Mortality Risk and Household Insurance in the U.S.

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Motivation

- Death of a primary earner is among the most devastating shocks that households face
  - Major source of economic risk for American families

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  - 1.4 million newly-widowed households each year
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- Program that aims to protect against this shock—Social Security’s survivors insurance—has become one of the largest safety-net programs in the U.S.
  - $95 billion to 4.2 million survivors; rapid growth from $64 billion in 2000
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- Program that aims to protect against this shock—Social Security’s survivors insurance—has become one of the largest safety-net programs in the U.S.
  - $95 billion to 4.2 million survivors; rapid growth from $64 billion in 2000

- Yet, to the best of our knowledge, there is virtually no direct causal evidence on the economic effects of Social Security’s survivors insurance
Using tax records that cover the entire U.S. population, we estimate the causal effects of Social Security’s survivors benefits on households’ behavior and economic well-being.
Overview

- Using tax records that cover the entire U.S. population, we estimate the causal effects of Social Security’s survivors benefits on households’ behavior and economic well-being.

- Analyze close to a quarter of a million households that have experienced a spousal death shock.

- Data include a rich range of financial outcomes:
  - Aggregates of effective financial well-being, accounting for substitution of alternative sources of income, such as private savings.
  - Household behavioral responses, most importantly, in labor supply.
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- Aggregates of effective financial well-being, accounting for substitution of alternative sources of income, such as private savings.
- Household behavioral responses, most importantly, in labor supply.

Estimate effects by exploiting a sharp discontinuity in widows’ eligibility age.
- Leverage scope of data to investigate outcomes of households just below/above the age cutoff following a spousal death.
Empirical Framework
Surviving spouses become universally eligible for Social Security's survivors benefits at exactly age 60.

- Benefit amounts are based on the deceased spouse's potential Social Security retirement benefits.

- Benefits are calculated as a percentage of the deceased’s retirement benefits:
  - Determined by widow's claiming age: from 71.5% at 60 to 100% at FRA.

- Schedule depends on the deceased’s earnings history and does not depend on the survivor’s labor supply:
  - Potential impacts are likely to operate primarily via an “income” effect.
Research Design

- Exploit the sharp eligibility-age discontinuity in Social Security’s survivors benefits to identify the program’s causal effects on widowed households.

- Study the patterns of family outcomes as a function of widows’ age in the post-shock years.
  - Using “monthly age” at end of calendar year.
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  - Allow for smooth underlying trends in widows’ outcomes that account for any changes continuous in age
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  - Allow for smooth underlying trends in widows’ outcomes that account for any changes continuous in age.

- Effect of being “fully exposed” to eligibility for benefits captured when widows are eligible for entire calendar year.
  - Widows who turn 60 in January = just below 61 at end of the year.
Therefore, quantify the full-exposure effect using:

\[ y_{i,t} = \beta_0 + \beta_1 (age_{i,t} - 60) + \beta_2 \{age_{i,t} > 60\} + \beta_3 \{age_{i,t} > 60\} \times (age_{i,t} - 60) + \varepsilon_{i,t} \]

- \( age_{i,t} \) - widow’s age in months
- \( \{age_{i,t} > 60\} \) - indicator variable for being older than 60
- Two separate linear trends
  - Guided by graphical analysis of the raw data
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Estimate program’s treatment effect as full-exposure impact by age 61:

\[ \beta_2 + \beta_3 \times (11/12) \]
Effects of Social Security Survivors Benefits
Effects of Social Security Survivors Benefits

- Start by estimating effects of benefit eligibility in protecting households against the immediate adverse financial impact of a spousal death

- Study outcomes of “newly-widowed” in the periods just after event occurs
Benefit Claiming
Benefit Claiming

Benefit Claiming Rate

Age of Widow

Rate
Benefit Claiming

### Benefit Claiming Rate

<table>
<thead>
<tr>
<th>Age of Widow</th>
<th>Rate</th>
<th>Amount ($)</th>
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<tbody>
<tr>
<td>55-56</td>
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<td>61-62</td>
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</table>

### Benefit Amount

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#### Full-Exposure Effect

<table>
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<tr>
<th></th>
<th>Claiming Rate</th>
<th>Benefit Amount</th>
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<tbody>
<tr>
<td>Full-Exposure Effect</td>
<td>.5135***</td>
<td>5,605***</td>
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<tr>
<td>(Standard Error)</td>
<td>(.0034)</td>
<td>(39)</td>
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<tr>
<td>Obs.</td>
<td>504,104</td>
<td>504,104</td>
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<tr>
<td>Clusters</td>
<td>293,857</td>
<td>293,857</td>
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</tbody>
</table>
Overall Net Household Income
Overall Net Household Income

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**Full-Exposure**: 4,804***  
**Effect**: (343)
Labor Supply
Labor Supply: Retirement Rate

Full-Exposure: .0183***
Effect: (.0019)
Labor Supply

<table>
<thead>
<tr>
<th>Age of Widow</th>
<th>Participation</th>
<th>Wage Earnings</th>
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<tbody>
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<td>62</td>
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</tbody>
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**Full-Exposure Effect**

- Participation: \(-0.0287***\)
- Wage Earnings: \(-1.751***\)

**Observations**
- 504,104
- Clusters: 293,857
Implications
Valuation of Benefits by Eligible Households

- Two main takeaways that underscore eligible households’ valuation of the protection provided by the federal government against mortality shocks

  - **First:** effect on overall household income is considerable and exhibits little net crowd out of benefits through other potential compensating sources
    - $1 of benefits translates to $0.86 in income available for consumption

  - **Second:** provision of benefits allows widows to meaningfully decrease their labor supply and consume more leisure (mitigated need to self-insure)
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  - **Second**: provision of benefits allows widows to meaningfully decrease their labor supply and consume more leisure (mitigated need to self-insure)

- Back-of-the-envelope calculation of valuation:
  \[ V \approx \$4,804 + \$1,751 = \$6,555 \text{ annually} \]

- Every $1 transferred generates an average gain of $1.17 (≈6,555/5,605)
  - An excess value of 17%
Estimated labor supply responses have direct implications for the excess value ineligible households would assign to a dollar of benefits
  - Compared to the benchmark of eligible households

Captured by gap in marginal disutility from labor across eligible and ineligible
  - Proportional to earnings responses that are on the order of 11%

Potentially considerable gains from expanding coverage to the currently ineligible families
Responses to Anticipated Benefits
Responses to Anticipated Benefits

- Do widowed households’ labor supply respond to anticipated benefit receipt?

- Analyze responses of “already-widowed” whose benefit schedule has been already determined and expected

- Study whether widows deviate from the frictionless first-best benchmark in which there should be no discontinuous behavior at benefit availability

- Allows focusing on the role of benefit timing and exploring the value of liquidity provided by government transfers to vulnerable older families
Labor Supply: Retirement Rate
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Full-Exposure \( .0200^{***} \)

Effect: \( (.0017) \)
Implications of this deviation from the benchmark of labor supply smoothing:
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1) **Normative**: timing and liquidity play a role and can have direct value

   Potential welfare gains from changing benefit timing to inject liquidity earlier and smooth distribution over course of widowhood for same PDV
Implications

Implications of this deviation from the benchmark of labor supply smoothing:

1) **Normative:** timing and liquidity play a role and can have direct value

   - Potential welfare gains from changing benefit timing to inject liquidity earlier and smooth distribution over course of widowhood for same PDV

2) **Positive:** findings are consistent with either myopia or with liquidity constraints as the mechanisms that underlie widows labor supply responses

   - Further explore the source of deviation from benchmark using tests that aim to distinguish between these potential cannels
Response Channels
Response Channels

- Findings are generally inconsistent with complete myopia
  - To be eligible, surviving spouses cannot remarry before age 60
  - Study whether there is strategic behavior of remarriage timing
Remarriage

**Monthly**

Full-Exposure: .00498***
Effect: (.00054)

**Bi-Monthly**
Response Channels

- Findings are generally inconsistent with complete myopia
  - To be eligible, surviving spouses cannot remarry before age 60
  - Study whether there is strategic behavior of remarriage timing

- Evidence supports liquidity constraints as a likely explanation
  - Study household labor supply responses by the degree of liquidity
Responses by Liquidity: Retirement Rate

![Graph showing the relationship between Age of Widow and Retirement Rate. The graph compares Low and High liquidity scenarios. The Retirement Rate is shown on the y-axis, ranging from 0.03 to 0.08, and the Age of Widow is on the x-axis, ranging from 55 to 62.]
Conclusion
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- Social Security’s survivors benefits have important impacts on household behavior and financial security
- High valuation in protecting against income losses from mortality shocks
- Evidence points to valuation of liquidity provided by the federal government
- Potentially important welfare gains from expanding the program’s coverage to ineligible families and from a smoother benefit profile
- Results shed light on vulnerable American households’ retirement behavior and response mechanisms to transfers at older ages