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The Most Vulnerable Suffer Most: How Fear of Unemployment Exacerbates the Mental Health Gradient

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18th dggö Annual Conference

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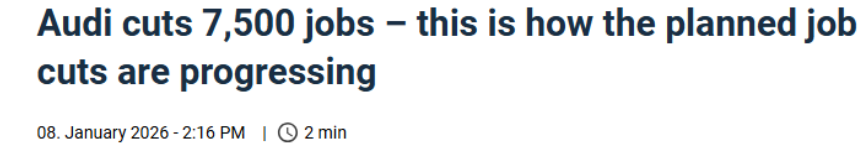
Shortcuts in the German Job Market

German car industry sheds 51,500 jobs in a year

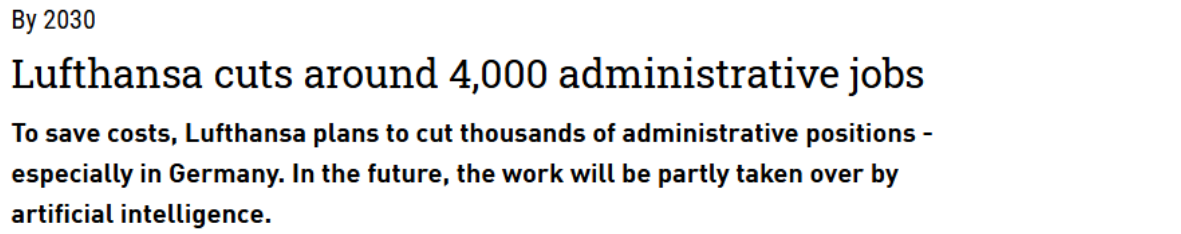
Mark Hallam
08/26/2025

The dip equates to almost 7% of the total workforce in the German auto sector. Faltering exports to China and the US play a role, as new tariffs raise barriers to entry in both these core markets.



Audi cuts 7,500 jobs – this is how the planned job cuts are progressing

08. January 2026 - 2:16 PM | 2 min



By 2030

Lufthansa cuts around 4,000 administrative jobs

To save costs, Lufthansa plans to cut thousands of administrative positions - especially in Germany. In the future, the work will be partly taken over by artificial intelligence.

25.09.2025 | Press release | #Mobility

Measures that aim to close the cost gap at Bosch Mobility – further job cuts unavoidable

19.12.2025

ifo Employment Barometer

Companies in Germany Continue to Cut Jobs (December 2025)

Companies in Germany are more cautious again about hiring new staff, and most of them are cutting jobs. The ifo Employment Barometer fell to 91.9 points in December, down from 92.5 points in November, the lowest level since May 2020. "In 2025, we experienced gradual job cuts, especially in industry," says Klaus Wohlrabe, Head of Surveys at ifo. "The weak economy is continuing to slow down the labor market."

26.11.2025

ifo Employment Barometer

Companies in Germany Continue Cutting Jobs (November 2025)

Companies in Germany have grown more restrictive in their personnel planning. The ifo Employment Barometer fell to 92.5 points in November, down from 93.5 points in October. "Many companies are continuing to cut jobs," says Klaus Wohlrabe, Head of Surveys at ifo. "Due to the stuttering economy, the labor market trend remains weak."

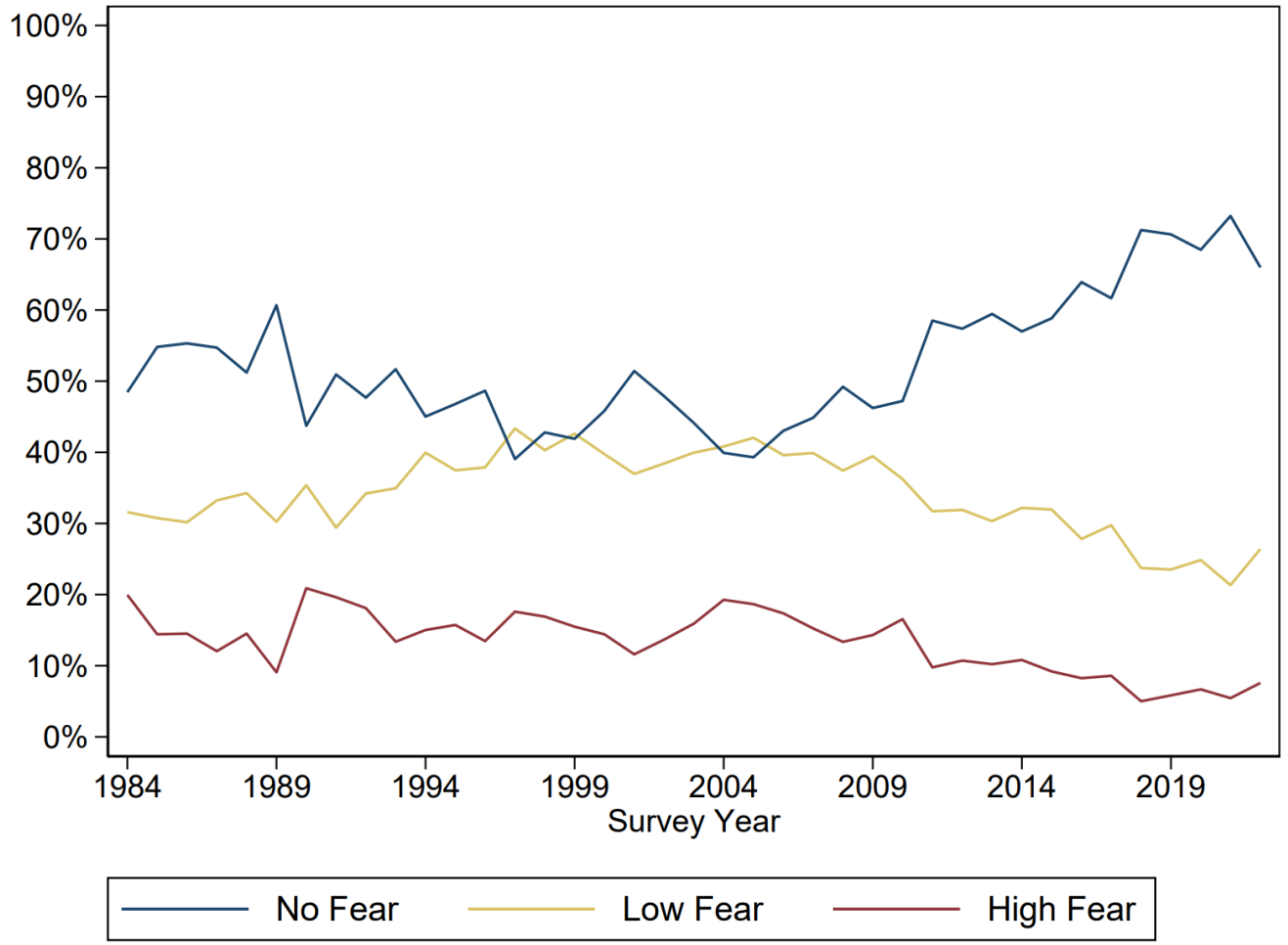
30.10.2025

ifo Employment Barometer

Companies in Germany Cutting Jobs Less Frequently (October 2025)

Companies in Germany are planning fewer job cuts than in recent months. The ifo Employment Barometer rose to 93.5 points in October, up from 92.5 points in September. "Overall, companies are still cutting more jobs than they are creating new ones," says Klaus Wohlrabe, Head of Surveys at ifo. "Despite a slightly improved economic outlook, they continue to be cautious in their personnel planning."

Subjective Job Insecurity Over Time



Source: SOEP-Core. Cohorts 1984-2022. Private sector employees, ages 18–65. Authors calculations

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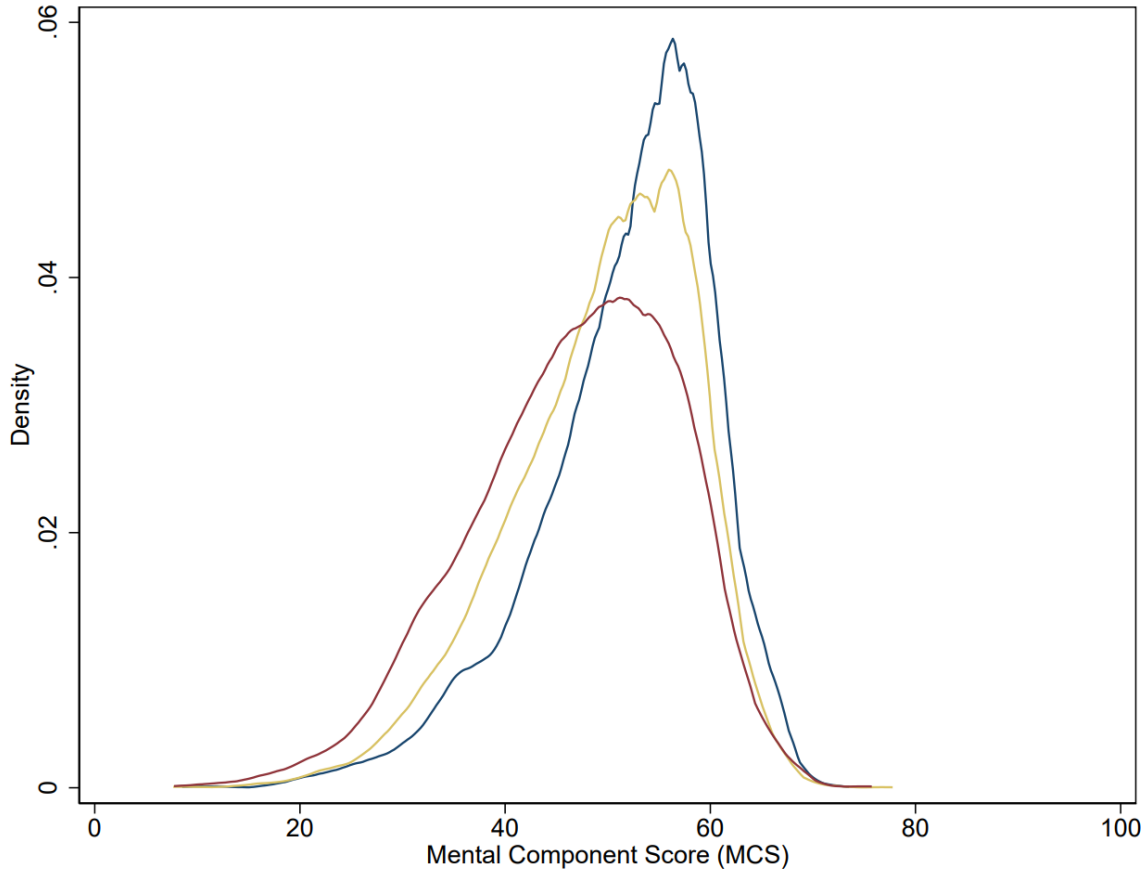
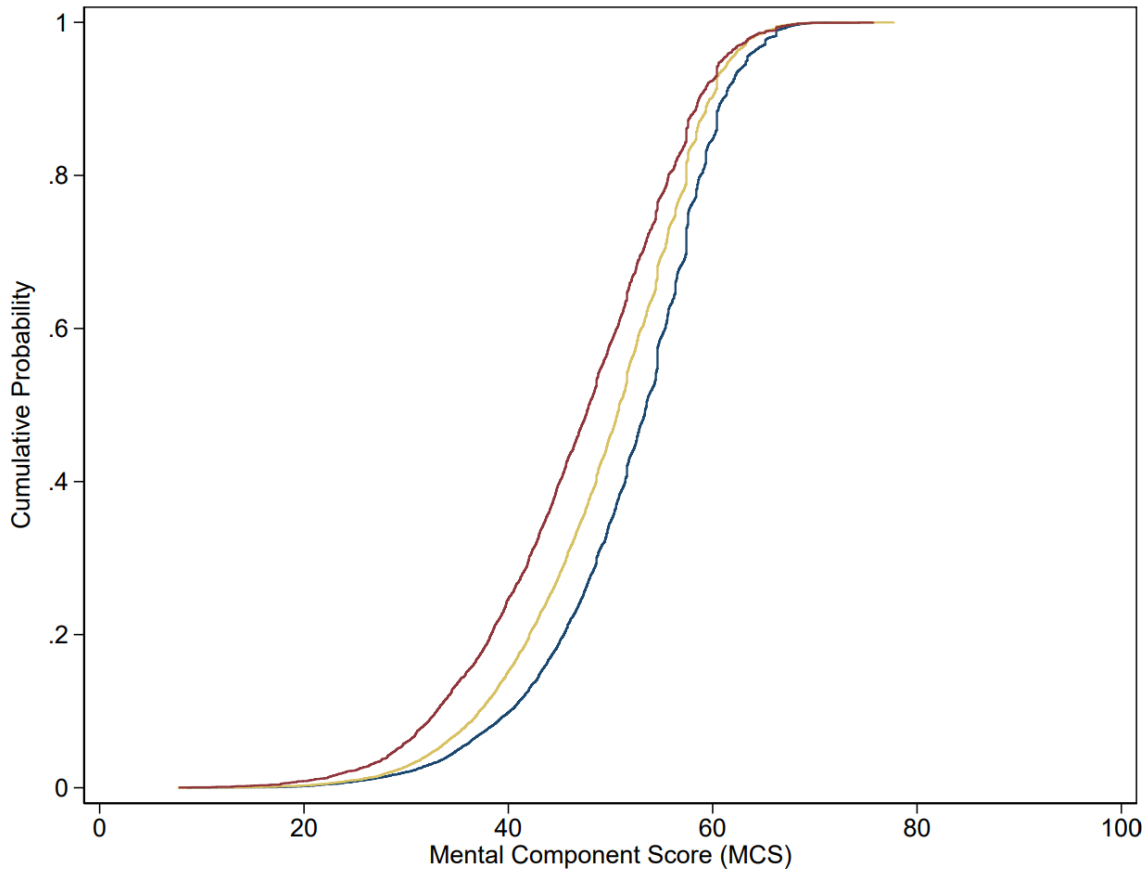
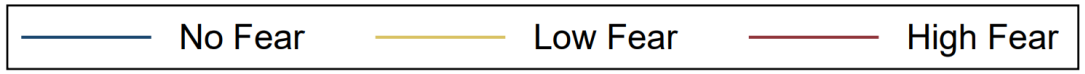
The Negative (Average) Impact of Job Insecurity on Mental Health

- **Green (2011)**: Extreme job insecurity reduces mental health (SF-36) by 0.25 SD for men and 0.13 SD for women
- **Caroli & Godard (2016)**: No effect on depression and anxiety
- **Reicher & Tauchmann (2017)**: Extreme fear of job loss due to staff reduction reduces mental health (MCS) by 0.35 SD
- **Watsona and Osberg (2018)**: Fear of job loss increases psychological distress

Mental Health by Job Insecurity Level







Source: SOEP-Core. Cohorts 2002/4/8/10/12. Private sector employees, ages 18–65. Authors calculations
Mean MCS: No Fear = 51.9, Low Fear = 49.6, Extreme Fear = 46.8

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Theoretical Framework

- **Diathesis-Stress Model** (Zuckerman, 1999): Responses to environmental stressors depends on the interaction between inborn genetic factors and acquired life experiences

- **Cumulative Risk Model** (Evans, 2003): The impact of a new stressor is determined by the total number of co-occurring risk factors

Research Question

How does the causal impact of job insecurity on mental health vary across the distribution of mental health?

- **Hypothesis:** the effect of job insecurity is stronger for those with an already deteriorated mental health condition, while it is weaker for those in the best mental health state

Data

- German Socio-Economic Panel (SOEP)
- Longitudinal data (2002–2012, biennial waves, 2006 excluded)
- Private-sector employees, ages 18–65
- Unbalanced Panel of 23,736 person-year observations, from 7,778 individuals

Key Variables:

Dependent Variable → Mental Component Summary (MCS): Mean = 50, SD = 10

Variable of Interest → Subjective Job Insecurity: (0 = No concern; 1 = Low/High concern)

Identification

Endogeneity:

→ *Reverse Causality:* Negative shocks to mental health may increase subjective job insecurity

→ *Omitted Variable Bias:* Unobserved personal or firm-level shocks may simultaneously influence both fear and mental health

Instrumental Variable: Firm-level staff reduction within the past 12 months

- Staff cuts serve as a strong objective signal that increases individual fear of job loss

- Exclusion restriction:
  Firm-level "shocks" are exogenous to the individual's idiosyncratic mental health trends

  Reichert, & Tauchmann (2017): The impact of staff reductions on mental health:
  → is absent for civil servants (high job security)
  → disappears with better employability prospects
  → additionally, we control for firm size and tenure

Individual Non-Additive Fixed Effects

Estimation 1

Baseline IVFE Specification

First Stage:
$$\text{Fear}_{it} = \pi_0 + \pi_1 \text{StaffReduction}_{it} + \mathbf{X}'_{it}\Pi + \alpha_i + \delta_t + \nu_{it}$$

Second Stage:
$$\text{MCS}_{it} = \beta_0 + \beta_1 \widehat{\text{Fear}}_{it} + \mathbf{X}'_{it}\gamma + \alpha_i + \delta_t + \epsilon_{it}$$

where $\mathbf{X}'_{it}$ is a vector of time-varying controls including individual, household, & job characteristics
α_i individual FE
δ_t year FE

Estimation 2

Quantile Regression for Panel Data with Non-Additive FE (Powell, 2022)

Structural equation: $$MCS_{it} = D'_{it}\beta(U^*_{it})$$

where D'_{it} is the vector of regressors,
U^*_{it} is a scalar non-separable disturbance term, normalized to $U^*_{it} \sim U(0,1)$ defined as $U^*_{it} = f(\alpha_i, \epsilon_{it})$.
α_i is the time-invariant unobserved heterogeneity, and ϵ_{it} represents idiosyncratic shocks.

→**The marginal effect $\beta(U^*_{it})$ varies according to the individual's position in the distribution of their unobserved characteristics.**

Moment Condition: $$E\left[\frac{1}{T}\sum_{t=1}^{T}(Z_{it} - \bar{Z}_i)\cdot \mathbb{1}(MCS_{it} \leq D'_{it}\beta(\tau))\right] = 0$$

where $\bar{Z}_i = \frac{1}{T}\sum_{t=1}^{T} Z_{it}$ is the individual's average exposure to the instrument Z.

→ **Arbitrary correlation between the instrument and fixed effects (e.g., anxious people self-selecting into safe jobs)**

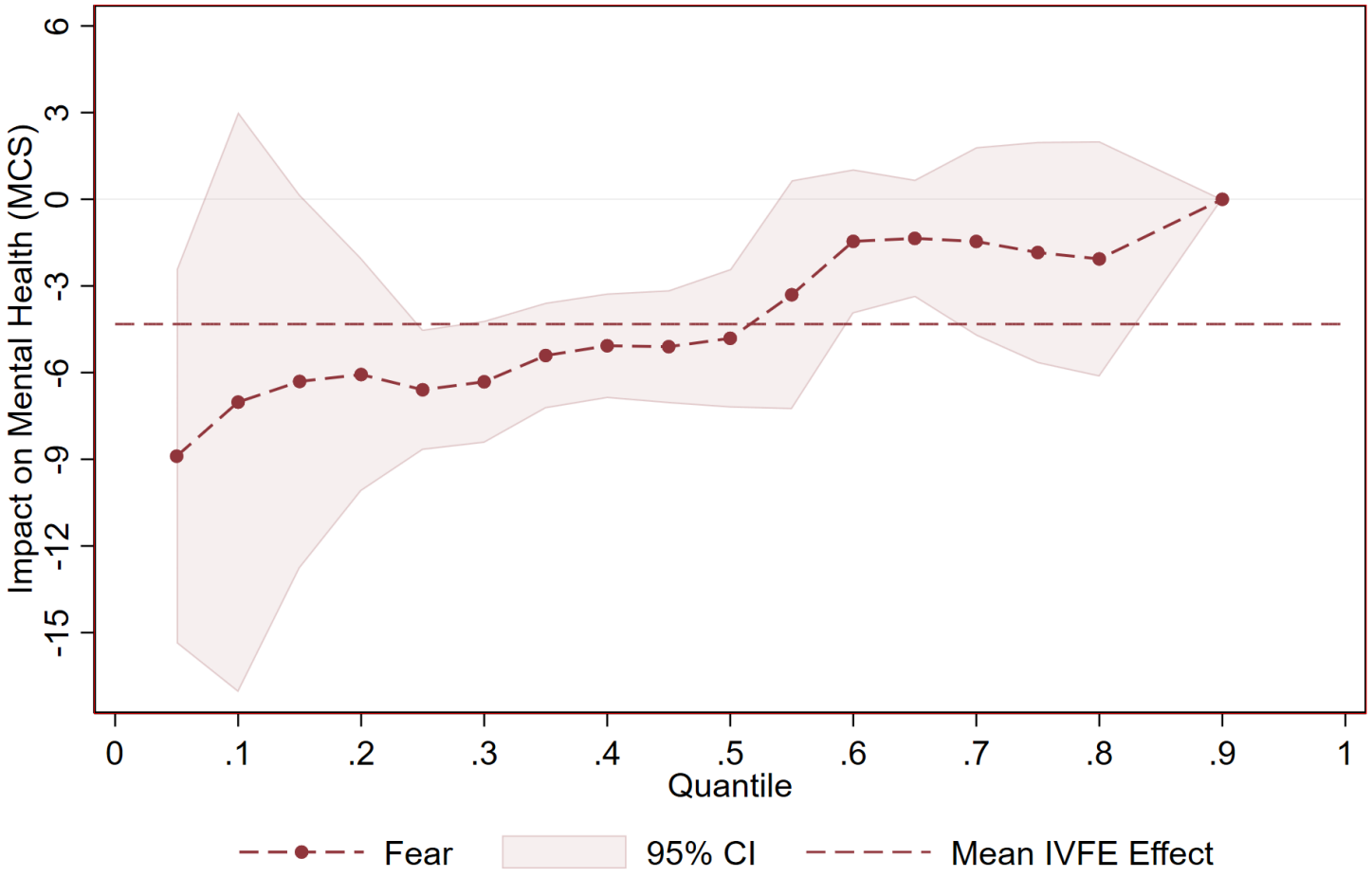
Computational Implementation: Adaptive Markov Chain Monte Carlo (MCMC)
1 million iterations - 200,000 burn-in - thinning factor of 10

Mean Regressions and Instrument Relevance

	OLS	FE	IV	IVFE
	(1)	(2)	(3)	(4)
Any Fear	-2.93***	-1.23***	-6.65***	-4.32***
	(0.12)	(0.16)	(0.78)	(1.58)
Individual Indicators	No	Yes	No	Yes
Year Indicators	Yes	Yes	Yes	Yes
Federal state indicators	Yes	No	Yes	No
R^2 (within for FE)	0.042	0.009	–	–
Joint significance (p-value)	0.000	0.000	0.000	0.000
First-stage F-statistic	–	–	664.5	139.8
N	23,736	23,736	23,736	23,736

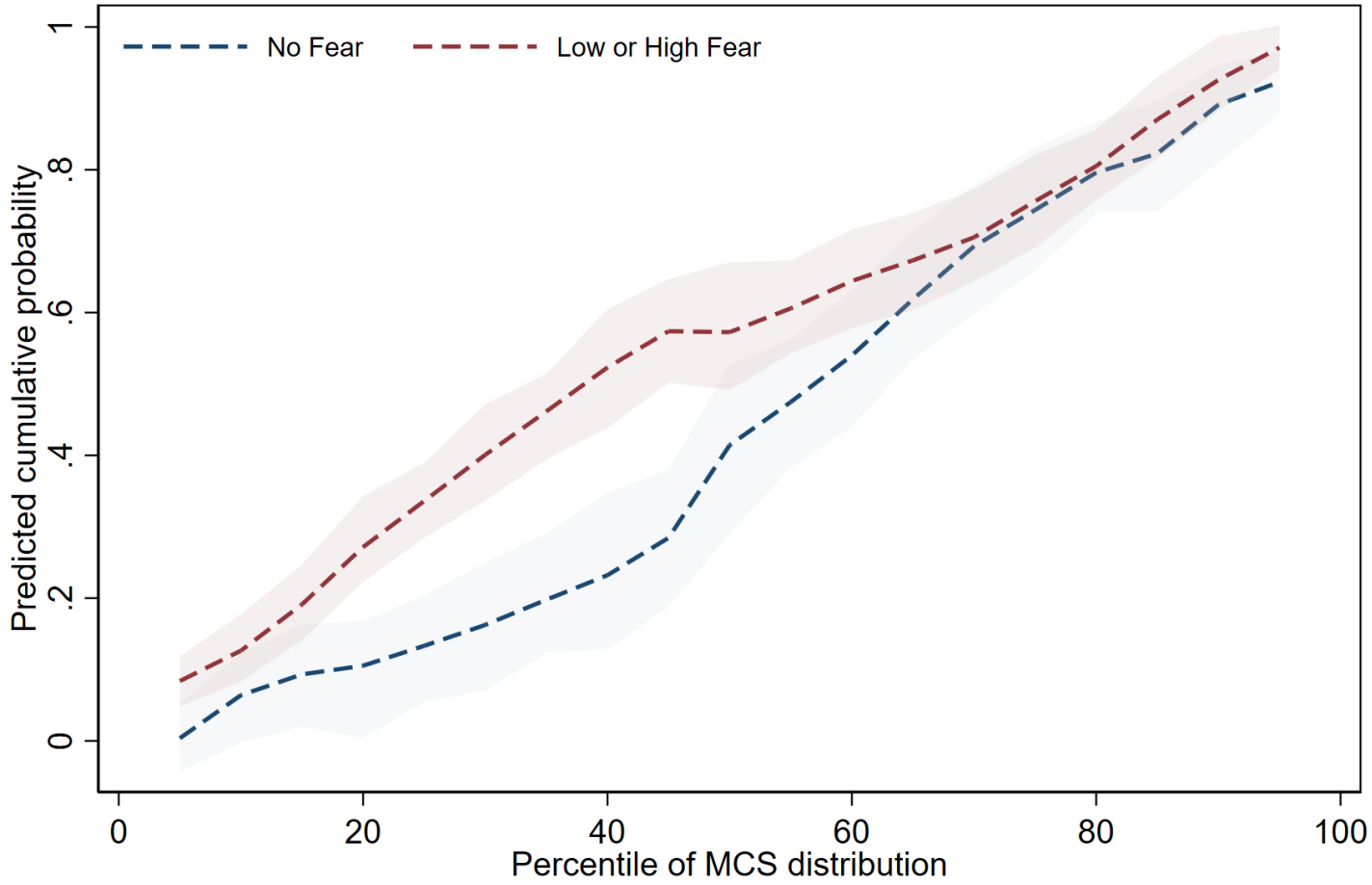
Robust Standard Errors clustered at individual level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Effect of Job Insecurity on Mental Health (MCS) across the Mental Health Distribution



Estimates are obtained using Powell's Quantile Regression for Panel Data (QRPD) with non-additive fixed effects. Optimization method: Markov Chain Monte Carlo (MCMC). Coefficients and the 95% CI are calculated as the mean and standard deviation of the MCMC draws for each quantile. Mean IVFE effect: -4.32.

Counterfactual Distributions of Mental Health (MCS) by Job Insecurity



Shaded areas represent 95% confidence intervals obtained via a cluster bootstrap (500 replications) with clustering at the individual level.

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Robustness

- Computational Stability
  → MCMC Convergence: Stable results across alternative seeds
  → Optimization: Slightly lower point estimates using Nelder-Mead

- Alternative Quantile Estimators
  → Qualitative pattern persists across IV and Additive FE models, despite their partial treatment of endogeneity

- Placebo & Falsification Tests
  → Attenuated impact on Physical Component Summary (PCS)
  → Reduction in effect size when including Public Sector Employees

Thank you for your attention!

Questions, comments, or suggestions?

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