

The Monetary Costs of Dementia: Today and in the Future

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Presented by:

Michael D. Hurd

RAND, NBER, NETSPAR, MEA and SMU



**FEDERAL
RESERVE
BANK
of ATLANTA**

THE MONETARY COST OF DEMENTIA IN THE U.S.

- **Michael D. Hurd, RAND**
- **Adeline Delavande, RAND and University of Essex**
- **Francisco Martorell, RAND and UC Davis**
- **Kathleen Mullen, RAND**
- **Kenneth Langa, University of Michigan**

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DEMENTIA

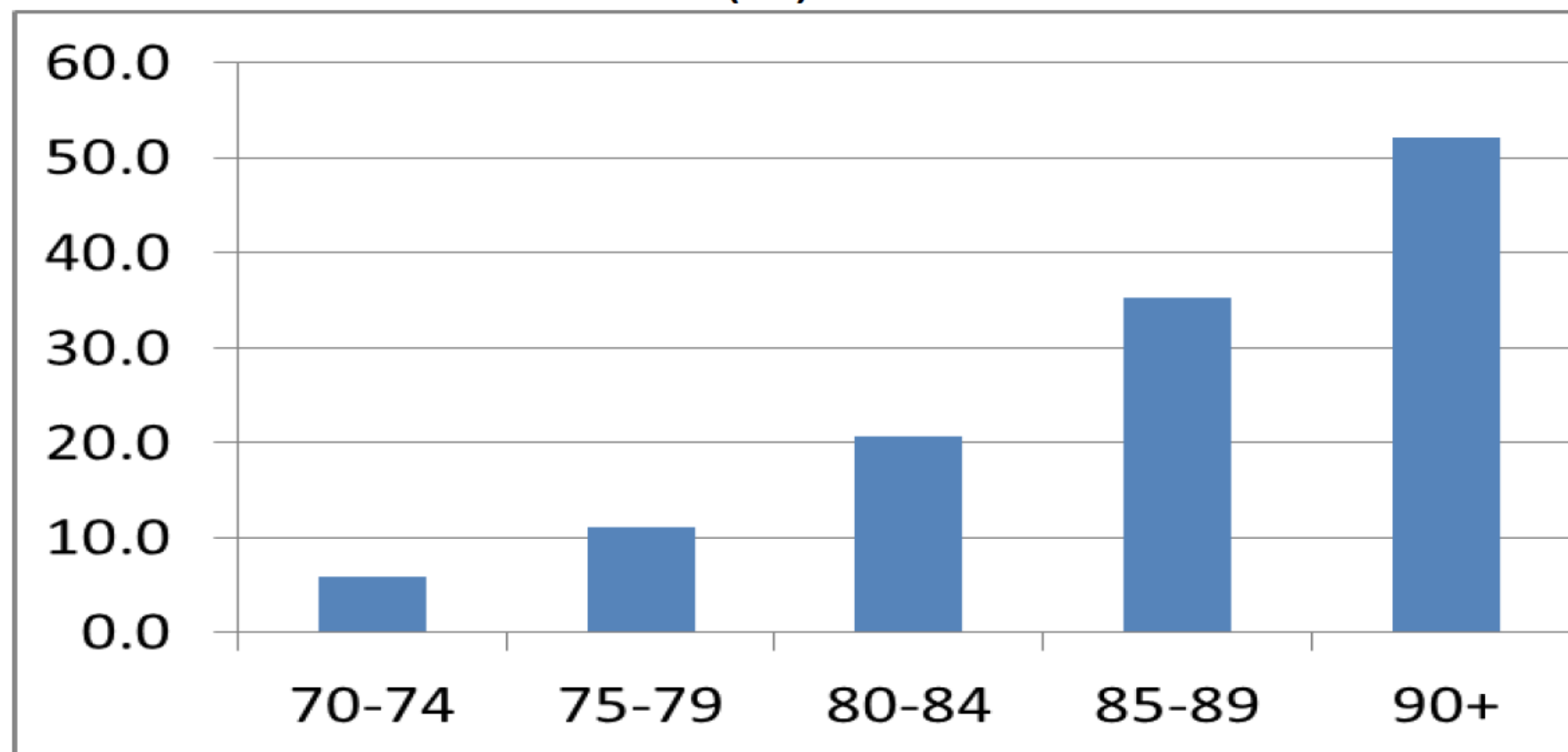
- ...serious loss of cognitive ability in a previously unimpaired person, beyond what might be expected from normal aging, leading to disability

Non-specific illness syndrome

- Affected areas of cognition may be memory, attention, language, and problem solving.
- Number of types: Alzheimers (60-80%), vascular (often Alzheimer's), Lewy bodies, Parkinsonian, frontotemporal, and several more

STRONGLY AGE RELATED

Prevalence of dementia (%)

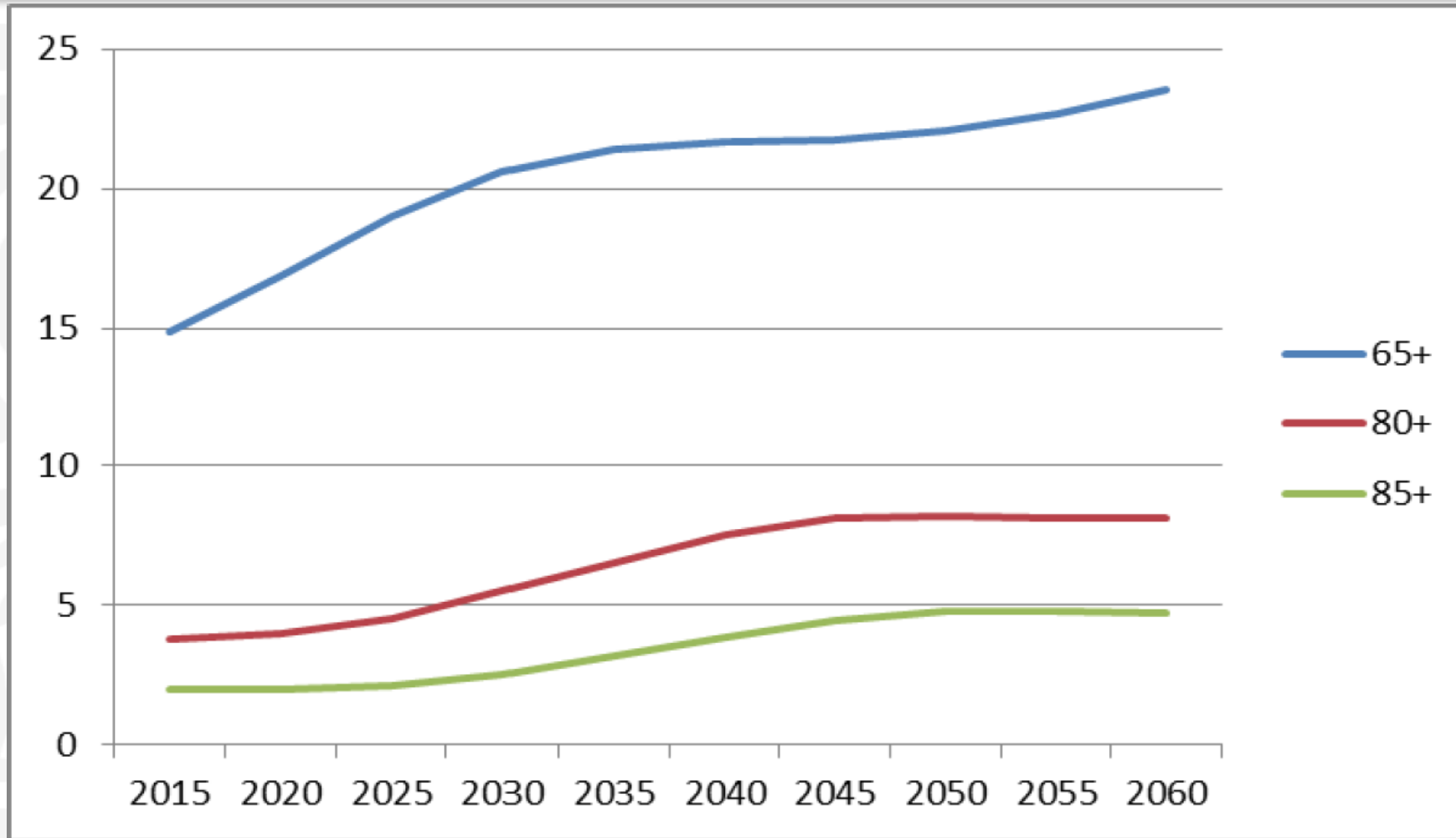


Source: Calculations based on ADAMS and HRS

Approximate doubling every five years

If age-specific prevalence rates remain unchained, increasing fraction of population will have dementia because of population aging.

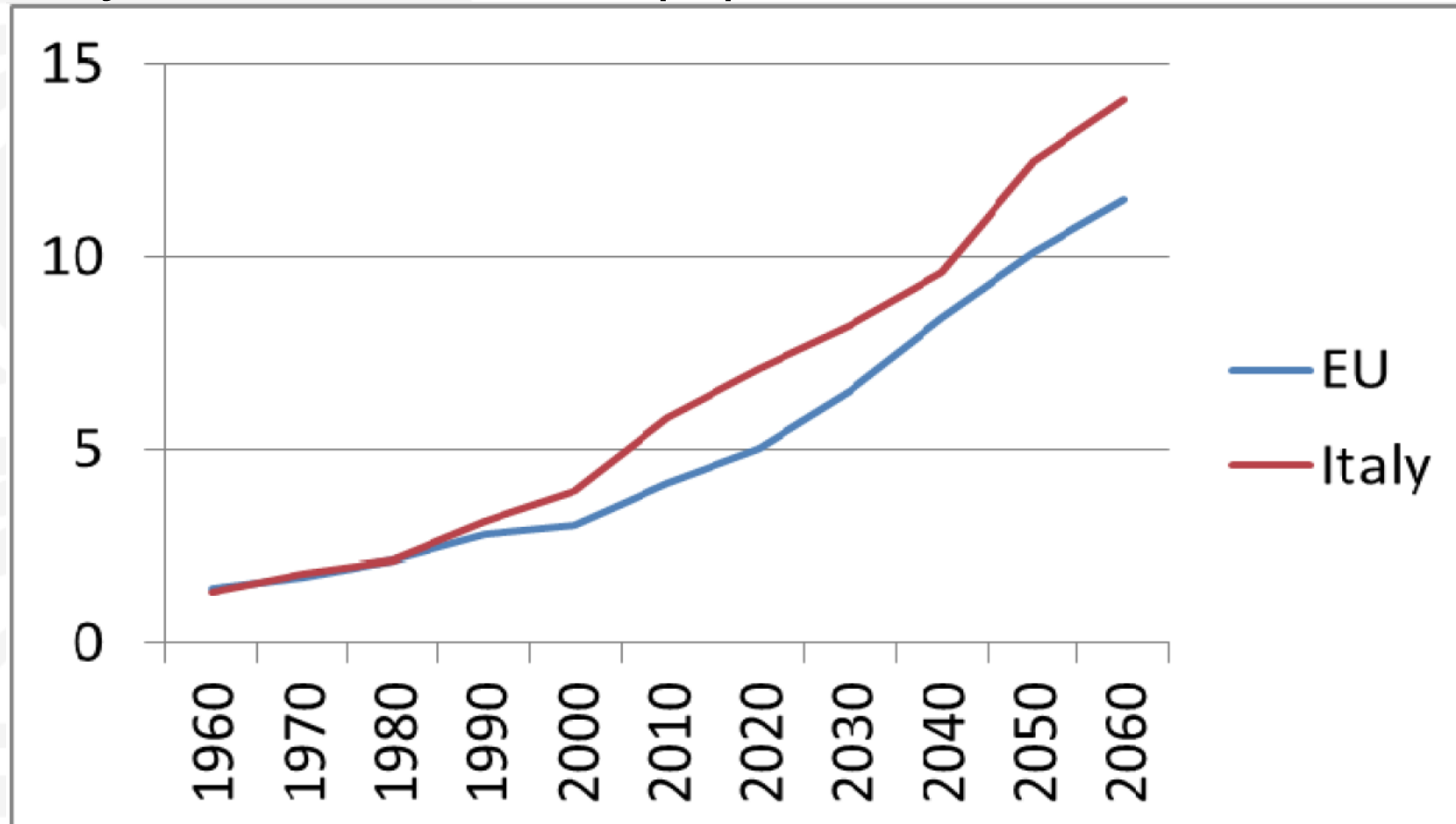
PERCENT OF U.S. POPULATION BY AGE BAND



85+ from 2.0% to 4.7%

PROBLEM FOR ALL DEVELOPED WORLD

Italy and EU: Percent of population 80 or older



U.S.: 8.2% in 2060

COSTS ARE HIGH

Alzheimer's Association estimates

- **Total monetary costs in 2010: \$172B**

Does not include any imputed costs for **informal** care.

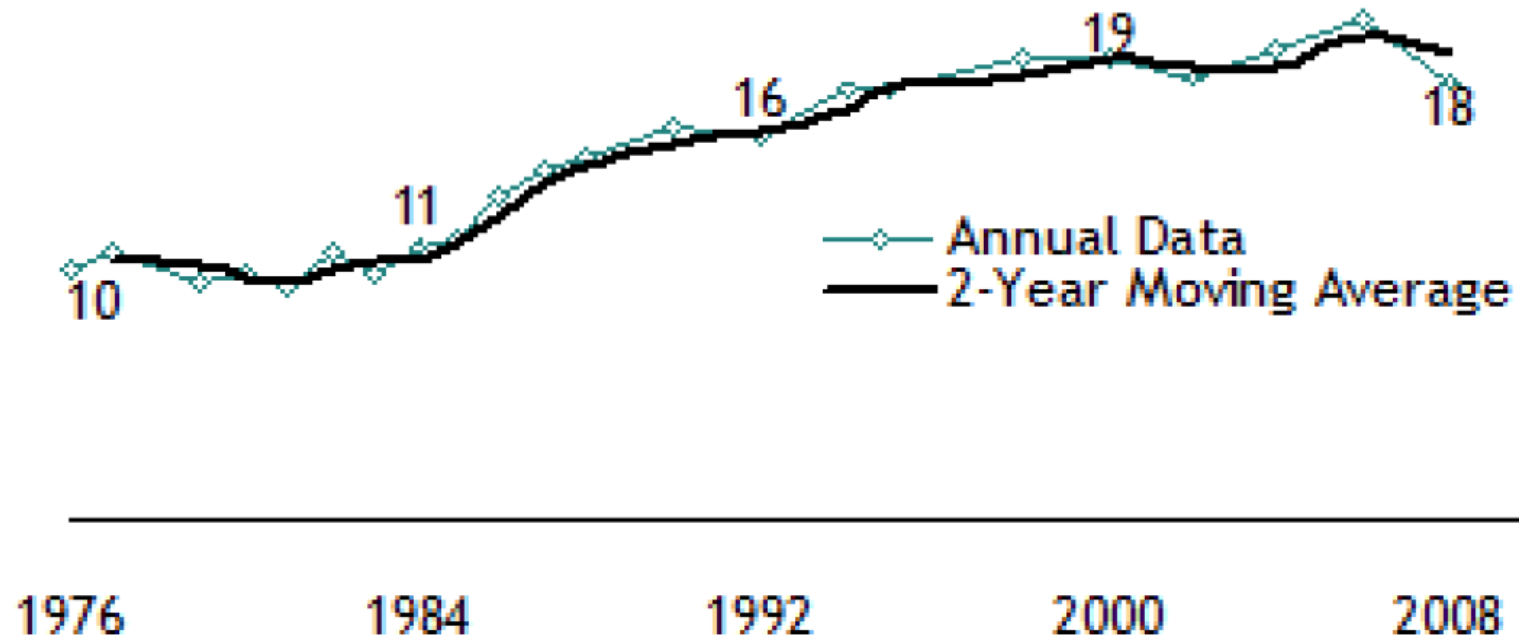
- Informal care: Help and care provided by a family member or others that is not paid for.
- Formal care: Purchased in market

Future costs per case may be higher

- Health care costs in general
- Caregiver costs...shift to formal sector

RISING SHARE OF WOMEN HAVE NO CHILDREN

% childless ages 40-44



Source: Statistics calculated and obtained using Current Population Survey data

PewResearchCenter

OUR RESEARCH:

What is monetary cost of dementia plus value of informal care in the U.S.?

Aim to account for costs in a more systematic (better) way using better data than prior estimates

MONETARY COST COMPONENTS

- **Out-of-pocket spending** by households (& possibly family)
- **Medicare**: U.S. public health insurance for those 65 or older. Does not cover long-term care.
- **Medicaid**: means-tested public health insurance. Covers long-term care both in-home and nursing home.
- **Private insurance**

Informal care: unpaid care provided by spouse, child, etc.

Nothing about loss of self, of spouse, of parent, etc.

CHALLENGES

Want “attributable” costs

- Costs **due** to dementia, not costs of those with dementia
- Need to adjust for
 - Co-morbidities (co-existing illnesses)
 - Functional limitations (bathing, walking, etc.)

Implicit costs of informal care (foregone earnings)

REPRESENTATIVE SAMPLE

Need large national representative sample of older individuals with:

- Known dementia status
- Cost components
- Co-morbidities
- Functional limitations
- Use of informal care
- Information about care-givers (potential earnings)

HEALTH AND RETIREMENT STUDY (HRS)

- Interviews about 20,000 persons every two years since 1992. Longitudinal (same people over time)
- Approximately age 51 or older, plus spouses
- Data collected by University of Michigan
- We use RAND-HRS: a user-friendly version used by almost all researchers inside and outside of government
- Will use data from 2000-2008

HRS MEASURES

Income, wealth, family linkages, etc. plus:

- **cognition measures**
- **health:** co-morbidities, functional limitations
- **out-of-pocket spending** for health care services
- **formal and informal help**
 - Who gives care: spouse, daughter, etc. or paid
 - Amount of care
 - Cost if paid
 - Characteristics of care-giver if unpaid
- **linked at individual level to Medicare data**

But, no indicator for dementia status (requires clinical assessment.)

THE AGING, DEMOGRAPHICS, AND MEMORY STUDY (ADAMS)

**We used results from the ADAMS, a sub-study of the
HRS**

Sample of 856 persons, ages 70 or older from HRS

In-field assessment for dementia status, 2001 and 2003

- Normal
- Cognitively Impaired not Demented (CIND)
- Demented

RESULTS FROM ADAMS

Distribution of population age 71+ by dementia status

Normal	CIND	Demented	All
63.9	22.2	13.9	100.0

Prevalence in 2002-2003: 13.9%

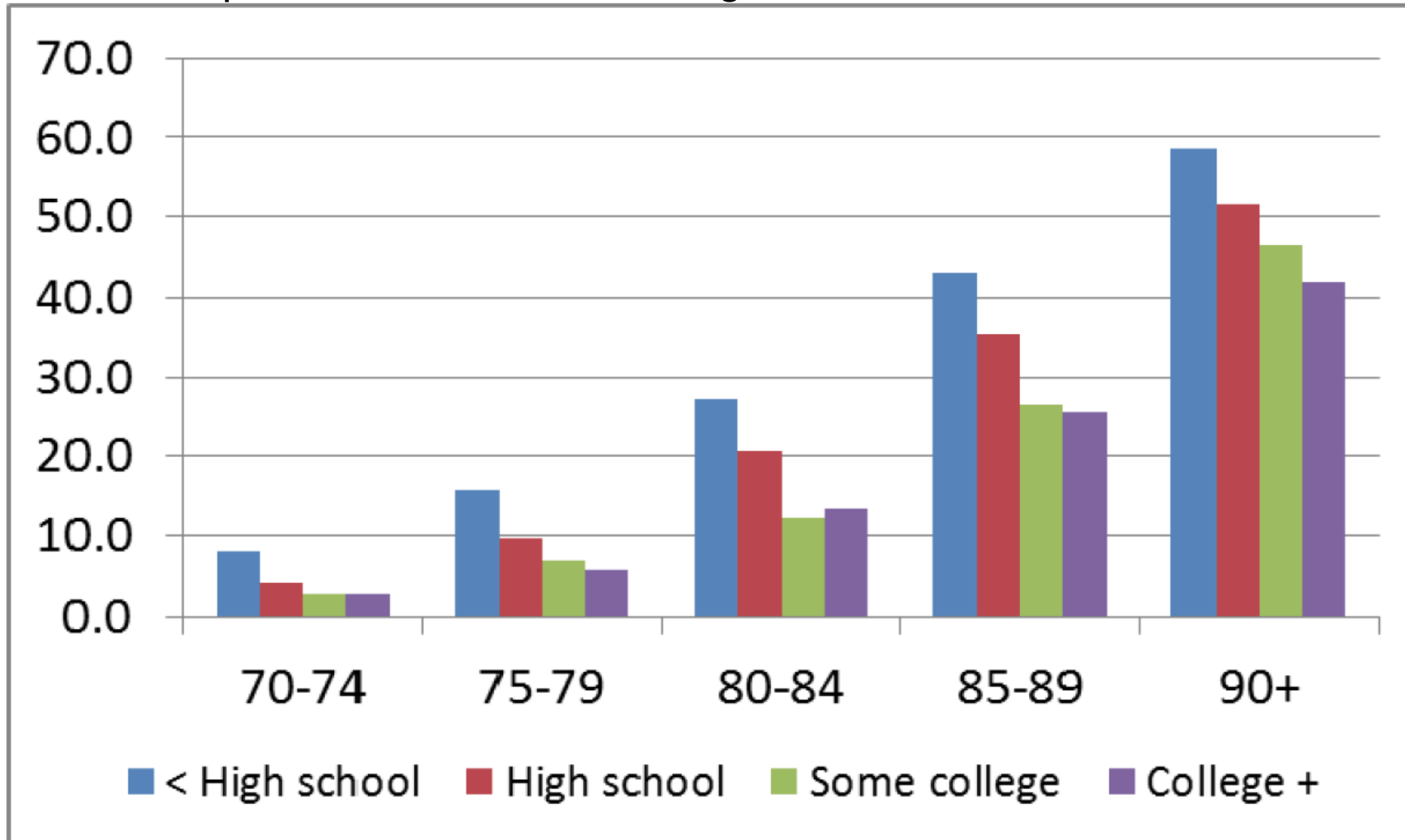
USE OF ADAMS RESULTS

Used ADAMS results to impute dementia status to much larger HRS

- ADAMS sample, estimate relationship between dementia status and predictor variables from HRS (856 observations)
 - Immediate and delayed word recall, serial 7's, etc.
- Impute dementia status to larger HRS (about 6,400 observations)
- Use statistical methods to estimate attributable costs of dementia over larger HRS sample

VERY LARGE DIFFERENCES BY EDUCATION LEVEL

Estimated prevalence of dementia: age and education



OUT OF POCKET SPENDING

Measurement of out-of-pocket spending from HRS core interview

“Did you have any nights in hospital?” (last 2 years) If yes, what were the out-of-pocket costs?

- Hospital
- Nursing home
- Home health care
- Average monthly prescription drugs
- Outpatient Surgery
- Doctor
- Dentist
- Special services/facilities (adult day care, etc.

Totals similar to other surveys more focused on health care spending.

COSTS INCURRED BY MEDICARE

Link HRS data to Medicare data (restricted data)

Annual Attributable Medicare spending

No adjustment	Adjusted for demographics and co-morbidities
\$5,226	\$2,752

COSTS

Paid home care

- Hours recorded in HRS
- Average cost per hour from external data

Nursing home costs

- Reported use in HRS
- State-level average daily costs

COST SUMMARY (2010 \$)

	No adjustment	Adjustment
Total out-of-pocket spending	6,838	6,194
Total Medicare spending	5,226	2,752
Net formal home care	6,888	5,678
Nursing Home Care	14,377	13,876
Total Care Purchased in the Market	\$33,328	\$28,501

HOURS OF INFORMAL CARE

Hours of informal care (in the community)

Reported in HRS core

**Estimated hours per week of informal care
due to dementia**

	Unadjusted	Adjusted
Hours	38.6	34.6

VALUE OF INFORMAL CARE

Two concepts to assigning value

- What would it cost to replace those hours with hours of formal care (*replacement cost*)?
- What are the foregone earnings of those providing care (*foregone earnings*)?

VALUE OF INFORMAL CARE

Replacement cost calculation

- $(\text{Hours}) \times (\text{\$ Cost per hour for formal care})$
- Use regional variation

Foregone earnings

- Wage rate if helper working
- Earnings of similar persons if helper not working. Example: Almost no cost for 80 year-old wife caring for dementing husband

Replacement cost overstates: supply of care by many has no monetary costs.

Also suppliers of care have chosen not to hire formal care.

VALUE OF CARE-GIVER TIME

Annual attributable value of care-giver time
(2010 \$)

	Unadjusted	Adjusted
Using replacement cost	30,839	27,789
Using foregone wage cost	14,591	13,188

TOTAL COSTS

Total annual attributable cost per demented person including market costs and imputed value of caregiver time (2010 \$)

<i>Valuation of caregiver time</i>	<i>Unadjusted</i>	<i>Adjusted</i>
Replacement cost	64,167	56,290
Foregone wage cost	47,920	41,689

TOTAL ANNUAL POPULATION COSTS

Estimated prevalence of dementia in the 70 or older population in 2010 was 14.7%

Assume unchanging prevalence by age.

Increase in overall prevalence over time due to population aging

Using Census projected population totals by age and constant real attributable cost

ATTRIBUTABLE COST FOR DEMENTIA

Total cost by valuation of caregiver time
(billions 2010 \$) for dementia

	Monetary cost	Replacement	Foregone wage
2010	109	215	159
2020	129	255	189
2030	183	361	267
2040	259	511	379

ESTIMATES OF MONETARY COSTS (2010)

- **Dementia** **\$109B**
- **Heart conditions** **\$102B**
- **Cancer** **\$77 B**

But informal care costs likely much higher for dementia

Research funding

- **Dementia** **\$0.5B**
- **Heart** **\$3B**
- **Cancer** **\$6B**

CONCLUSIONS

High health care costs associated with dementia

- Greater than for heart conditions or for cancer

Costs of care dominate

- Formal, market-based: nursing home, in-home professional care
- Informal: non-market based but costly nonetheless

Who pays these costs depends on public policy.

Substantial amount paid by Medicaid

Future costs will grow because of aging of population.