

Longevity and Occupational Choice

Marius Guenzel
UPenn

Ulrike Malmendier
UC Berkeley

Denis Sosyura
ASU

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Motivation

- Key question in economics: How do economic decisions affect health outcomes?
- “Ultimate” health outcome: longevity
 - Human life one of the highest societal values
 - Implications for retirement planning, social security, health insurance, etc.
- **Heterogeneity in longevity** across socioeconomic strata
 - Existing work: Disparities and inequality in life expectancy by income, gender, race, geographical location
- **This paper:** How does life expectancy vary with occupation, controlling for correlates?
 - Typical adult dedicates half of waking hours to work (Krueger and Mueller 2012)

Empirical Setting

- Universe of administrative vital records for approx. 15% of the U.S. population
 - From economically important states (CT, FL, MA, OH), over multiple decades
 - Detailed personal data:
 - Usual (pre-retirement) occupation
 - Demographics
 - Dates of birth and death
 - Medical death reason
 - etc.
- BLS Occupational Requirements Survey (ORS), American Time Use Survey (ATUS)

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 - Indoor vs. outdoor
 - Physical and mental burden
 - Job meaningfulness
 - Social interactions

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- ▶ Key contribution: one of the first large-scale studies in the U.S. on the association between life expectancy and occupation

Data and Occupation Mapping

- Universe of administrative vital records from CT, FL, MA, OH (1990–2020)
- Map occupations to **minor** six-digit SOC categories

Reported Occupation	Mapped SOC Category
Elementary School Te	Elementary School Teachers, Except Special Education
Ret Clerk Typist	Word Processors and Typists
Hairdreser	Hairdressers, Hairstylists, and Cosmetologists
Babysitter	Childcare Workers
CNA	Nursing Assistants
Executive Chef	Chefs and Head Cooks

Based on the O*NET-SOC AutoCoder software developed by R. M. Wilson Consulting for the DoL. Abbreviations and typographical errors included on purpose.

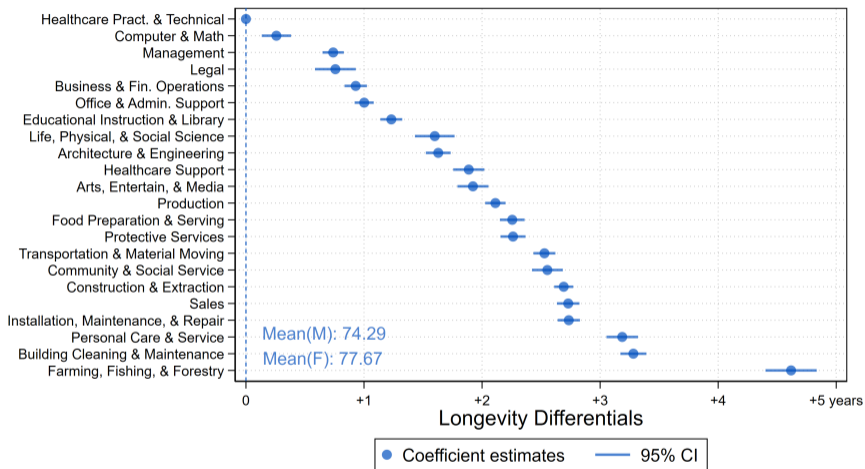
- Aggregate further into **major** occupation groups
 - E. g.: Educational Instruction and Library Occupations

Empirical Approach

$$AgeAtDeath_i = \alpha + \beta' \mathbf{Occ}_i + \gamma' \mathbf{X}_i + \varepsilon_i \quad (1)$$

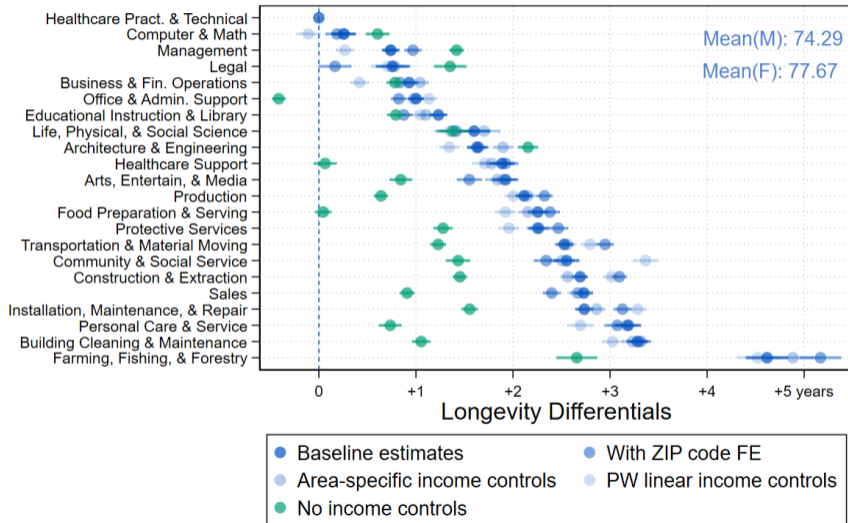
- $AgeAtDeath_i$ is the difference between the exact dates of birth and death
- \mathbf{Occ}_i is a vector of indicators for SOC (22 major or 794 minor) occupation categories
- \mathbf{X}_i is a vector of controls
 - Sex
 - Race
 - Ethnicity
 - Minor-occupation group income profile (mean, p_{10} , p_{25} , p_{50}); 794 occup. groups

Occupation predicts large differences in longevity

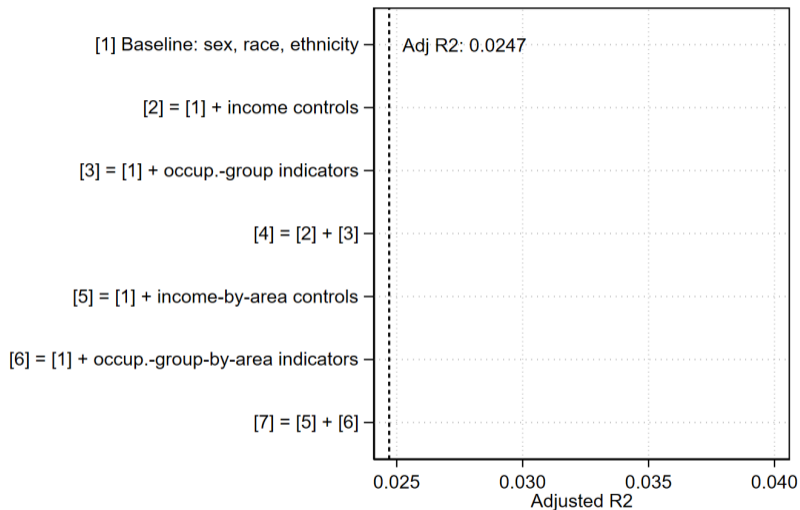


Notes: Controls include sex, race, ethnicity, and 794 minor-occupation group income profiles (mean, p_{10} , p_{25} , p_{50}). $N = 4,027,011$.

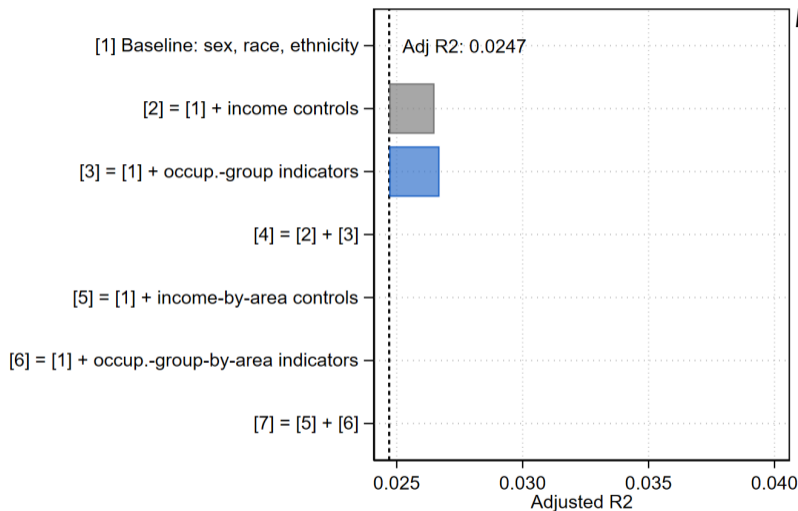
Accounting for income is important



Broad occupation matters for R^2 1–5x as much as income



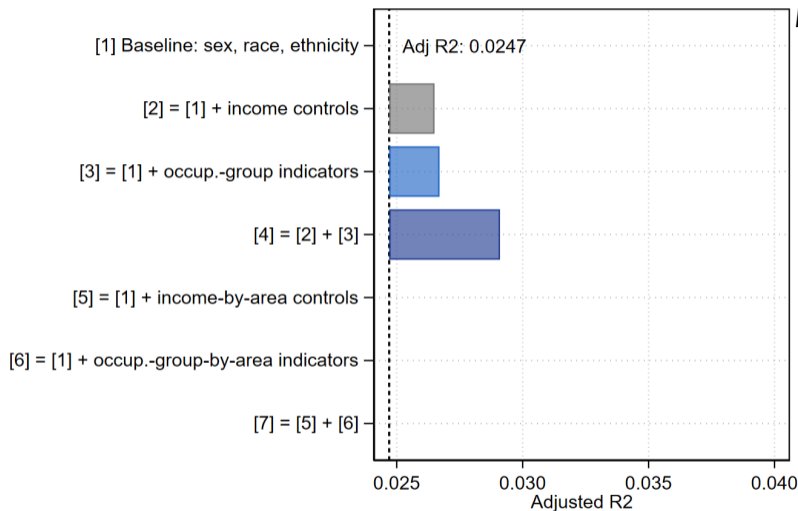
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Notes:

- Income controls: 794 **minor** occupations (mean, $p10$, $p25$, $p50$)
- Occupation groups: 22 **major** occupation groups

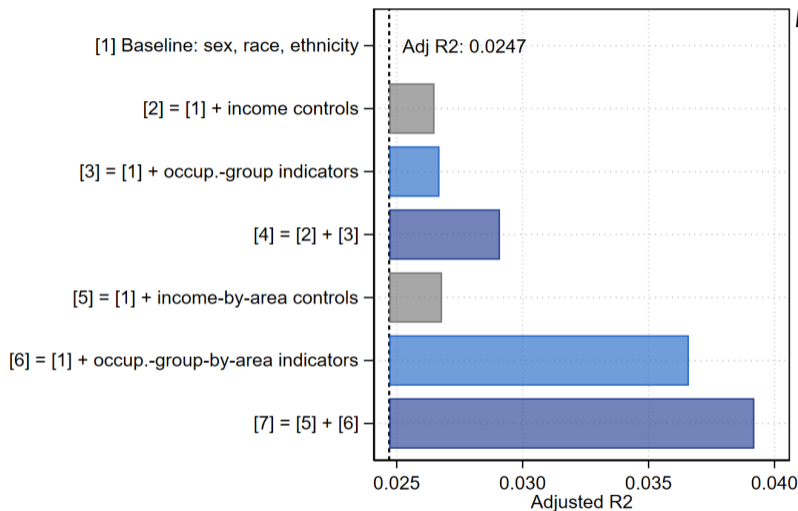
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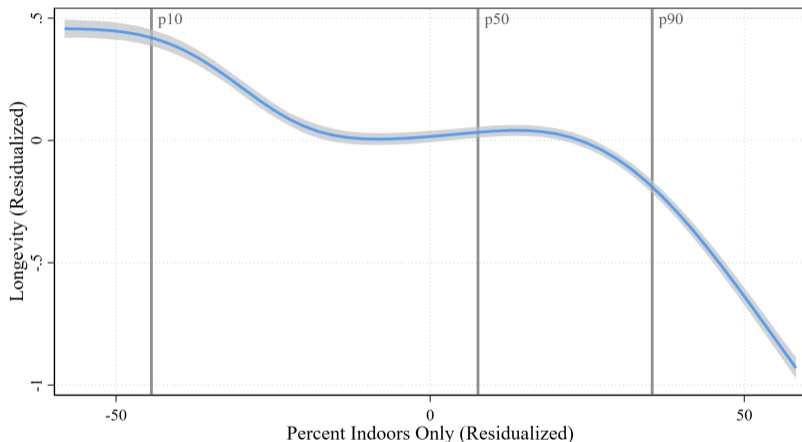
Notes:

- Income controls: 794 **minor** occupations (mean, p_{10} , p_{25} , p_{50})
- Occupation groups: 22 **major** occupation groups
- Area: 47 MSAs

Detailed occupation (794 groups) matters for R^2 1.2x as much as income + location (13,413 ZIP codes)

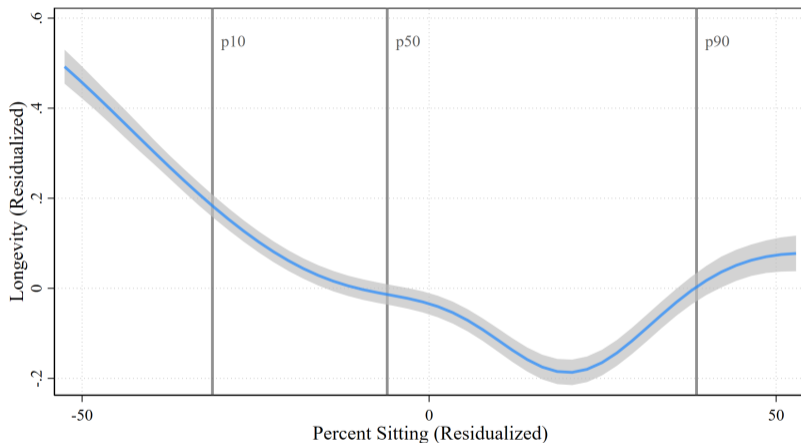
Mechanisms

Indoor jobs are associated with lower longevity



Notes: Figure plots obs. within 2 SD of the mean of residualized *percent indoors only* (ORS).
Representative occupations: Maintenance and Repair Workers (p10), General and Operations Managers (p50), Industrial Engineers (p90).

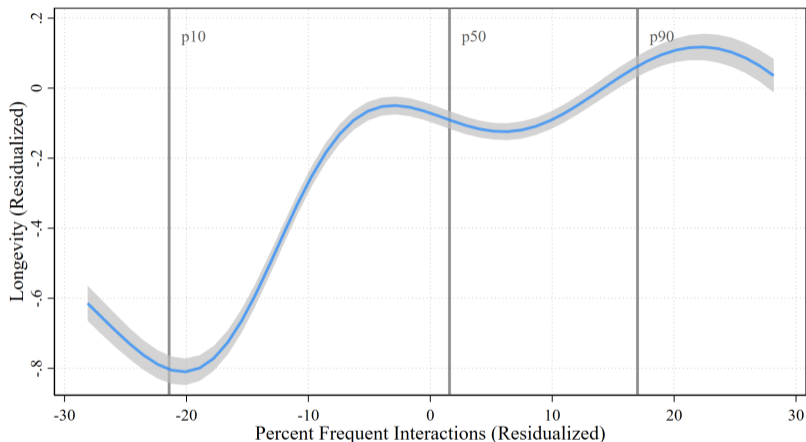
Sedentary jobs are associated with lower longevity



Notes: Figure plots obs. within 2 SD of the mean of residualized *percent sitting* (ORS).

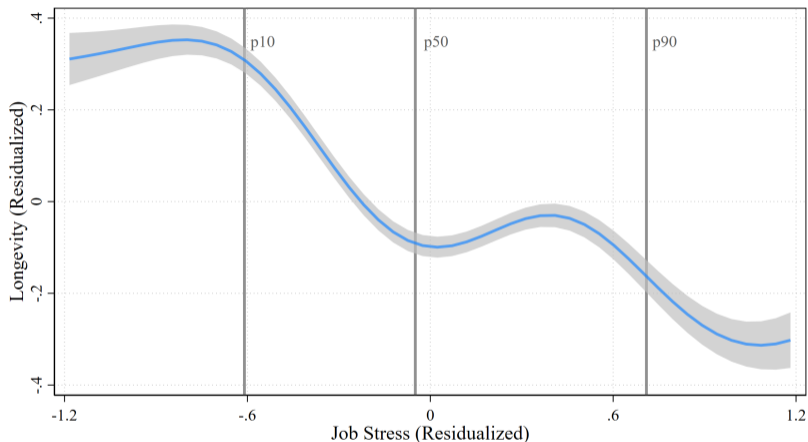
Representative occupations: Carpenters (p10), Retail Salespersons (p50), Office Clerks (p90).

Social jobs are associated with higher longevity



Notes: Figure plots obs. within 2 SD of the mean of residualized *percent frequent interactions* (ORS).
Representative occupations: Heavy and Tractor-Trailer Truck Drivers (*p10*), Construction Laborers (*p50*), Secretaries and Administrative Assistants (*p90*).

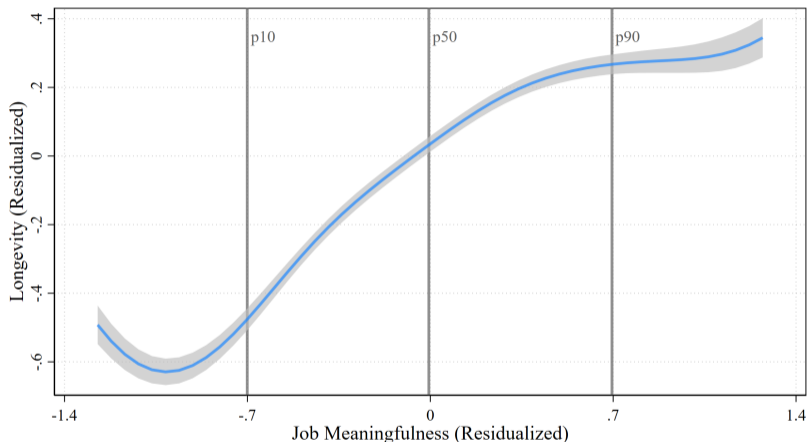
Stressful jobs are associated with lower longevity



Notes: Figure plots obs. within 2 SD of the mean of residualized *job stress* (ATUS).

Representative occupations: Automotive Service Technicians and Mechanics (p10), Retail Salespersons (p50), Construction Laborers (p90).

Meaningful jobs are associated with higher longevity



Notes: Figure plots obs. within 2 SD of the mean of residualized *job meaningfulness* (ATUS).

Representative occupations: Construction Laborers (p10), Cooks, Restaurant (p50), Clergy (p90).

Next Steps

- Additional detail on deceased individuals from millions of **web-scraped obituaries**
 - Validation of occupation information
 - Subsample of single-career individuals
 - Within-employer analysis
- **Within-family** analysis (twins)

Conclusion

Main Findings:

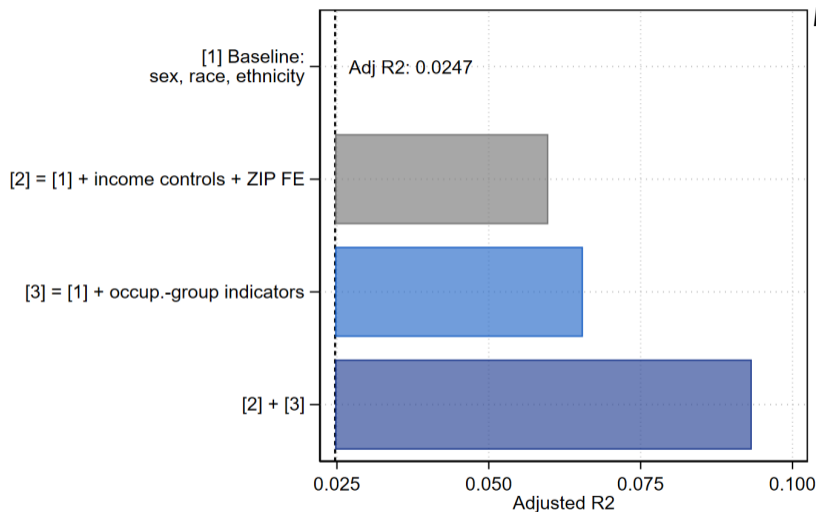
- Large-scale evidence on the association between life expectancy and occupation
- Large occupation-related disparities in longevity, controlling for correlates
- Occupational requirements as underlying mechanisms

Implications and Questions:

1. **Job choice:** Do people account for job-related health risks in career choices?
2. **Job design:** Which job aspects would need to change to reduce health strains?
3. **Policy design:** How to design retirement savings and social security programs that account for occupation-driven differences in life expectancy?

Thanks!

Detailed occupation matters for R^2 1.2x as much as income + location



Notes:

- Income controls: 794 **minor** occupations (mean, p_{10} , p_{25} , p_{50})
- 13,413 ZIP codes
- Occupation groups: 794 **minor** occupation groups