# Perceived income inequality and subjective social status in Europe

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- Social inequalities have numerous adverse effects (Wilkinson and Pickett 2009, 2018)
- Extensive research on "objective" income inequality
- Much less attention is given to the role of perceived income inequality
- Empirical evidence regarding perceived income inequality and subjective social status is scarce
  - Relatively small-scale experiments
  - Participants in high economic inequality conditions felt more relatively deprived

- How are individuals' subjective perceptions of income inequality related to their subjective social status?
- How is this association moderated by the perceived level of the unfairness of income distribution?

# Mechanisms

- Self-perception of social status is affected by income inequality through two mechanisms (Schneider 2019; Willis et al. 2022)
  - Based on relative deprivation or relative income theory (Stouffer 1949; Runciman 1966; Merton and Rossi 1968; Yitzhaki 1979)
  - 1. Higher level of income inequality means that incomes are shifting apart
    - Discrepancy between the individual's income and the reference income is higher (in the presence of upward comparison)
    - Increased level of relative deprivation
    - Potential negative effects on richer individuals if they perceive a higher risk of moving down (Alesina et al. 2004)
  - 2. Income inequality may increase the frequency of social comparison (Cheung and Lucas 2016; Sommet et al. 2019).
    - The salience of people with high income increases (reference group) (Peters et al. 2022)
    - Stronger effects of upward social comparison

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- Perceived unfairness of the income distribution may moderate the effect of perceived inequality (Starmans et al. 2017; Willis et al. 2022)
  - When inequalities are less fair, social comparison is more important
  - Those who prefer more egalitarian income distribution are more likely to notice inequality (Waldfogel et al. 2021)

- 28 European countries, more than 90,000 individuals
- Selection
  - Respondents aged 18 years and older
  - Non-missing subjective social status and perceived inequality variables
  - Non-missing demographic characteristics (age and sex)
- n = 78,508

# Variables

Outcome variable: subjective social status

- 1: bottom of society
- 10: top of society

Perceived income inequality (proposed by Kuhn (2011, 2015, 2019))

- Calculated and interpreted similarly to the conventional Gini coefficient
- Based on respondents' earning estimations for five occupations ("How much do you think [a doctor in general practice] earns?")
  - Doctor, Chairman of a large national corporation, Cabinet minister in the national government (white-collar occupations), Shop assistant, Unskilled worker in a factory (blue-collar occupations)

• 
$$I_{ict} = f_{ct}^{bottom} - q_{ict}^{bottom}$$

- $f_{ct}^{bottom}$ : the population share of the bottom group in country c at time t
- $q_{ict}^{bottom}$ : respondents' perceived income share of the bottom group

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#### Perceived level of unfairness of the income distribution

- $U_{ict} = \frac{I_{ict} I_{ict}^{legitimate}}{I_{ict}^{legitimate}}$ 
  - $I_{ict}^{legitimate}$ : preferred or legitimate level of income inequality
  - "How much do you think [a doctor in general practice] should earn?"
- How much higher is actual inequality than legitimate inequality
- Three categories: low level (up to 15%), moderate level (15-50%), high level (more than 50%) of unfairness

# Distribution of variables



The orange line shows the sample mean.

# Distribution of variables



The orange lines show the sample means.

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Level of unfairness	%	Ν
Low (-0.15)	20.8	16,352
Moderate (0.15-0.50)	30.8	24,157
High (0.50-)	48.4	37,999
	100.0	78,508
Mean	0.786	
Median	0.477	

# Empirical strategy

Model 1:

$$Y_{ict} = \beta_0 + \beta_1 I_{ict} + \gamma \mathbf{X}_{ict} + \mu_c t + \varepsilon_{ict}$$
(1)

- $Y_{ict}$  : subjective social status of individual i in country c at time t
- $I_{ict}$  : perceived income inequality
- X<sub>ict</sub> : personal characteristics (LIST OF CONTROL VARIABLES)
- $\mu_c t$  : country imes year FE
  - Controlling for differences between countries and years in the objective level of income inequality and in other unobserved variables

#### Model 2:

$$Y_{ict} = \beta_0 + \beta_1 I_{ict} + \beta_2 U_{ict}^{Mod} + \beta_3 U_{ict}^{High} + \beta_4 I_{ict} \cdot U_{ict}^{Mod} + \beta_5 I_{ict} \cdot U_{ict}^{High} + \gamma \mathbf{X}_{ict} + \mu_c t + \varepsilon_{ict}$$
(2)

•  $U_{ict}^{Mod}$ : indicator variable, 1 if individual i perceives moderate level of unfairness •  $U_{ict}^{High}$ : indicator variable, 1 if individual i perceives high level of unfairness

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	(1)		(2	)
	В	р	В	р
Perceived inequality	-0.588	0.000	-0.132	0.195
Perceived level of unfairness (ref.: Low)			ref.	
Moderate level of unfairness			-0.150	0.000
High level of unfairness			-0.322	0.000
Perceived ineq. $ imes$ Moderate unfairness			-0.312	0.007
Perceived ineq. $ imes$ High unfairness			-0.531	0.000
Controls	Yes		Yes	
Country $ imes$ year FE	Yes		Yes	
Ν	78508		78508	
Adj. R-Square	0.302	4 10 2 4 4	0.307	
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### Results

- Perceived inequality is negatively associated with subjective social status
  - One SD change in perceived inequality is associated with a decrease of 0.083 points (4.8% SD) in subjective social status

	(1)		(2	)
	В	р	В	р
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Perceived level of unfairness (ref.: Low)			ref.	
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Controls	Yes		Yes	
$Country\timesyearFE$	Yes		Yes	
Ν	78508		78508	
Adj. R-Square	0.302	4 1 2 4 5	0.307	

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## Results

- Perceived inequality is negatively associated with subjective social status
  - One SD change in perceived inequality is associated with a decrease of 0.083 points (4.8% SD) in subjective social status
- The strength of the relationship is moderated by the perceived level of unfairness

	(1)		(1) (2)		
	В	р	В	р	
Perceived inequality	-0.588	0.000	-0.132	0.195	
Perceived level of unfairness (ref.: Low)			ref.		
Moderate level of unfairness			-0.150	0.000	
High level of unfairness			-0.322	0.000	
Perceived ineq. $\times$ Moderate unfairness			-0.312	0.007	
Perceived ineq. $ imes$ High unfairness			-0.531	0.000	
Controls	Yes		Yes		
Country $ imes$ year FE	Yes		Yes		
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Adj. R-Square	0.302	4 17 16 41	0.307		50
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# The moderating effect of perceived unfairness

- High unfairness: One SD change in perceived inequality is associated with a decrease of 0.093 points (5.4% SD) in subjective social status
- Moderate unfairness: One SD change in perceived inequality is associated with a decrease of 0.062 points (3.6% SD) in subjective social status



Figure 1: Subjective social status and perceived inequality, the moderating effect of perceived unfairness

The figure shows the predicted level of subjective social status at different levels of perceived inequality. The figure depicts average adjusted predictions of OLS regressions. 🚍 😑 🛷 🔍

- Different functional forms for perceived income inequality: quadratic, logarithmic (FIGURE)
- Restricted sample: countries participating in at least three waves (TABLE)
- Alternative weighting methods (TABLE)
- Alternative inequality measure: perceived societal inequality (Gimpelson and Treisman, 2018) (TABLE)
- Alternative unfairness measures: continuous, attitude about income inequality (TABLE)

# Heterogeneity of the results by income





The figure shows the predicted level of subjective social status at different levels of perceived inequality. The figure depicts average adjusted predictions of OLS regressions.

### Heterogeneity of the results by income



Figure 3: Heterogeneity of the results by income

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## Heterogeneity of the results by education





The figure shows the predicted level of subjective social status at different levels of perceived inequality. The figure depicts average adjusted predictions of OLS regressions.

## Heterogeneity of the results by education



Figure 5: Heterogeneity of the results by education

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- Those who perceive a higher level of income inequality rate their social status lower than those who perceive a lower level of income inequality
  - Income and other objective measures of social status are controlled for
  - Other mechanisms beyond economic self-interest
- Explanation: relative deprivation
- It is not primarily the perceived inequality that matters, but the fairness of the inequality
- Considerable heterogeneity: stronger effects for low-income individuals, low-educated individuals and Eastern Europe

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The perceived income share of the bottom occupation group is estimated as follows:

$$q_{ict}^{bottom} = \frac{\hat{y}_{ict}^{bottom} \cdot f_{ct}^{bottom}}{\hat{y}_{ict}^{bottom} \cdot f_{ct}^{bottom} + \hat{y}_{ict}^{top} \cdot f_{ct}^{top}}$$

# Control variables

- age, squared age
- sex
- education
- legal marital status
- labor market status
- occupation (ISCO major groups)
- frequency of attendance at religious services
- household size
- family income
- type of settlement
- father's occupation (ISCO major groups).

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#### Robustness of the results, nonlinear estimations



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#### Robustness of the results, nonlinear estimations



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# Robustness, only countries participating in three or four waves

	(1)		(2	2)
	В	р	В	р
Perceived inequality	-0.564	0.000	-0.145	0.255
Perceived level of unfairness (ref.: Low)			ref.	
Moderate level of unfairness			-0.134	0.000
High level of unfairness			-0.307	0.000
Perceived ineq. $ imes$ Moderate unfairness			-0.242	0.069
Perceived ineq. $ imes$ High unfairness			-0.511	0.001
Controls	Yes		Yes	
$Country\timesyearFE$	Yes		Yes	
N	54157		54157	
Adj. R-Square	0.291		0.296	

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# Robustness, alternative weights

	(1)		(2	2)
	В	р	В	р
Perceived inequality	-0.619	0.000	-0.114	0.268
Perceived level of unfairness (ref.: Low)			ref.	
Moderate level of unfairness			-0.154	0.000
High level of unfairness			-0.317	0.000
Perceived ineq. $ imes$ Moderate unfairness			-0.337	0.006
Perceived ineq. $ imes$ High unfairness			-0.586	0.000
Controls	Yes		Yes	
Country $ imes$ year FE	Yes		Yes	
N	78508		78508	
Adj. R-Square	0.308		0.312	

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#### Robustness, alternative inequality measure

	(1)		(2	2)
	В	р	В	р
Perceived societal inequality	-2.531	0.000	-0.592	0.179
Perceived level of unfairness (ref.: Low)			ref.	
Moderate level of unfairness			-0.139	0.003
High level of unfairness			-0.168	0.004
Perceived societal ineq. $\times$ Moderate unfairness			-1.555	0.000
Perceived societal ineq. $ imes$ High unfairness			-3.261	0.000
Controls	Yes		Yes	
Country $ imes$ year FE	Yes		Yes	
Ν	69149		69149	
Adj. R-Square	0.32		0.322	

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# Robustness, alternative unfairness measures

	(1) Continuous		(2 Attit	:) udes
	В	р	В	р
Perceived inequality	-0.477	0.000	-0.423	0.000
Perceived level of unfairness	-0.118	0.000		
Perceived ineq. $\times$ Level of unfairness	-0.188	0.001		
Attitude about income inequality			-0.209	0.000
Perceived ineq. $\times$ Attitude about income inequality			-0.268	0.000
Controls	Yes		Yes	
$Country\timesyearFE$	Yes		Yes	
Ν	78508		78078	
Adj. R-Square	0.306		0.312	

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