltimore Longitudinal Study of Aging (BLSA) has incorporated brain imaging since 1992. Cognitive tests are administered alongside Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET), and amyloid imaging to detect neurological correlates of cognitive impairment. Preliminary results suggest that functional differences in patterns of brain activity may be detectable years before clinically significant cognitive decline begins. Neuroimaging also correlates with behavior phenotypes. When a lottery choice paradigm was used to distinguish risk-seeking and risk-averse phenotypes, simultaneous imaging showed parallel differences in brain responses.

Future longitudinal results may strengthen the understanding of preclinical indicators of cognitive decline and impairment. A parallel study being conducted in Taiwan will allow a cross-cultural comparison.

***A FUZZY-TRACE THEORY FRAMEWORK FOR CONCEPTUALIZING EFFECTS OF MEMORY ON DECISION-MAKING***

Valerie Reyna discussed how fuzzy-trace theory distinguishes between two types of memory processing: verbatim and gist. Verbatim processing involves remembering specific details, whereas gist processing encodes a general representation or bottom-line meaning. People tend

to use gist processing more often for advanced decision-making, even when they remember relevant details, because gist captures the essential meaning of decision information. Compared to verbatim memories, gist memories are more accessible, easier to mentally manipulate, robust to interference, and simpler to apply in context. Indeed, several studies have demonstrated that gist versions of health and patient education programs are more effective than detailed versions.

Dual gist and verbatim processing can also explain how framing effects, the influence of question phrasing on responses, can alter choice outcomes of decision problems. For example, when a risky financial decision is presented in gist terms that highlight categorical differences between outcomes (one option involves gaining some money for sure and another option involves maybe gaining nothing), responses are shifted toward the less risky decision. Surprisingly, this framing effect seems to be more pronounced in older subjects who one might expect to be less susceptible to framing effects because of their greater experience.

Distinguishing between verbatim and gist processes in standard neuropsychological recall tests reduces measurement error for both differentiating between and predicting transitions from normal cognition, mild cognitive impairment, and Alzheimer's disease. This can be done without altering standard tests by using the dual-process model of fuzzy-trace theory to analyze recall data. In particular, the loss of ability to reconstruct information from gist processing differentiates between and predicts future diagnostic groups better than current biomarkers.

### **THE IMPACT OF ENVIRONMENTAL FACTORS, PUBLIC POLICIES, AND INTERVENTIONS ON THE ECONOMIC DECISION-MAKING CAPABILITY OF AN OLDER POPULATION**

This session focused on the impact of outside economic and policy influences on the independence, wellbeing, and health of older persons. It also considered the sorts of interventions that are used now and provisionally assessed which ones lead to better outcomes.

Joanne Hsu discussed the decline of defined benefit plans and concurrent rise of defined contribution plans and life expectancies that have resulted in greater financial vulnerability for older individuals. She pointed to planning as a way to mitigate financial risks. The likelihood of specific events, such as widowhood and cognitive decline of financial decision-makers, should incentivize planning. Whether Americans respond to these incentives was examined using data from CogEcon and the HRS.

Women tend to have lower financial literacy than men and tend also to outlive their husbands. An analysis of CogEcon data showed that women gain financial knowledge relative to their husbands as they approach the age of likely widowhood. Nonetheless, widows generally have poor economic outcomes, perhaps because of unexpectedly early widowhood or high health care expenditures during their husbands' final years.

Loss of financial decision-making ability is an early form of cognitive decline. Individuals who are primarily responsible for their household finances can mitigate risks of cognitive decline by delegating financial decision-making responsibilities to someone else before or once they become cognitively impaired. Analysis of HRS data indicates that 40 percent of financial

decision-makers diagnosed with dementia retained their decision-making responsibilities. Magnitude of wealth was not correlated with delegation of decision-making, but type of wealth was: responsibilities were delegated more often for individually managed assets than for assets for which the owner does not choose investments.

It is important to consider the family and social context of financial decisions. Children often recognize cognitive decline in their parents early and may provide support. Middle-aged children, however, face increasing financial pressures from their own dependent children, student loans, and planning for their own retirement.

Potential solutions to incentivize earlier financial planning include advance financial directives to prepare delegation before onset of cognitive decline and stronger planning tools, such as joint or multiparty accounts and financial power of attorney. Standards for professionals who regularly interact with older persons, such as physicians, bankers, and lawyers, to recognize signs of financial impairment and implement intervention protocols could also be helpful. Valid and reliable measures of decision competence that can distinguish such competence from perceptual and motor deficits, social influences (e.g., aging stereotype threats), and verbatim memory (as opposed to judgment and decision-making ability) are needed.

### ***OPTIMAL DELEGATION FOR AGING ADULTS***

Delegation is a key issue for older adults for legal, financial, and health care decision-making. David Laibson raised three important questions:

1. Do people resist socially optimal delegation? If so, why?
2. How should government regulate/monitor delegation?
3. What innovations and nudges would facilitate efficient delegation?

There is evidence that individuals resist socially optimal delegation. For example, annuitization is a form of delegation of financial decision-making that mitigates risks of overspending and outliving one's assets; however, very few people voluntarily elect to annuitize assets. Other forms of delegation, such as advance medical directives and power of attorney, are underutilized. Reasons for avoiding delegation may include procrastination, confusion, cost, over-optimism of cognitive ability, mistrust of agents, and desire for control. It is also possible that delegation may have unknown negative psychological consequences.

Few government policies encourage older adults to anticipate cognitive decline and prepare by advance delegation. Americans are not obligated to establish power of attorney, health care proxies, or wills. Financial delegates are weakly regulated; for example, Individual Retirement Accounts (IRAs) are not required to meet fiduciary standards. Financial products targeted to older adults, including annuities, reverse mortgages, long-term care insurance, and life insurance, face little regulatory scrutiny.

Interventions could facilitate more efficient delegation. Active choice policies that obligate individuals to make an explicit decision are one possibility. For example, when signing up for Medicare, individuals could be prompted to designate a health care proxy and establish a living will or explicitly decline to do so. Similarly, individuals could be prompted to designate a

springing power of attorney<sup>3</sup> or explicitly decline this designation on their 70th birthday. Even without implementing active choice policies, the government could create templates for key documents, such as wills and power of attorney, which are easy to execute and register, reducing barriers to elective delegation. Finally, just-in-time education on delegation could be provided to older adults, although this has a low likelihood of success based on past experiments.

### **ECONOMIC DECISION-MAKING FOR OLDER POPULATIONS**

This session explored the state of knowledge about the range of increasingly complex economic decisions that older persons make that affect and are affected by their economic, physical, and psychological health. These include decisions about retirement account viability and management, Medicare/Medicaid participation, Social Security, long-term care insurance, and end-of-life care.

New neuroimaging studies of age-related changes in brain activity complement and build on results of recent behavioral studies. Gregory Samanez-Larkin pointed to examples of behavioral research showing that older adults exhibit less temporal discounting for monetary rewards than younger adults, while neuroimaging studies have found much less discrepancy in striatal response to immediate versus future rewards in older brains compared to younger brains. Neuroimaging studies similarly confirm behavioral observations that older adults learn more slowly than younger adults. The studies identify an integration deficit in frontostriatal brain circuits that leaves older adults at a disadvantage relative to middle-aged and younger adults when making decisions in novel situations. Despite age-related differences in brain function and behavior, research on risky decision-making reveals only small differences across the age spectrum. One possible explanation is that adults of any age are able to leverage their cognitive strengths to compensate for their weaknesses. More research is needed to link behavioral and neuroimaging laboratory research on decision-making abilities to real-world decision-making throughout the lifecycle.

Samanez-Larkin proposed several ideas for future research, including:

- Mechanisms to leverage cognitive strengths (e.g., fluid or crystallized intelligence) to facilitate optimal decision-making across the lifecycle
- The influence of social rewards decision-making, which, along with health incentives, is particularly difficult to study in controlled laboratory settings
- Linking of new findings on the brain's core motivational system for learning and decision-making to existing knowledge of age-related brain processing changes
- More animal studies to overcome limitations of human studies
- Validation of laboratory tasks for predictive power of real-world decision-making

Debra Whitman observed that not everyone will make critical financial decisions in their peak cognitive state. Unexpected stressful events, such as a cancer diagnosis, can induce cognitive impairment. Whitman contended that public policy should anticipate suboptimal decision-

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<sup>3</sup> Also known as a conditional power of attorney that becomes effective only when specified conditions are met.

making, and adaptations to an aging society must be considered. For example, default retirement investments, such as target date funds, could incorporate annuities in addition to shifting allocation between stocks and bonds. Standard retirement withdrawal rates could also be established. Older adults would benefit from fiduciary standards to protect retirement assets.

AARP recently launched an “age-friendly banking” initiative that aims to disseminate best practices for banks to protect older clients from fraud. Additional goals include improving caregiver access to finances and identifying new ways to ease banking for people with dementia. PIN numbers, for example, are difficult for many older adults to remember; facial recognition software could provide a secure alternative.

Whitman proposed a number of key research questions for consideration:

- How do decision-making abilities decline over time? The loss of which specific cognitive functions contribute to a decline in decision-making ability? What is the magnitude of variance in patterns of cognitive decline?
- What interventions are effective for supporting good decision-making?
- What is the most critical information needed to make good retirement financial decisions that should be incorporated in any just-in-time education effort?
- How can we ensure that delegates act according to the principal’s best interest? How can we assure principals of the integrity of potential delegates to encourage more delegation?
- Will demographic differences between age cohorts result in differences in aging and cognitive decline of future generations? For example, will increased education among women mitigate the effects of cognitive decline?
- How can over diagnosis be prevented?
- How can further decline in individuals with mild cognitive impairment be prevented?
- How can cognitive decline be delayed altogether?

### **MEASUREMENT STRATEGIES TO IMPROVE ASSESSMENT OF THE PROBLEM**

Discussion in this session centered on measuring the causes, extent, and consequences of poor economic decision-making among older populations, including classifying individual differences in decision-making styles and evaluating the psychological processes that influence decision-making in order to inform design of effective interventions.

### **CONSUMER FINANCE AND CHOICE ARCHITECTURE ACROSS THE LIFESPAN**

According to Eric Johnson, the permanent income hypothesis is the predominant economic model used to study consumer financial decisions such as investment in education, mortgage choice, and retirement age. The model incorporates exponential discounting and expectations of future income and spending, and is usually solved by backward induction. Psychology, however, suggests that the quality of cognition varies over the lifespan, individuals discount differently than implied by exponential discounting, and individual beliefs and preferences are constructed. Because the permanent income hypothesis has been influential in public policy,

understanding real deviations from the model is important.

Johnson noted that time preference is a critical parameter for long-term prediction. An adaptive series of binary intertemporal choice questions can efficiently estimate individual time preferences. Resulting preference parameters correlate with major financial decisions; for example, present-biased individuals are less likely to refinance their mortgages. Beyond estimating time preference parameters for modeling, it is important to understand the underlying psychological processes because they may suggest interventions that can alter decisions in a beneficial way.

Choice architecture may influence financial decisions. For example, the question “should I retire now?” can be divided into two components: “why retire early?” and “why retire later?” Reversing the order in which component questions are asked may bias answers to the larger, original question. Interestingly, multiple studies that used similar reframing logic to try to delay Social Security claims produced only modest effects. The psychological process used to answer questions and differences in response time both mediate the effect of framing. In contrast, altering question frames can significantly influence predictions of personal longevity. When respondents estimate the probability that they will “live to” certain ages, their self-predicted life expectancy is nearly 10 years greater than when they estimate the probability that they will “die by” the same ages. Understanding the psychological processes that generate parameter estimates used in economic models will produce both better measures and better interventions.

### **NEXT STEPS IN DEVELOPING INTERDISCIPLINARY RESEARCH AND INTERVENTION PROGRAMS TO IMPROVE ECONOMIC DECISION MAKING AND HEALTH IN OLDER POPULATIONS**

This section summarizes the primary research themes and interventions that emerged from discussions throughout the planning meeting. It was noted that programs based on measures of wellbeing, rather than poverty, may be most effective.

#### ***SUGGESTED RESEARCH IDEAS***

Participants were unanimous in suggesting that research should continue that fosters strong interdisciplinary collaborations—bringing together social and behavioral scientists, economists, psychologists, neuroscientists, and others. Notably, past collaborations have often excluded animal behavior scientists, who may add value. The NIA could steer the research agenda through mechanisms such as special reviews and could measure successful collaboration in terms of interdisciplinary citations and co-authorship. The relationship between memory and decision-making was suggested as a specific topic for interdisciplinary research.

Transdisciplinary training programs were also discussed. While joint degree programs face challenges with job placement, alternative solutions might involve summer camps, web-based training, research apprenticeships, and semester exchange programs. The NIA and National Science Foundation (NSF) supported a successful neuroeconomics summer program in 2006 that could serve as a model.

Future research should seek to connect the prevalence of poor economic decisions with health and wellbeing outcomes. Classifying a “poor decision” may itself be challenging because of

variation in preferences. New metrics must be developed. Future research should also explicitly consider socioeconomic status, because there may be important income- and wealth-related differences.

Assessing the validity of model assumptions is critical for meaningful interpretations and accurate predictions. For example, key economic models assume consumption remains constant throughout the lifespan. It is unclear whether variance tends to be positive or negative: retirees may spend more money because of declining health and mobility or they may spend less money because of fewer needs. Time use surveys may help answer this important question.

Several participants mentioned the need to consider social, emotional, and other motivational factors influencing financial decisions. A key consideration to understanding decision-making is determining whether values are constructed when making a specific choice or retrieved from previous experience and applied. One participant noted that this might be measured by asking respondents to describe their thought process when making specific decisions. Such hypotheses can also be tested experimentally.

There is growing interest in new data sources for decision research. Data from financial management applications, credit cards, and grocery stores are of particular interest. Participants experienced in collaboration with private-sector entities emphasized the importance of demonstrating the benefits of proposed research for the company. For example, technology companies may support social research that provides information about customer preferences. Assurance of data integrity, data anonymization, and non-disclosure are critical for corporate projects. Secrecy around proprietary data and algorithms can be problematic for academic research. One participant suggested creating a website or webinar for best practices for collaboration with private-sector organizations. Large natural experiments, such as differences in state health exchanges, are another potential data source.

Linking laboratory studies and large surveys, such as the HRS, was discussed. Because large-scale laboratory and imaging studies are expensive it would be more efficient to harmonize than incorporate them. A workshop could be held to interest and educate researchers who are unfamiliar with the HRS. Other cohort studies, such as the Women's Health Initiative, could also be harmonized to allow correlations with new data elements.

### ***POTENTIAL INTERVENTIONS***

Programs designed to simplify choices were discussed. Current retirement savings programs facilitate accumulation of assets through automatic contributions and good default investments; mechanisms to simplify decumulation may be helpful. A significant barrier is the desire for autonomy coupled with widespread denial of cognitive decline. Annuitization is unpopular and underutilized when available. Simplifying health insurance choices and creating mechanisms to streamline management of multiple fiduciary accounts were also suggested.

Advance financial directives are an appealing idea, but they may be underutilized as advance medical directives have been. One way to encourage broader use of advance directives and

other forms of delegation is adoption of active choice policies. Most participants expressed enthusiasm for active choice policies, but there was some opposition. Linking medical designations with Medicare would allow easy access to relevant documents in case of hospitalization. Participants debated the ideal age of mandatory active choices. The optimal solution would likely be a relatively early initial active choice with periodic mandatory updates to ensure that the decision and designees remain relevant.

Participants discussed just-in-time education for important decisions that are infrequently encountered in a lifetime, such as deciding when to claim social security benefits. One participant noted a successful example for Medicare Part D. Lower fluid intelligence of older adults might, however, predict suboptimal results.

## **APPENDIX 1: WORKSHOP AGENDA**

### **Summary**

The National Research Council's Board on Behavioral, Cognitive, and Sensory Sciences (BBCSS) and Committee on Population (CPOP) are convening this planning meeting on economic decision-making in aging populations with the objective of bringing together a small group of experts to consider the state of the field and consider new research directions of relevance to the National Institute on Aging. The experts will address several aspects of this topic from social and behavioral fields to present and discuss new work on the challenges of financial management in aging, the ability of aging individuals to meet these challenges, and the role of family, community, and others with respect to enabling aging individuals to manage their financial conditions. A main focus will be on the consequences of poor economic decision-making on the health of older persons. In addition to providing expert advice to the National Institute on Aging on these topics, the discussion is designed to inform the development of a larger proposal to systematically address these topics.

### **10:00-10:10am      Welcome and Discussion of Agenda**

Robert Willis, University of Michigan (Meeting Chair)

### **10:10-10:45am      Session 1. Background**

The Division of Behavioral and Social Research (BSR) in the National Institute on Aging (NIA) has long supported research on aspects of decision-making among older persons. The focus of the research has been on the relationship between aging and cognitive decline and the impact on life skills, such as economic decision-making. In this session, NIA staff will discuss current and past research in this area and summarize lessons learned.

Lisbeth Nielsen, National Institute on Aging

John W.R. Phillips, National Institute on Aging

### **10:45am-12:00pm      Session 2. Defining the Scale of the Problem.**

In this session, we will explore existing knowledge about the causes and magnitude of the problem. Discussion will focus on the process of cognitive decline and the complementary and interacting roles of fluid and crystallized intelligence. The impact of cognitive decline on decision-making will be explored. Specific topics to be explored include:

- How does cognitive decline affect one's ability to make decisions?
- What are the processes by which cognition declines with aging, and how are these processes related to decision-making ability?
- How much of the problem is disease-oriented and how much is normal aging?

Robert Willis, University of Michigan

Ye Li, University of California, Riverside

Susan Resnick, National Institute on Aging

Valerie Reyna, Cornell University

**12:00-12:30pm Lunch**

**12:30-1:30pm Session 3. The Impact of Environmental Factors, Public Policies, and Interventions on the Economic Decision-Making Capability of an Older Population**

In this session, we will consider the impact of outside economic and policy influences on the independence, wellbeing, and health of older persons. The discussion will include consideration of the role of spouses and other family members, demographic trends (such as the fact that living longer means that children who are a main source of economic decision support are also aging), and public and private pension policies that are shifting from defined benefit to defined contribution plans and are consequently having an impact on the complexity of decisions facing older pensioners, and ultimately their well-being. To the extent that there are problems, there is a need for public and private interventions. This session will consider the sorts of interventions that are used now and provisionally assess which ones lead to better outcomes.

David Laibson, Harvard University

Joanne Hsu, Board of Governors, Federal Reserve System

**1:30-2:30pm Session 4. Economic Decision-Making for Older Populations**

In this session, we will explore the state of knowledge about the range of decisions that older persons make that affect and are affected by their economic, physical, and psychological health. Managing the economic side of life throughout the life course is important because failing to do so will have health ramifications for independence and general wellbeing and, in turn, for mortality and morbidity. The growing complexity of decisions concerning options that affect health will include:

- Retirement account viability and management
- Medicare/Medicaid decisions (to include Medicare Part D participation)
- Social Security
- Long-term care (LTC) insurance
- End-of-life care (last 6 months compared to the rest of the time)

Gregory Samanez-Larkin, Yale University

Debra Whitman, AARP

**2:30-2:45pm Break**

**2:45-3:45pm                      Session 5. Measurement Strategies to Improve Assessment of the Problem**

In this session, we will consider means of improving the quantity and quality of information on the problem and outcomes. The discussion by experts in measuring the causes, extent, and consequences of poor economic decision-making among older populations will include assessing the potential of the Health and Retirement Survey to shed more light on the issues, and other measures, both domestic and international, that can be brought to bear (i.e., registry databases such as those employed in Sweden). The session will include discussion of means of measuring risk and classifying individual differences in decision-making styles (economic phenotypes).

Eric Johnson, Columbia University

**3:45-4:30pm                      Session 6. Next Steps in Developing an Interdisciplinary Research and Intervention Program to Improve Economic Decision-Making and Health in Older Populations**

In this final session, planning meeting participants will consider the issues to be considered in developing a proposal for a systematic, interdisciplinary review of the issues associated with economic decision-making and its impact on the health of older populations.

Robert Willis, University of Michigan

**4:30pm                              Adjourn**

## **APPENDIX 2: LIST OF MEETING PARTICIPANTS**

### **INVITED PARTICIPANTS**

Joanna Hsu, Board of Governors, Federal Reserve System  
Eric Johnson, Columbia University  
David Laibson, Harvard University  
Ye Li, University of California, Riverside  
Valerie Reyna, Cornell University  
Gregory Samanez-Larkin, Yale University  
Debra Whitman, AARP  
Robert Willis, University of Michigan

### **NATIONAL INSTITUTE ON AGING**

Farheen Akbar  
Partha Bhattacharyya  
John Haaga  
Jonathan King  
Anna McCarrey  
Lisbeth Nielsen  
John Phillips  
Susan Resnick  
Richard Suzman  
Rose Li, Rose Li and Associates, Inc. (Contractor)  
Samuel Thomas, Rose Li and Associates, Inc. (Contractor)

### **CONSUMER FINANCIAL PROTECTION BUREAU**

Naomi Karp  
Hector Ortiz

### **OBSERVER**

Jeffrey Hayes, Institute for Women's Policy Research

### **NATIONAL ACADEMY OF SCIENCES**

Robert Hauser  
Tina Latimer  
Thomas Plewes