Minimum Wages, Retirement Timing, and Labor Supply*

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*Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the Census Bureau or other organizations. Data from the SIPP Gold Standard File are confidential. All results have been formally reviewed to ensure that no confidential Census Bureau data have been disclosed. All statistics have been rounded in accordance with disclosure review standards. DRB approval number: CBDRB-FY20-CED001-B0003, CBDRB-FY20-CED001-B0005, CBDRB-FY21-CED001-B0002

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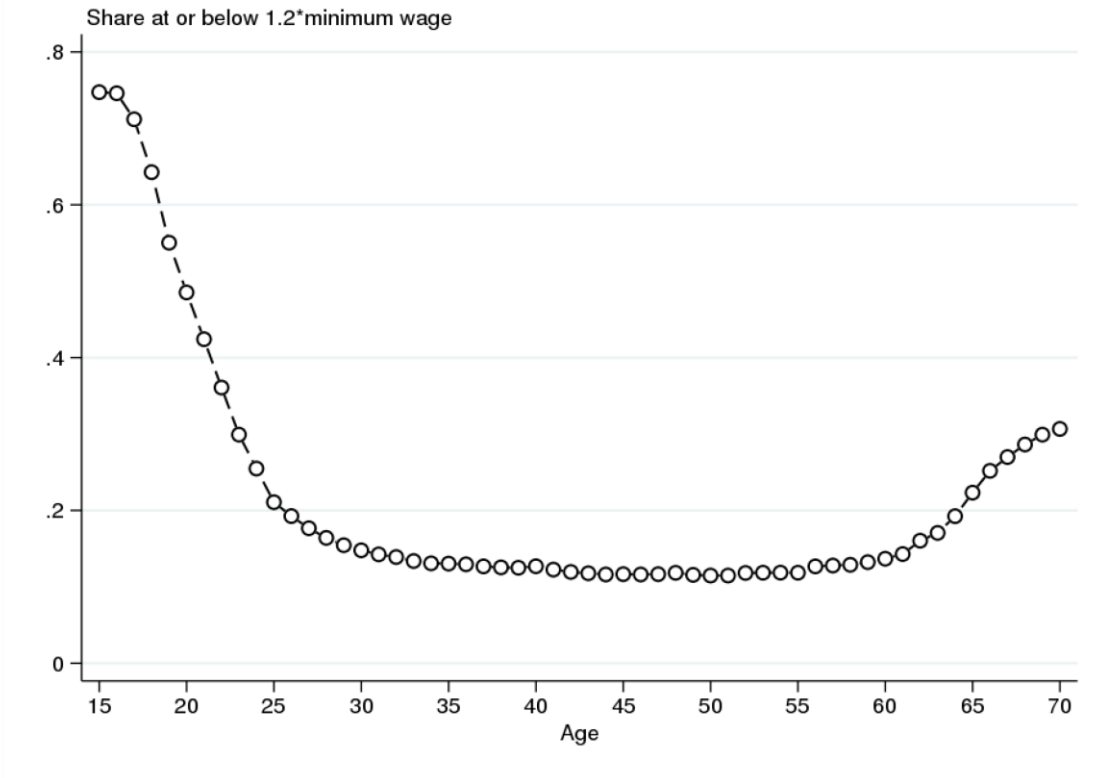
Minimum Wages and Older Workers

- We study the effect of minimum wage increases on **employment, labor force exit, and retirement benefit claiming** for older workers

- Most minimum wage research focuses on employment effects for teenagers or low-wage sectors (e.g., restaurant industry)

- But **older workers are also disproportionately represented** among near-minimum wage jobs
  - E.g., a 65-year-old is about as likely to work near the minimum wage as a 25-year-old



Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0003.

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Existing Evidence on Minimum Wages and Outcomes for Older Workers

- Theoretical predictions are ambiguous:
  - Labor demand and labor supply both may play a role; could have opposite effects
  - Minimum wages may interact with other policies, such as Social Security earnings test thresholds

- Empirical evidence is limited and mixed:
  - Minimum wage increases are associated with fewer retirement benefit claims in aggregate SSA county-year claims data, but no relationship in CPS data (Borgschulte and Cho, 2020)
  - Low-skill, older workers (>40) may be susceptible to job loss in automatable industries (Lordan and Neumark, 2017), but no evidence of reduced employment among retirement-aged (62-70) workers (Borgschulte and Cho, 2020)

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Our study

- We bring new data to this topic:
  - SIPP survey respondents linked to administrative tax and benefit data from the IRS and SSA
  - Allows us to observe person-level demographic, geographic, and wage data (SIPP), along with a long history of earnings (IRS) and OASDI retirement benefit receipt (SSA) data

- Contributions:
  - Linked survey-administrative data improve on unobserved confounder threats in prior work
    - Macroeconomic factors in aggregate data
    - Migration bias in SSA data
  - Longitudinal claims and earnings data allow us to analyze new outcomes
    - *length of delay* (if any) in claiming
    - permanent labor force exit

- Results:
  - Minimum wage increases are associated with **increased employment, delayed labor force exit, and delayed retirement benefit claiming**
  - Benefit claiming delay lasts for about six months; is related to interaction with Social Security earnings test

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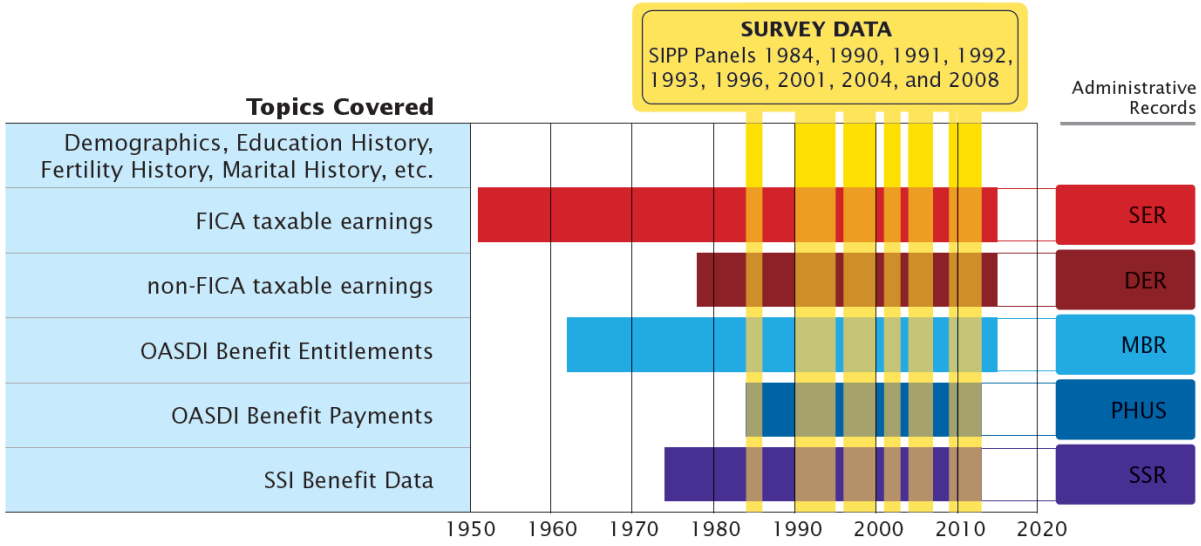
Data

- US Census Bureau's ***Gold Standard File****
  - Linked survey-administrative data from the SIPP, SSA, and IRS
  - SIPP survey data allows us to observe wage, state, and demographics (monthly panel for 2-4 years)
  - SSA's OASDI data allows us to observe exact date of retirement benefit receipt (1962-2014)
  - IRS's SER/DER data allows us to observe long history of annual earnings (1951-2014)

**External researchers can access a synthetic version (SIPP Synthetic Beta) with validation process*



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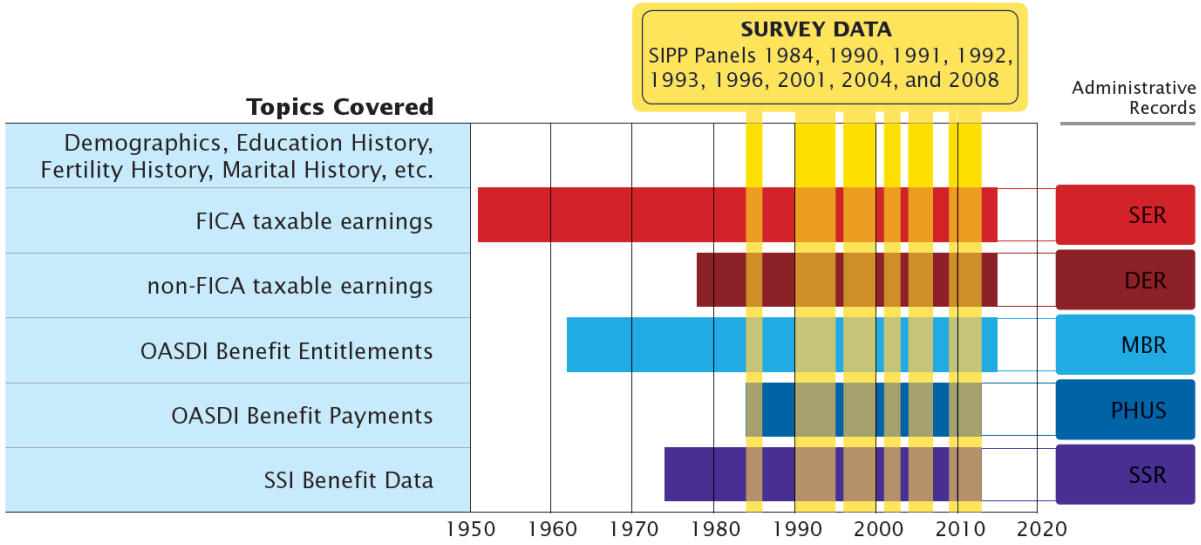
Sample Selection

- Observed during portion of ages 62-69 while in the SIPP
- Average wage prior to first minimum wage change of <= MW + $2
- Successfully linked to administrative records from SSA and IRS
- *Claiming analysis (person-month data):*
  - No death prior to age 70 without having already claimed
  - >=40 quarters of covered work before age 62
- *Employment/Exit analysis (person-year data):*
  - No death prior to age 70



- We also construct a falsification sample: average wage >= MW + $5, <= MW + $10

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Outcomes

- *Employment*
  - Binary indicator for positive IRS earnings each year
  - Also break into full- vs part-time employment based on earnings amounts
    - Full-time – earnings >=50% lifetime inflation-adjusted annual max
    - Part-time – earnings <50% lifetime inflation-adjusted annual max, >=$5,000
  - Person-year panel data
- *Labor Force Exit*
  - Binary indicator for permanent earnings reductions (following Gorodnichenko et al., 2013)
    - Partial exit – earnings *permanently fall* to <50% lifetime inflation-adjusted annual max, >=$5,000
    - Full exit – earnings *permanently fall* to <50% lifetime inflation-adjusted annual max, <$5,000
  - Person-year panel data
- *Retirement Benefit Receipt*
  - Binary indicator for having received retirement benefits
  - Person-month panel data

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Estimation and Identification

- *Employment*
  - Balanced panel OLS regression – year turned 62 through year turned 70
  - Three-way fixed effects strategy

$$Employed_{iast} = \beta \log(MW_{st}) + X_{ist}\varphi + \alpha_i + \tau_a + \delta_t + \varepsilon_{iast}$$

- *Labor Force Exit*
  - Hazard panel OLS regression -- year turned 62 through year of exit or age 70
  - Three-way fixed effects strategy

$$Exit_{iast} = \beta \log(MW_{st}) + X_{ist}\varphi + \theta_s + \tau_a + \delta_t + \varepsilon_{iast}$$

- *Retirement Benefit Receipt*
  - Hazard panel OLS regression -- month turned 62 through month of receipt or month before turning 70
  - Three-way fixed effects strategy

$$Receipt_{iast} = \beta \log(MW_{st}) + X_{ist}\varphi + \theta_s + \tau_a + \delta_t + \varepsilon_{iast}$$

- Robustness checks:
  - Add distributed leads, lags of log(MW) to test parallel trends and timing
  - Add linear state trends, Census region by time fixed effects, and/or age by time fixed effects to test sensitivity to regional/age trends

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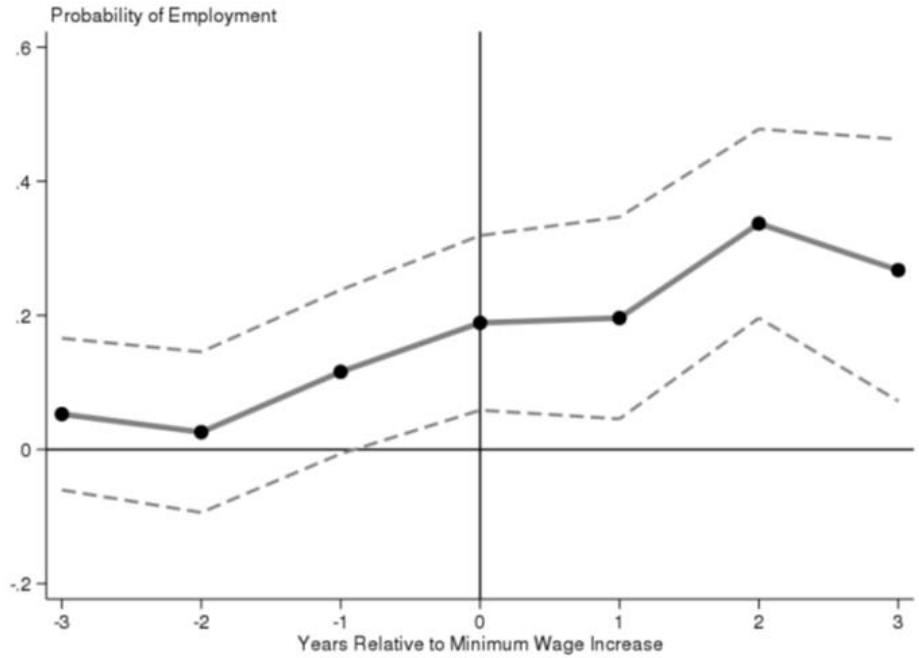
Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Any Employment			Full-Time Employment			Part-Time Employment		
Panel A: Main Sample									
Log Minimum Wage	0.214***	0.175***	0.151***	0.207**	0.160**	0.112*	0.106	0.113*	0.111*
	(0.0654)	(0.0646)	(0.0429)	(0.0849)	(0.0755)	(0.0660)	(0.0897)	(0.0678)	(0.0640)
Year of FRA		0.00652	0.00658		-0.00111	-0.00115		0.00534	0.00536
		(0.00891)	(0.00890)		(0.00635)	(0.00632)		(0.0123)	(0.0123)
Observations	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000
Panel B: Falsification Sample									
Log Minimum Wage	-0.0691	-0.0592	0.00184	0.0482	0.0937	0.0635	-0.129**	-0.144***	-0.0651*
	(0.0573)	(0.0612)	(0.0587)	(0.0966)	(0.0982)	(0.0681)	(0.0504)	(0.0474)	(0.0356)
Year of FRA		0.0129*	0.0127*		0.000807	0.000886		0.00939	0.00924
		(0.00734)	(0.00731)		(0.00837)	(0.00837)		(0.00914)	(0.00913)
Observations	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000
State, Year, Age Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Person Fixed Effects	No	No	Yes	No	No	Yes	No	No	Yes

Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0003.



Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0003.

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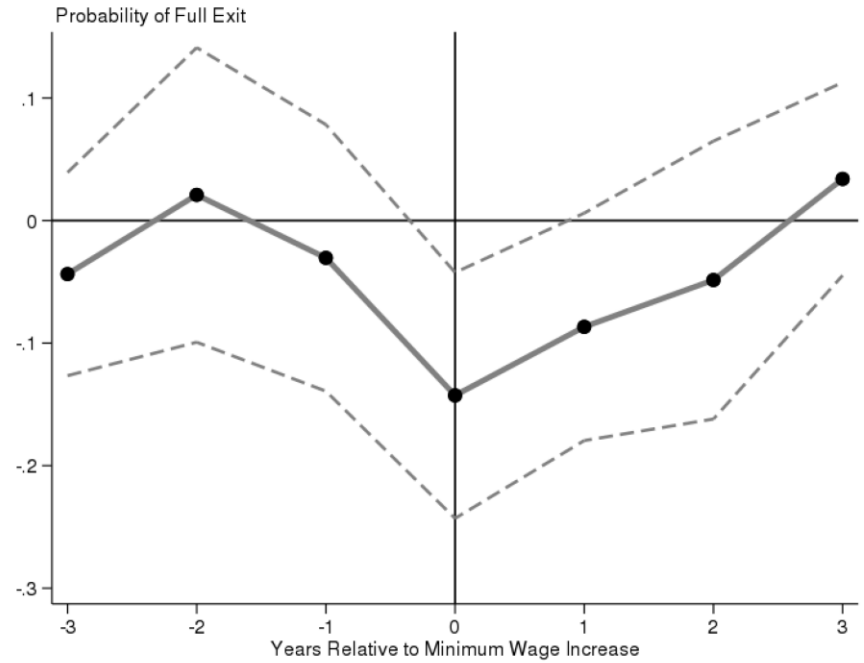
Labor Force Exit

	(1) Partial Exit Hazard	(2) Partial Exit Hazard	(3) Full Exit Hazard	(4) Full Exit Hazard
Panel A: Main Sample				
Log Minimum Wage	-0.0233	-0.0247	-0.0641**	-0.0512*
	(0.0247)	(0.0225)	(0.0274)	(0.0303)
Year of FRA		-0.00866		0.00865
		(0.0121)		(0.0165)
Observations	14,500	14,500	17,000	17,000
Panel B: Falsification Sample				
Log Minimum Wage	0.0102	0.00840	-0.0142	-0.0105
	(0.0296)	(0.0283)	(0.0352)	(0.0386)
Year of FRA		0.00487		-0.0177*
		(0.0105)		(0.0104)
Observations	16,000	16,000	15,500	15,500
State, Year, and Age Fixed Effects	Yes	Yes	Yes	Yes
Covariates	No	Yes	No	Yes

Source: U.S. Census Bureau Gold Standard File, CBDRB-FY21-CED001-B0002.



Source: U.S. Census Bureau Gold Standard File, CBDRB-FY21-CED001-B0002.

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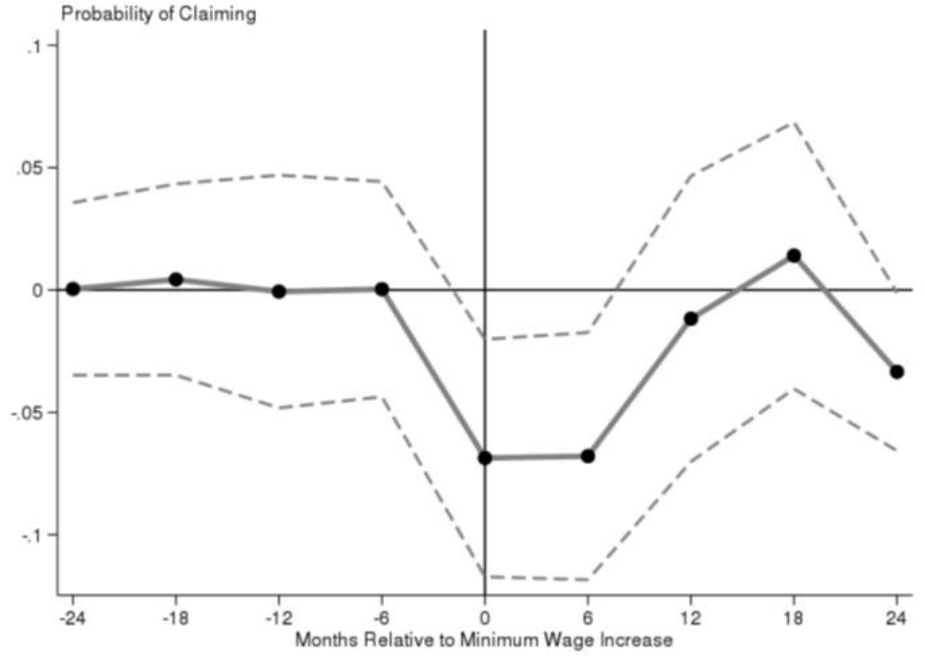
Retirement Benefit Claiming

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS Hazard		Probit Hazard		Logit Hazard		CLogLog Hazard	
Panel A: Main Sample								
Log Minimum Wage	-0.0351**	-0.0380***	-0.0232**	-0.0176**	-0.0198**	-0.0148**	-0.0168**	-0.0125**
	(0.0151)	(0.0139)	(0.0095)	(0.0070)	(0.0080)	(0.0060)	(0.0072)	(0.0058)
Month of FRA		0.515***		0.0633***		0.0459***		0.0428***
		(0.0240)		(0.0048)		(0.00394)		(0.0037)
Observations	68,500	68,500	68,500	68,500	68,500	68,500	68,500	68,500
Panel B: Falsification Sample								
Log Minimum Wage	0.0047	0.0142*	0.0026	0.0056	0.0021	0.0052	0.0014	0.0042
	(0.0083)	(0.0081)	(0.0056)	(0.0047)	(0.0043)	(0.0038)	(0.0042)	(0.0035)
Month of FRA		0.542***		0.0512***		0.0360***		0.0312***
		(0.0146)		(0.0021)		(0.0018)		(0.0016)
Observations	95,500	95,500	95,500	95,500	95,500	95,500	95,500	95,500
State, Time, Age Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	No	Yes	No	Yes	No	Yes	No	Yes

Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0003.



Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0003.

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Conclusions

- Minimum wages cause more employment, delayed labor force exit (“retirement”), and delayed retirement benefit claiming (6 months on average)

- Implications for individual financial well-being:
  - Higher wages without job loss (**more** labor supply)
  - 6-month claiming delay -> **≈3% increase** in monthly retirement benefit payment
  - Increased employment -> could further increase monthly benefit payment **if additional annual earnings are among 35 highest earning years**

- Implications for Social Security system:
  - Benefits: delayed claiming, more years “paying into” the system
  - Net effects depend on many variables, such as life expectancy and earnings amounts
  - Important to note: Social Security retirement eligibility rules have been adjusted many times to encourage more work and later retirement. ***Minimum wages appear to achieve the same results***

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Thank you!

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Extra Slides

First-Stage Effects on Wages, Employment, and Hours in SIPP Data

	(1) Employed	(2) Employed	(3) Log Wage	(4) Log Wage	(5) Log Earnings	(6) Log Earnings	(7) Log Hours	(8) Log Hours
Treat*Post	0.00479	0.0162	0.112***	0.0875*	0.0934***	0.0717**	0.000961	-0.00203
	(0.0254)	(0.0244)	(0.0329)	(0.0459)	(0.0218)	(0.0342)	(0.0247)	(0.0261)
Observations	96,000	96,000	31,000	31,000	34,000	34,000	34,000	34,000
Person, Time, Age Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Controls	No	Yes	No	Yes	No	Yes	No	Yes

Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0003.

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First-Stage Effects on Wages, Employment, and Hours in SIPP Data: Falsification Sample

	(1) Employed	(2) Employed	(3) Log Wage	(4) Log Wage	(5) Log Earnings	(6) Log Earnings	(7) Log Hours	(8) Log Hours
Treat*Post	-0.00518	-0.00903	0.00381	-0.0170	0.00647	-0.0208	0.00562	-0.00285
	(0.0190)	(0.0172)	(0.0156)	(0.0138)	(0.0165)	(0.0175)	(0.00852)	(0.0104)
Observations	92,000	92,000	46,000	46,000	49,500	49,500	48,500	48,500
Person, Time, Age Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Controls	No	Yes	No	Yes	No	Yes	No	Yes

Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0003.

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Robustness of Claiming and Employment Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Claiming Hazard				Any Employment			
Log Minimum Wage	-0.0396***	-0.0441**	-0.0462**	-0.0475**	0.154***	0.163***	0.197***	0.189***
	(0.0142)	(0.0176)	(0.0194)	(0.024)	(0.0488)	(0.0452)	(0.0582)	(0.0599)
Observations	68,500	68,500	68,500	68,500	27,000	27,000	27,000	27,000
State, Time, Age Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Person Fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes
State Linear Time Trends	Yes	No	No	Yes	Yes	No	No	Yes
Age-by-Time Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Region-by-Time Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes

Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0005.

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Robustness of Labor Force Exit Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Partial Exit Hazard				Full Exit Hazard		
Log Minimum Wage	-0.0595**	-0.0282	0.0320	-0.0463	-0.0961**	-0.0486	-0.0510	-0.0974**
	(0.0263)	(0.0223)	(0.0380)	(0.0306)	(0.0407)	(0.0298)	(0.0471)	(0.0485)
Observations	14,500	14,500	14,500	14,500	17,000	17,000	17,000	17,000
State, Year, and Age Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State linear trend	Yes	No	No	Yes	Yes	No	No	Yes
Age-by-period FE	No	Yes	No	Yes	No	Yes	No	Yes
Region-by-period FE	No	No	Yes	Yes	No	No	Yes	Yes

Source: U.S. Census Bureau Gold Standard File, CBDRB-FY21-CED001-B0002.

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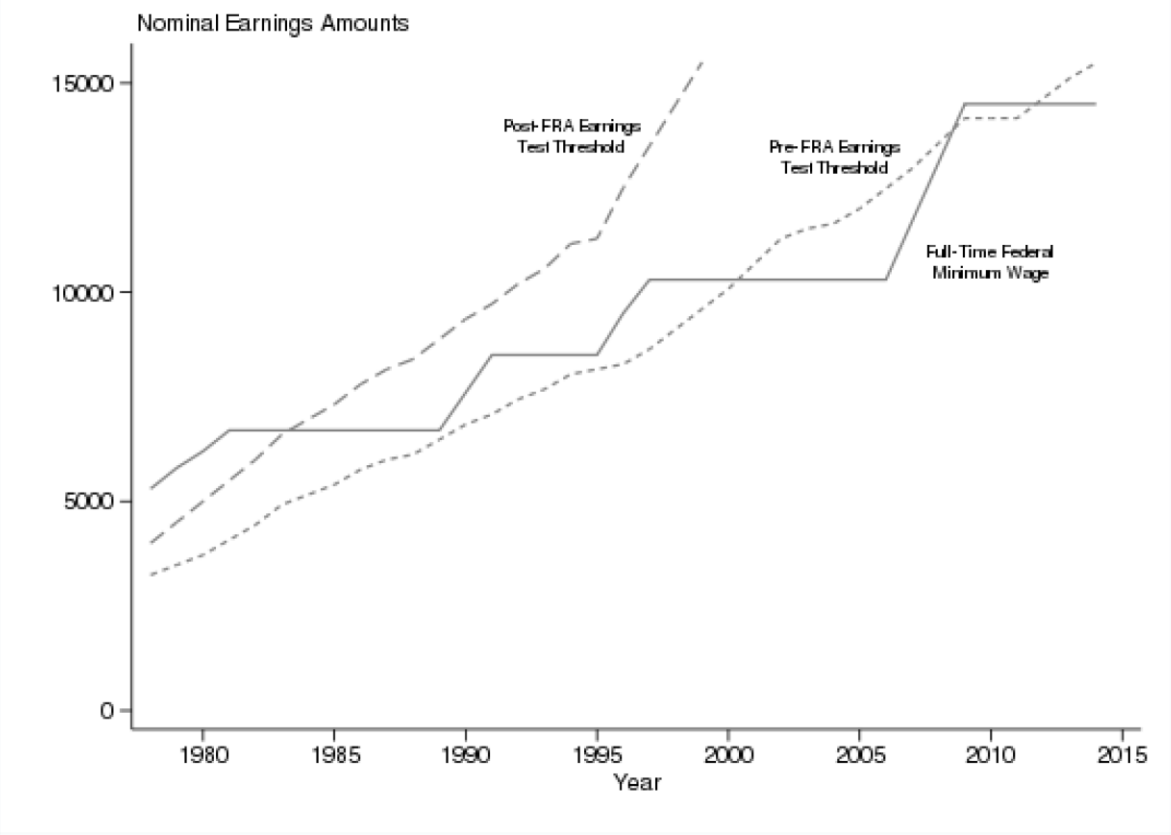
Claiming Mechanism



Source: Minimum wage data from Vaghul and Zipperer (2016). Earnings test threshold data from ssa.gov/OACT/COLA/rteahistory.html and ssa.gov/OACT/COLA/rtea.html.

	(1) Claiming Hazard	(2) Any Employment
Log Minimum Wage	-0.0633***	0.0870
	(0.0215)	(0.0710)
Log Minimum Wage * post-FRA	-0.0277***	0.0107
	(0.0037)	(0.0126)
Log Minimum Wage * post-2000	0.0105	0.161
	(0.0225)	(0.1080)
Log Minimum Wage * post-FRA * post-2000	0.129***	-0.129
	(0.0277)	(0.0909)
Observations	68,500	27,000
State, Time, and Age Fixed Effects	Yes	Yes
Covariates	Yes	Yes
Person Fixed Effects	No	Yes
Log Minimum Wage Marginal Effect:		
pre-FRA, pre-2000	-0.0633***	0.0870
post-FRA, pre-2000	-0.0910***	0.0977
pre-FRA, post-2000	-0.0528***	0.2480***
post-FRA, post-2000	0.0485**	0.1300**

Source: U.S. Census Bureau Gold Standard File, CBDRB-FY20-CED001-B0005.

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