

# Union Membership and Job Satisfaction

## A Meta-Analysis

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- The large theoretical and empirical literature has not answered to the question whether union membership has a positive or negative impact on job satisfaction
- There are still many gaps in our understanding of the process through which union membership impacts job satisfaction or conversely how job satisfaction can affect unionization
  - Unionized workers tend to report lower job satisfaction while at the same time showing less intention to quit (Freeman, 1978)
- This research assesses the relationship between unionization and job satisfaction by providing a comprehensive review of the extant econometric estimates using Meta-Regression Analysis (MRA)

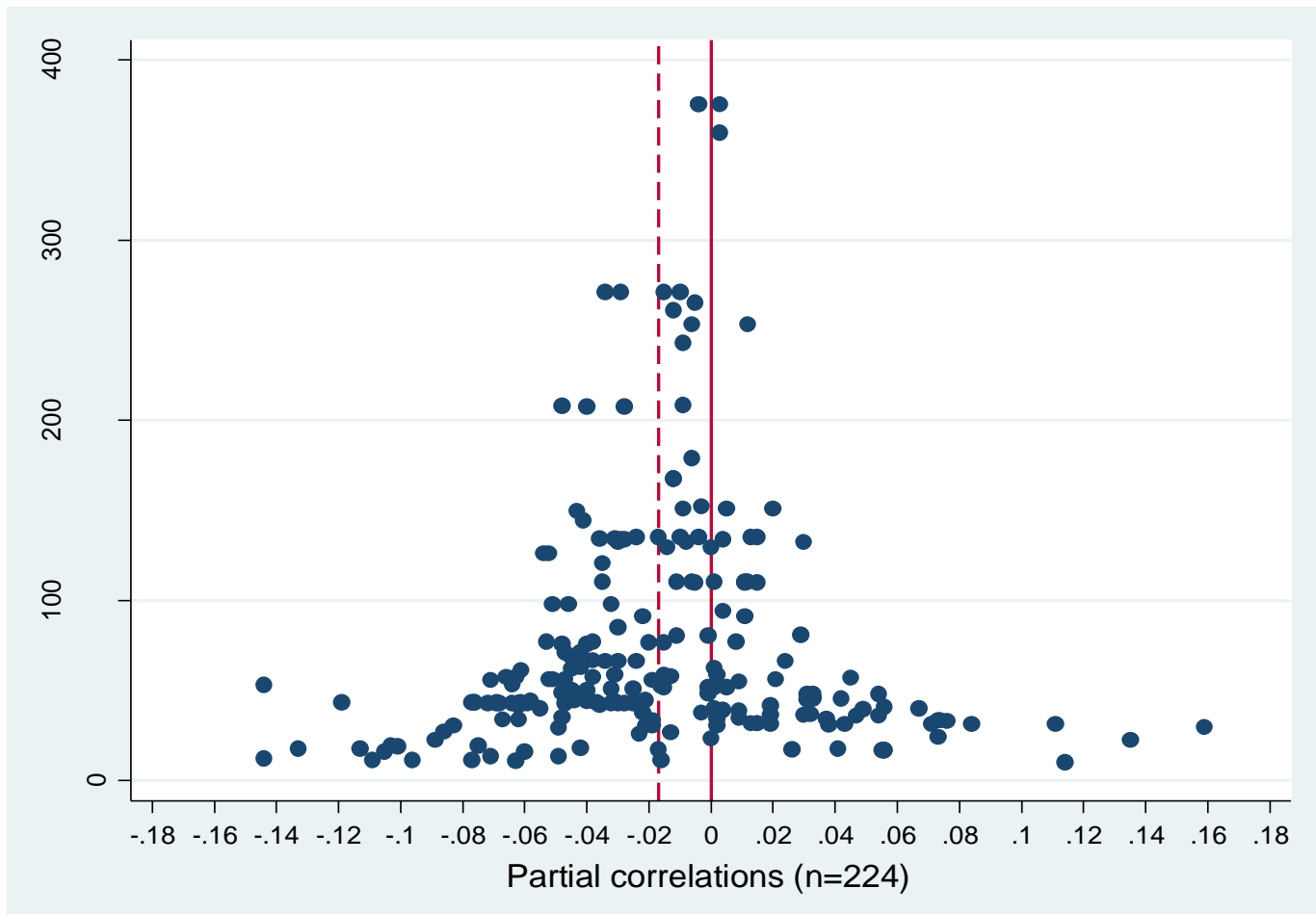


- One may consider that unionization has a direct effect on job outcomes workers receive (for example, pay and job security) -> one would expect JS to be highest BUT...
- The “**voice hypothesis**” argues that in order for the workers’ voice to be heard effectively, it is important for the union to make them aware of what is wrong with their jobs (Freeman, 1978)
- The “**sorting hypothesis**” (or reverse causation): postulates that the characteristics of individuals or the features of the workplace are likely to influence the discontent of union members and the fact that individuals tend to unionized
  - Union jobs are less attractive than comparable non-union jobs
  - Individual worker who joins a union has different personal characteristics from those who prefer not to be unionized

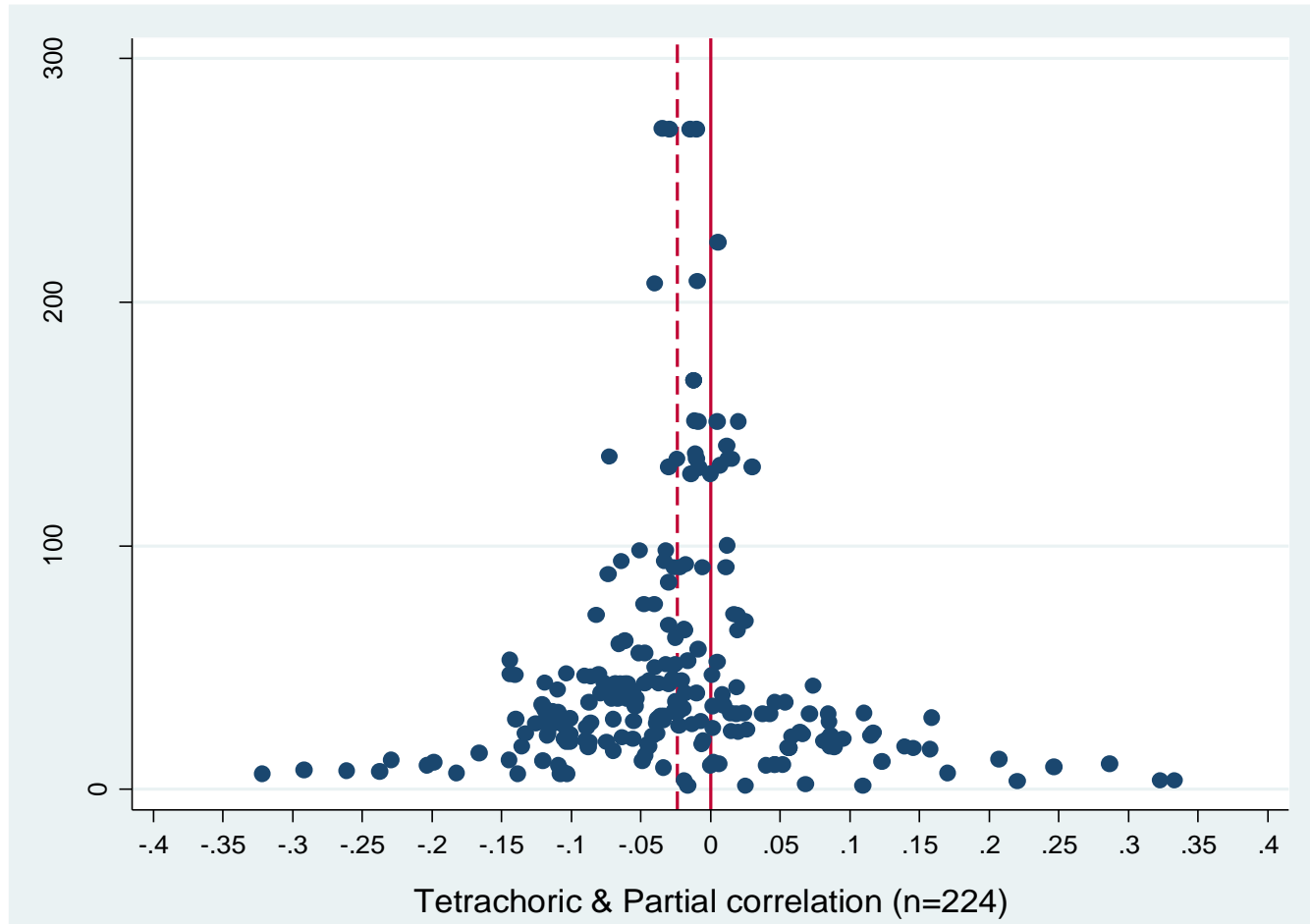
- The results from the existing empirical research have been inconclusive in terms of the ability to explain and predict job satisfaction
- Some studies confirm the exit-voice hypothesis (Borjas, 1979; Schwochau, 1987; Kochan and Helfman, 1981; Miller, 1990; Miller and Mulvey, 1991) but several others have reached different conclusions and argue that union member dissatisfaction is not evident at all (Pfeffer and Davis-Blake, 1990)
- To shed new light on the union/job satisfaction relationship, we compile empirical studies measuring the effect of unionization on job satisfaction in different countries from 1962 to 2015.

- An extensive computer based search was conducted revealing a total of 60 studies that contained a total of 224 estimates (43 treat the DV as binary or ordinal)
- In order to combine the results of all existing studies:
  - (1) we convert all estimates into partial correlations ignoring the distinction between the two groups of studies ;
  - (2) we calculate the tetrachoric correlation for the ordinal outcomes and combined these with partial correlation wherein the DV is continuous (see Askarov & Doucouliagos, 2013) ;
  - (3) we define an effect size that focuses on the direction and statistical significance of the estimates (ordered probit MA)

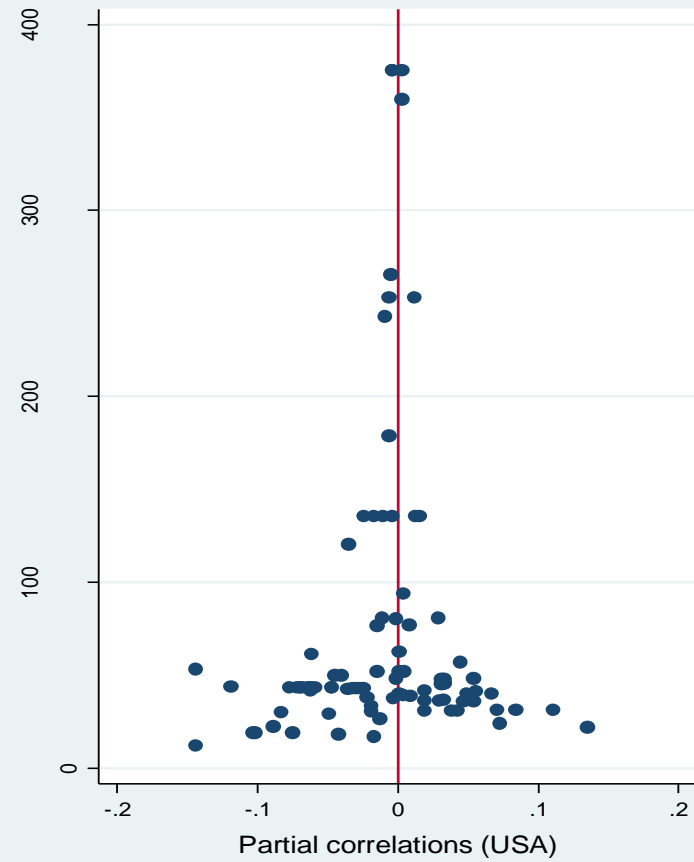
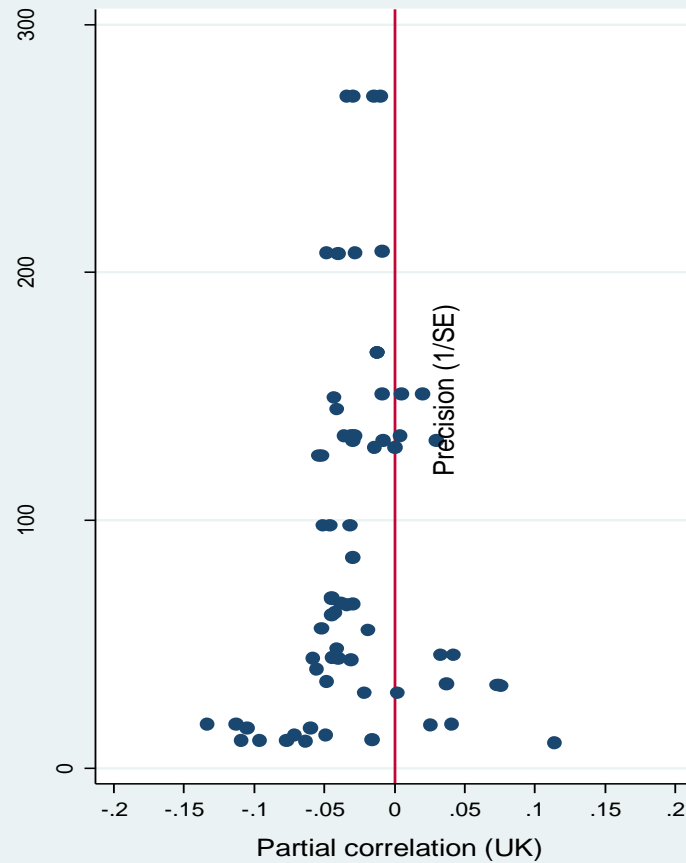
# Descriptive Analysis – FP Partial Corr.



# Descriptive Analysis – FP Tetra & Partial C.

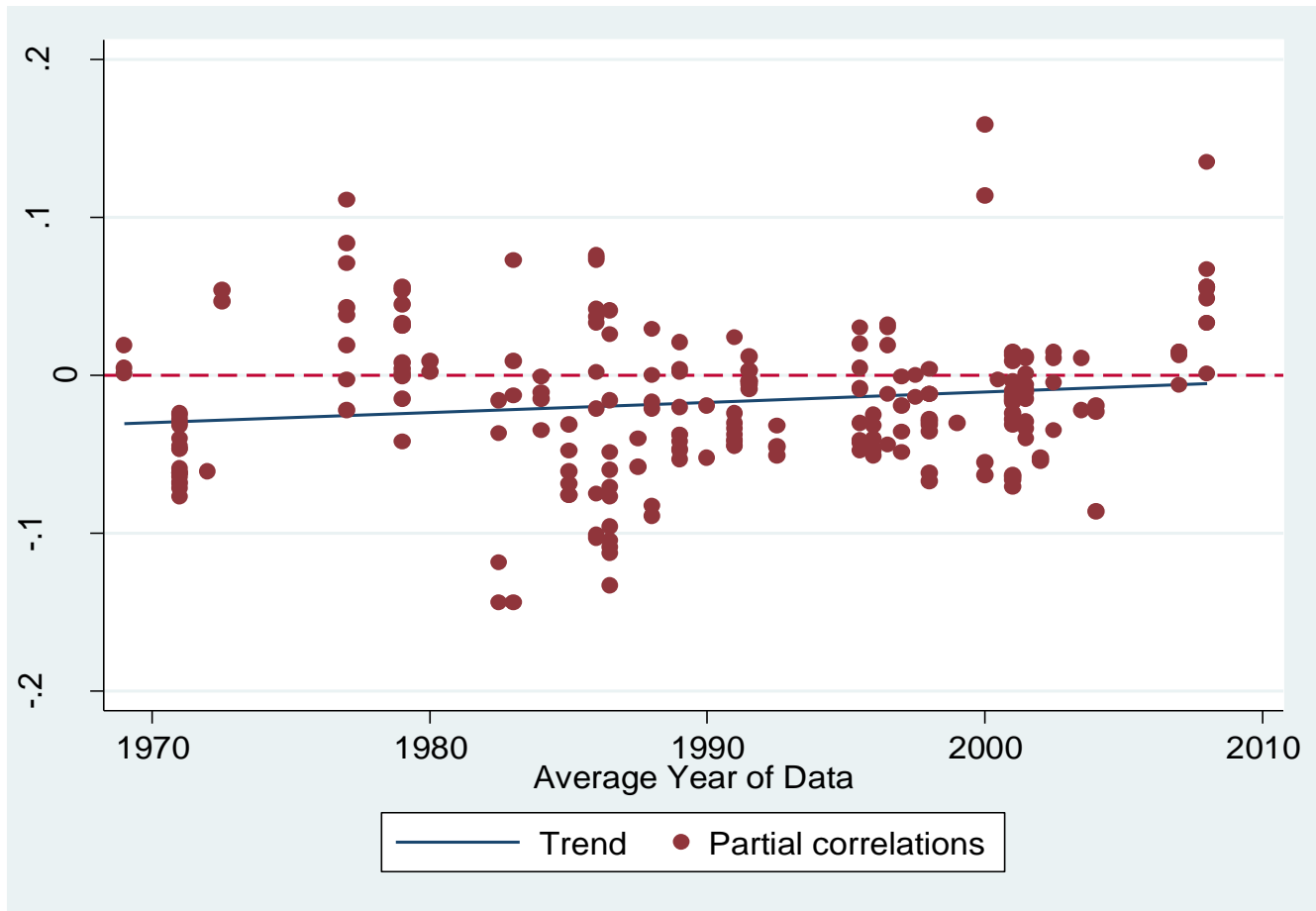


# Descriptive Analysis – USA & UK





# Chronological Ordering of the Data





# Meta-Regression Analysis



The MRA was performed in two steps. First, the data were tested for the presence of publication selection bias (FAT-PET, Stanley, 2005, 2008).

$$Effect_{ij} = \beta_0 + \beta_1 SE_{ij} + \varepsilon_{ij}$$

The second step was to estimate a MRA model to investigate the heterogeneity and selection of reported research results.

$$Effect_{ij} = \beta_0 + \beta_1 SE_{ij} + \sum \beta_k Z_{ki} + \varepsilon_{ij}$$



# FAT-PET, unconditional estimates

	OLS Robust (1)	OLS Clustered (2)	WLS & Clustered (3)
<i>Partial correlations</i>			
SE	-0.193 (-1.15)	-0.193 (-0.51)	-0.470 (-1.10)
Constant	-0.012** (-2.43)	-0.012 (-1.53)	-0.009* (-1.72)
Observations	224	224	224
Adj. R-squared	0.001	0.001	0.022
<i>Partial &amp; tetrachoric correlations</i>			
SE	0.173*** (2.60)	0.173 (1.33)	-0.493 (-1.48)
Constant	-0.034*** (-4.79)	-0.034*** (-3.29)	-0.014*** (-2.68)
Observations	224	224	224
Adj. R-squared	0.025	0.025	0.031

# MRA – Moderator Variables



## Group 1: Data characteristics

SERVICE	=1 if estimates are for the service industry
VARIOUS	=1 if estimates are for various industries (used as the base)
PANEL	=1 if estimate relates to panel data
POOLED	=1 if estimate relates to pooled cross sectional data
CROSS	=1 if estimate relates to cross sectional data (used as the base)
DF	=1 if degrees of freedom < 2,562 (median)

## Group 2: Spatial, temporal and econometric issues

1970	= 1 if the study used observations prior 1980
1980	= 1 if the study used observations between 1980 and 1989
1990	= 1 if the study used observations between 1990 and 1999 (used as the base)
2000	= 1 if the study used observations after 2000
USA	= 1 if the study used US data (used as the base)
UK	= 1 if the study used UK data
OTHERS	= 1 if the study used data from other countries
ECOJOURN	= 1 if the estimates come from a publication in an Econom. Journal
IRJOURN	= 1 if the estimates come from a publication in an Ind. Rel. Journal
MANAG	= 1 if the estimates come from a publication in a management journal (used as the base)
OLS	= 1 if used ordinary least square (used as the base)
ENDOGEN	= 1 if used 2SLS or IV Probit estimations
PROBIT	= 1 if used Logit or probit estimations

## Group 3: Control Variables in primary studies

FIRMSIZE	= 1 if the study used firm/organization size as a control variable
PROMOTION	= 1 if the study used promotion opportunities as a control variable
WAGES	= 1 if the study used wage or pay level as a control variable
GENDER	= 1 if the study used gender as a control variable
MALESUBGROUP	= 1 if the estimates come from a male subgroup
P	
FEMALESUBGROUP	= 1 if the estimates come from a female subgroup
OUP	
RACE	= 1 if the study used race as a control variable
HOURS	= 1 if the study used working hours as a control variable
AGE	= 1 if the study used age as a control variable
EDUCATION	= 1 if the study used education as a control variable
MARRIED	= 1 if the study used marital status as a control variable
TRAINING	= 1 if the study used training opportunities as a control variable
IRCLIMATE	= 1 if the study used good IR climate as a control variable
OCCUPATION	= 1 if the study used occupation as a control variable

# MRA Results



	<b>Specific FEE-WLS</b>	<b>REE-WLS</b>	<b>Multi-Level</b>	<b>Y = partial &amp; tetrachoric</b>	<b>Specific One study-one estimate</b>
Coverage	0.017*** (4.35)	0.013** (2.07)	0.004 (0.41)	0.018*** (4.40)	-
Panel	0.013*** (3.01)	0.004 (0.40)	-0.006 (-0.33)	0.034** (2.40)	-
Pooled	0.013*** (3.54)	0.017** (2.56)	0.014 (1.29)	0.031*** (4.16)	-
UK	-0.027*** (-7.83)	-0.015* (-1.74)	0.005 (0.36)	-0.039*** (-2.68)	-0.009** (-2.20)
Endog	0.011* (1.69)	0.014 (1.28)	0.032** (2.90)	0.008 (0.48)	-
Promotion	0.011*** (3.90)	0.006 (0.86)	0.005 (0.45)	0.003 (0.32)	0.011** (2.61)
Wages	0.019*** (3.92)	-0.000 (-0.02)	0.004 (0.26)	0.011 (0.59)	-
IR climate	0.027*** (3.12)	0.037*** (3.72)	0.023** (2.08)	0.032** (2.58)	0.020*** (3.57)
Other controls	Yes	Yes	Yes	Yes	Yes
Constant	-0.009 (-1.06)	-0.014 (-0.50)	0.002 (0.05)	0.010 (0.22)	-0.016** (-2.42)

# MRA Results



	Estimated and corrected partial correlations
(1) All countries	<b>-0.04** (-0.07 to -0.00)</b>
(2) All countries, G-t-S model	-0.03 (-0.08 to 0.02)
(3) All countries, fixed effects	-0.03 (-0.07 to 0.01)
(4) All countries, panel & pooled cross data	-0.01 (-0.05 to 0.03)
(5) All countries, cross sectional data	<b>-0.04*** (-0.07 to -0.01)</b>
(6) All countries, union coverage & union member	<b>-0.05** (-0.11 to -0.00)</b>
(7) All countries, union coverage & non-union member	-0.03 (-0.08 to 0.01)
(8) UK	<b>-0.03* (-0.06 to 0.00)</b>
(9) UK, panel & pooled cross data	0.00 (-0.04 to 0.04)
(10) USA	-0.03 (-0.06 to 0.01)

# Estimated Effect of Unionization on JS

US	UK	Australia	Canada	Others	Europe (including UK)	Europe (excluding UK)
<b>-0.015</b>	<b>-0.037**</b>	<b>-0.037</b>	<b>-0.013</b>	<b>-0.011</b>	<b>-0.040*</b>	<b>-0.015</b>
(-0.89)	(-2.31)	(-1.29)	(-0.51)	(-0.47)	(-1.97)	(-0.60)
[0.376]	[0.024]	[0.203]	[0.610]	[0.641]	[0.054]	[0.550]

Notes: Figures in brackets are *t*-statistics using cluster adjusted standard error. All estimates use coefficients from column 2 of Table 5. Figures in square brackets are *p*-values.

# Robustness Check



## Meta-average partial correlation of unionization and job satisfaction

	Un-weighted Average (1)	FEE-WLS (2)	REE-WLS (3)	FAT-PET, selection bias corrected weighted average (4)	FAT-PET, publication selection bias (5)	PEESE weighted average (6)
All studies, average estimate (n=60, k=60) (1)	-0.013** (-2.20)	-0.014*** (-2.87)	-0.014*** (-2.79)	-0.014* (-1.70)	-0.016 (-1.46)	-0.014** (-2.61)
USA studies, average estimate (n=22, k=22) (2)	-0.011 (-1.04)	0.002 (0.80)	-0.009 (-0.91)	0.008* (1.98)	-0.006 (-0.21)	0.004 (1.64)
UK studies, average estimate (n=18, k=18) (3)	-0.027*** (-3.56)	-0.030*** (-6.82)	-0.026*** (-4.63)	-0.035*** (-5.62)	-0.010 (-1.47)	-0.030*** (-6.52)
All studies, all estimates (n=224, k=60) (4)	-0.017*** (-2.85)	-0.012*** (-3.35)	-0.016*** (-6.37)	-0.009* (-1.72)	-0.016*** (-5.43)	-0.012*** (-3.06)
USA studies, all estimates (n=90, k=22) (5)	-0.010 (-0.91)	-0.003 (-1.41)	-0.008* (-1.73)	-0.000 (-0.14)	-0.004 (-0.64)	-0.002 (-1.65)
UK studies, all estimates (n=71, k=18) (6)	-0.025** (-2.69)	-0.022*** (-5.39)	-0.023*** (-6.51)	-0.021*** (-4.31)	-0.022*** (-5.93)	-0.022*** (-5.25)





- Taking all the studies together and for all periods, the **association between unionization and JS is negative**. However, the accumulated evidence indicates that unionization **is negatively related to job satisfaction in the UK**, although **not in the rest of the world**.
- Compared to OLS, studies that **address endogeneity** report that **unionization has no effect on JS**. One neglected issue in this area concerns the possibility of selectivity.
- Studies that **use panel or pooled-cross-sectional data** report **less negative effects** of union membership on JS. It suggests that cross-sectional studies suffer not only from unobserved heterogeneity but may also be biased due to time-varying endogenous effects such as adaptation effect.



- Several studies included in the **MA have the same sample** (NLSY, BHPS,...). Is clustering the best practice? What are alternatives?
- Weighting of the data. Results are often **different according to the weight** used in the MRA. What is the best practice? What about the Bijmolt & Pieters (2001) weighting (*each observation is weighted with the inverse of the total number of estimates that is drawn from the same study vs  $1/SE$* )?
- Not a big fan of stepwise regression (at least the reviewer of the paper). Is there a potential interest in **using BMA**?
- **Control for endogeneity** (should have a shift effect in a given direction). In fact, there is some controversy in this literature about the sign of this relationship under different approaches to addressing endogeneity. Are instruments used by the primary studies good enough? How to deal with this?

# Robustness Check

## Unionization and Job Satisfaction, Meta-Regression Analysis

	General FEE-WLS (1)	Specific FEE-WLS (2)	REE- WLS (3)	Multi- Level (4)	OLS robust (5)
<b>Control for endogeneity:</b>					
(1) Intrinsic degree of satisfaction is higher than non-unionized workers ( $\rho > 0$ )	-0.020 (-1.24)	-0.027*** (-3.52)	-0.003 (-0.57)	0.013 (0.36)	0.002 (0.09)
(2) Intrinsic degree of satisfaction is similar between unionized and non-unionized workers ( $\rho = 0$ )	0.016 (1.16)	-	0.019 (1.43)	0.023* (1.78)	0.033* (1.84)
(3) Intrinsic degree of satisfaction is lower than non-unionized workers ( $\rho < 0$ )	0.030*** (3.25)	0.025*** (4.11)	0.032* (1.77)	0.065*** (4.15)	0.045* (1.71)
<b>Other explanatory variables</b>					
Constant	Yes	Yes	Yes	Yes	Yes
Adjusted-R <sup>2</sup>	0.57	0.55	0.60		
N	224	224	224		

Voice effect  
(causal effect)

Selection effect  
(no effect)

The intrinsic degree of job satisfaction of union members is measured by the correlation of unobservables between satisfaction and membership equation (coefficient  $\rho$ ). If  $\rho$  is negative, then one can conclude that union members are intrinsically less satisfied than non-union members. In that case, studies report a lower negative effect (or a positive effect) of unionization and it can be interpreted as a proof of the absence of a causal effect of unionization on job satisfaction. On the contrary, if  $\rho$  is positive, union members are intrinsically more satisfied than their counterparts and the coefficient estimate becomes larger (more negative or less positive) once we remove the compositional effects. We can then consider that result as a proof of a causal effect of unionization on job satisfaction.

Funnel Plot of Estimates of Unionization on Job Satisfaction (Studies that make endogeneity corrections)

