

VanHeuvelen, Tom; Brady, David

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## Labor Unions and American Poverty

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## **Supplemental Online Appendix**

### **Labor Unions and American Poverty**

**Tom VanHeuvelen and David Brady**

#### **Data**

A strength of the PSID is that median household income closely resembles levels calculated using the CPS (Gouskova and Schoeni 2007). Household income percentiles above the 5<sup>th</sup> and below the 95<sup>th</sup> were very similar between the PSID and March Current Population Survey (CPS) since 1968. Therefore, the assignment of poverty status based on a PSID respondent's household income relative to the median PSID household income should largely mirror assignment based on the CPS. For our purposes, discrepancies above the 95<sup>th</sup> percentile are immaterial. While incomes below the 5<sup>th</sup> percentile differed, they would not differ significantly enough to lead us to misclassify poor households as non-poor.

The PSID stopped measuring household taxation in 1992. The CNEF employs the National Bureau of Economic Research's TAXSIM model. Tax burdens are estimated for each tax unit and then summed to the household level. Payroll taxes of the head and partner are added together along with federal and state income taxes to arrive at a total household tax burden (Butrica and Burkhauser 1997). Household income is thus the total of labor earnings, asset flows, private transfers, public transfers, and social security pensions minus total household taxes.

In the 1976 and 1979 waves, 268 of the 12,235 household units had a spouse who *was* a union member and a head who was *not* a union member. While these households make up only

2% of the households in these waves, they represent 11% of the union households. We replicated the main results for state-level union membership without consideration of household union membership using all waves from 1970 onward and drew the same conclusions.

### **Official Poverty Measurement (OPM)**

We intentionally avoid the U.S. OPM because of its well documented and serious validity and reliability problems (Brady et al. 2013; Rainwater and Smeeding 2004; Smeeding 2016). Partly because it was established with little scientific basis more than 50 years ago, the OPM thresholds are widely understood to be too low. As noted above, the OPM's definition of income ignores taxes and tax credits, and inconsistently counts transfers. For example, Old Age Survivor's Insurance and Temporary Assistance for Needy Families (TANF) benefits count as income. However, SNAP, housing subsidies and childcare vouchers do not. Since the 1990s, the EITC has grown into the largest assistance program for families with children and the Child Tax Credit has grown substantially in recent years. Yet, both are ignored by the OPM. In recent years, SNAP and EITC are each more than four times larger than TANF. Therefore, over-time comparisons based on the OPM, especially for the working poor, are flawed. The OPM also neglects states' taxes and transfers, which compounds reliability and validity problems. By contrast, the definition of income used here incorporates federal and state taxes and transfers. Because the CNEF measure comprehensively includes income sources, transfers, and taxes – unlike the OPM – it is inappropriate to use the OPM threshold with this measure of income.

### **Additional Discussion of the Fixed Effects Individual Slopes (FEIS) Model**

Standard fixed-effects models assume that time trends are uniformly shared across respondents.<sup>1</sup> If this is not the case—for example, if the probabilities of an individual’s poverty and union membership both covary with time—then results from fixed-effects models are biased. FEIS models estimate the association between poverty and unionization, net not only of individual-level time-invariant differences in the probability of poverty, but also the idiosyncratic set of trajectories of poverty status experienced within the PSID sample.

Fixed-effects models rely on the assumption of strict exogeneity: no contemporaneous correlation of regressors and the error term,  $\epsilon$ , and no correlation of regressors with past and future values of regressors and  $\epsilon$ . In standard fixed-effects models, the requirement for strict exogeneity is  $E(\epsilon_{it} | x_i, \alpha_i, \text{year}_i) = 0$ : net of observed covariates, individual fixed-effects, and shared trajectories over time, errors are expected to be zero. Put differently, there should be no non-random heterogeneity of time trends, which would be part of the error term. If there exists some set of correlated time trends between dependent and independent variables, this assumption may not hold, and fixed-effects results might be biased. FEIS models provide a less stringent requirement for strict exogeneity:  $E(\epsilon_{it} | x_i, \alpha_i, \text{bcycle}_i) = 0$ : net of observed characteristics, individual fixed-effects, individual time trajectories, and shared time contrasts across business cycles, errors are expected to be zero.<sup>2</sup>

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<sup>1</sup> Also, fixed-effects models assume parallel trends across groups: equivalent trajectories in the probability of poverty between union and non-union members. Prior research shows that unions select on worker competency characteristics observable to employers but not researchers (Card et al. 2004). If this is the case, and if such characteristics are related to poverty trajectories, it is likely that changes in the probability of poverty over time are unequal across union and non-union groups. Similarly, unions might discriminate in granting access to groups facing distinct risk sets of poverty, such as people of color (Rosenfeld and Kleykamp 2012). If this is the case, then union and non-union groups would be selected based on varying poverty trajectories that exist across groups, and the assumption of parallel trends may not hold.

<sup>2</sup> FEIS models are “data hungry” (Ludwig and Brüderl 2018), as a model with a single linear term for time drop all individuals with two or fewer observations. Thus, models cannot fully include the whole set

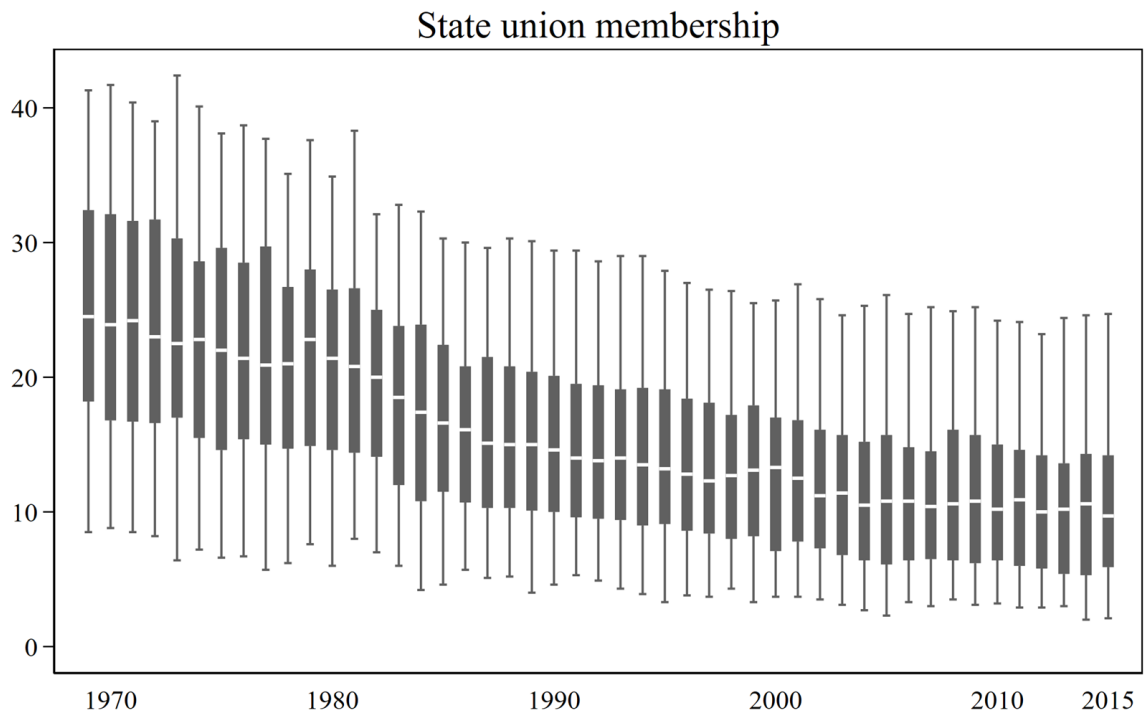
## References

- Brady, David, Regina S. Baker, and Ryan Finnigan. 2013. When unionization disappears: State-level unionization and working poverty in the US. *American Sociological Review* 78(5): 872–96.
- Butrica, Barbara A., and Richard V. Burkhauser. 1997. Estimating federal income tax burdens for Panel Study of Income Dynamics (PSID) families using the National Bureau of Economic Research TAXSIM model. Aging Studies Program Paper No. 12. Maxwell Center for Demography and Economics of Aging, Syracuse University.
- Card, David, Thomas Lemieux, and W. Craig Riddell. 2004. Unions and wage inequality. *Journal of Labor Research* 25: 519–59.
- Gouskova, Elena, and Robert F. Schoeni. 2007. Comparing estimates of family income in the Panel Study of Income Dynamics and the March Current Population Survey, 1968–2005. Technical Series Paper #07-01. University of Michigan.
- Ludwig, Volker, and Josef Brüderl. 2018. Is there a male marital wage premium? New evidence from the United States. *American Sociological Review* 83(4): 744–80.
- Rainwater, Lee, and Timothy M. Smeeding. 2004. *Poor Kids in a Rich Country: America's Children in Comparative Perspective*. New York: Russell Sage Foundation.
- Rosenfeld, Jake, and Meredith Kleykamp. 2012. Organized labor and racial wage inequality in the United States. *American Journal of Sociology* 117(5): 1460–502.
- Smeeding, Timothy. 2016. Poverty measurement. In David Brady and Linda M. Burton (Eds.), *Oxford Handbook of the Social Science of Poverty*, pp. 21–46. Oxford, UK: Oxford University Press.

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of year contrasts we include in FE models. We include the period contrasts in an attempt to allow our FEIS models to resemble our treatment of time in the FE models.

**Figure A.1.** Variation in State Unionization over Time



**Table A.1.** Descriptive Statistics for Working-Aged Poverty Controls

|  | Mean   | Std. Dev. | Min    | Max     |
|--|--------|-----------|--------|---------|
| Household head education               |        |           |        |         |
| Less than high school                  | 0.173  |           | 0      | 1       |
| High school                            | 0.355  |           | 0      | 1       |
| Some college                           | 0.217  |           | 0      | 1       |
| College                                | 0.166  |           | 0      | 1       |
| More than college                      | 0.089  |           | 0      | 1       |
| Household head age                     |        |           |        |         |
| Under 25                               | 0.046  |           | 0      | 1       |
| 25-34                                  | 0.252  |           | 0      | 1       |
| 35-54                                  | 0.544  |           | 0      | 1       |
| 55 or older                            | 0.158  |           | 0      | 1       |
| Household head race                    |        |           |        |         |
| White                                  | 0.799  |           | 0      | 1       |
| Black                                  | 0.140  |           | 0      | 1       |
| Other                                  | 0.061  |           | 0      | 1       |
| Household employment                   |        |           |        |         |
| One employed                           | 0.359  |           | 0      | 1       |
| None employed                          | 0.058  |           | 0      | 1       |
| Two or more employed                   | 0.583  |           | 0      | 1       |
| Household composition                  |        |           |        |         |
| Single mother                          | 0.107  |           | 0      | 1       |
| Single father                          | 0.042  |           | 0      | 1       |
| Female head, no children               | 0.075  |           | 0      | 1       |
| Male head, no children                 | 0.226  |           | 0      | 1       |
| Other                                  | 0.551  |           | 0      | 1       |
| Number of household members under five | 0.222  | 0.415     | 0      | 1       |
| Number of household members over 65    | 0.021  | 0.143     | 0      | 1       |
| State characteristics                  |        |           |        |         |
| GDP per capita (thousands of dollars)  | 31.536 | 7.438     | 17.455 | 135.729 |
| Percent population employed            | 0.547  | 0.060     | 0.371  | 1.373   |
| GDP growth                             | 0.008  | 0.036     | -0.307 | 0.255   |
| Logged population                      | 15.831 | 0.841     | 12.882 | 17.478  |

**Table A.2.** Descriptive Statistics for Working Poverty Controls

|                                  | Mean  | Std.<br>Dev. | Min | Max |
|----------------------------------|-------|--------------|-----|-----|
| Lead earner employment status    |       |              |     |     |
| Not employed                     | 0.088 |              | 0   | 1   |
| Employed                         | 0.912 |              | 0   | 1   |
| Lead earner race                 |       |              |     |     |
| White                            | 0.820 |              | 0   | 1   |
| Black                            | 0.117 |              | 0   | 1   |
| Other                            | 0.063 |              | 0   | 1   |
| Lead earner education            |       |              |     |     |
| Less than high school            | 0.150 |              | 0   | 1   |
| High school                      | 0.360 |              | 0   | 1   |
| Some college                     | 0.222 |              | 0   | 1   |
| College                          | 0.170 |              | 0   | 1   |
| More than college                | 0.098 |              | 0   | 1   |
| Lead earner age                  |       |              |     |     |
| Under 25                         | 0.036 |              | 0   | 1   |
| 25-34                            | 0.239 |              | 0   | 1   |
| 35-54                            | 0.563 |              | 0   | 1   |
| 55 or older                      | 0.162 |              | 0   | 1   |
| Lead earner occupation           |       |              |     |     |
| Management                       | 0.182 |              | 0   | 1   |
| Professional specialty           | 0.142 |              | 0   | 1   |
| Technicians and related support  | 0.035 |              | 0   | 1   |
| Sales                            | 0.071 |              | 0   | 1   |
| Administrative support           | 0.092 |              | 0   | 1   |
| Service occupations              | 0.103 |              | 0   | 1   |
| Farming, forestry, fishing       | 0.037 |              | 0   | 1   |
| Mechanics and repairers          | 0.061 |              | 0   | 1   |
| Construction                     | 0.052 |              | 0   | 1   |
| Precision production             | 0.045 |              | 0   | 1   |
| Machine operators                | 0.076 |              | 0   | 1   |
| Transportation                   | 0.092 |              | 0   | 1   |
| Military                         | 0.012 |              | 0   | 1   |
| Lead earner industry             |       |              |     |     |
| Agriculture forestries fisheries | 0.038 |              | 0   | 1   |
| Mining                           | 0.008 |              | 0   | 1   |
| Construction                     | 0.088 |              | 0   | 1   |
| Non-durable manufacturing        | 0.076 |              | 0   | 1   |
| Durable manufacturing            | 0.107 |              | 0   | 1   |
| Transportation manufacturing     | 0.033 |              | 0   | 1   |



**Table A.2. Continued**

|  | Mean   | Std.<br>Dev. | Min    | Max     |
|--|--------|--------------|--------|---------|
| Transportation                         | 0.058  |              | 0      | 1       |
| Communications                         | 0.018  |              | 0      | 1       |
| Utilities and sanitation               | 0.021  |              | 0      | 1       |
| Wholesale trade                        | 0.035  |              | 0      | 1       |
| Retail trade                           | 0.098  |              | 0      | 1       |
| Finance, insurance, and real estate    | 0.051  |              | 0      | 1       |
| Business services                      | 0.035  |              | 0      | 1       |
| Repair services                        | 0.018  |              | 0      | 1       |
| Personal services                      | 0.027  |              | 0      | 1       |
| Entertainment and recreation           | 0.010  |              | 0      | 1       |
| Professional and related services      | 0.183  |              | 0      | 1       |
| Retail grocery                         | 0.026  |              | 0      | 1       |
| Public employment                      | 0.070  |              | 0      | 1       |
| Household composition                  |        |              |        |         |
| Single mother                          | 0.085  |              | 0      | 1       |
| Single father                          | 0.030  |              | 0      | 1       |
| Female head, no children               | 0.069  |              | 0      | 1       |
| Male head, no children                 | 0.231  |              | 0      | 1       |
| Other                                  | 0.586  |              | 0      | 1       |
| Number of household members under five | 0.218  | 0.413        | 0      | 1       |
| Number of household members over 65    | 0.017  | 0.128        | 0      | 1       |
| Multiple earners in household          | 0.653  | 0.476        | 0      | 1       |
| State characteristics                  |        |              |        |         |
| GDP per capita (thousands of dollars)  | 31.657 | 7.364        | 17.455 | 135.729 |
| Percent population employed            | 0.549  | 0.058        | 0.371  | 1.373   |
| GDP growth                             | 0.008  | 0.036        | -0.307 | 0.255   |
| Logged population                      | 15.827 | 0.843        | 12.882 | 17.478  |

**Table A.3.** Fixed Effects Linear Probability Models of Employment

|   | Household<br>Employed<br>Among<br>Working-Aged? | Household<br>Employed<br>Among<br>Working-Aged | Multiple Earners<br>Among<br>Employed<br>Households<br>Sample | Multiple Earners<br>Among<br>Employed<br>Households<br>Sample |
|---|---|--|---|---|
| State<br>unionization                                 | -.0004<br>(.0005)                               | .0003<br>(.0005)                               | -.002<br>(.001)   | -.0001<br>(.001)  |
| Individual- &<br>State-level<br>controls<br>included? | No  | Yes  | No  | Yes   |
| N   | 385,701   | 379,883  | 354,581   | 349,211   |

Robust clustered standard errors in parentheses

+ p&lt;0.10, \*p&lt;0.05, \*\*p&lt;0.01, \*\*\*p&lt;0.001, two-tailed test

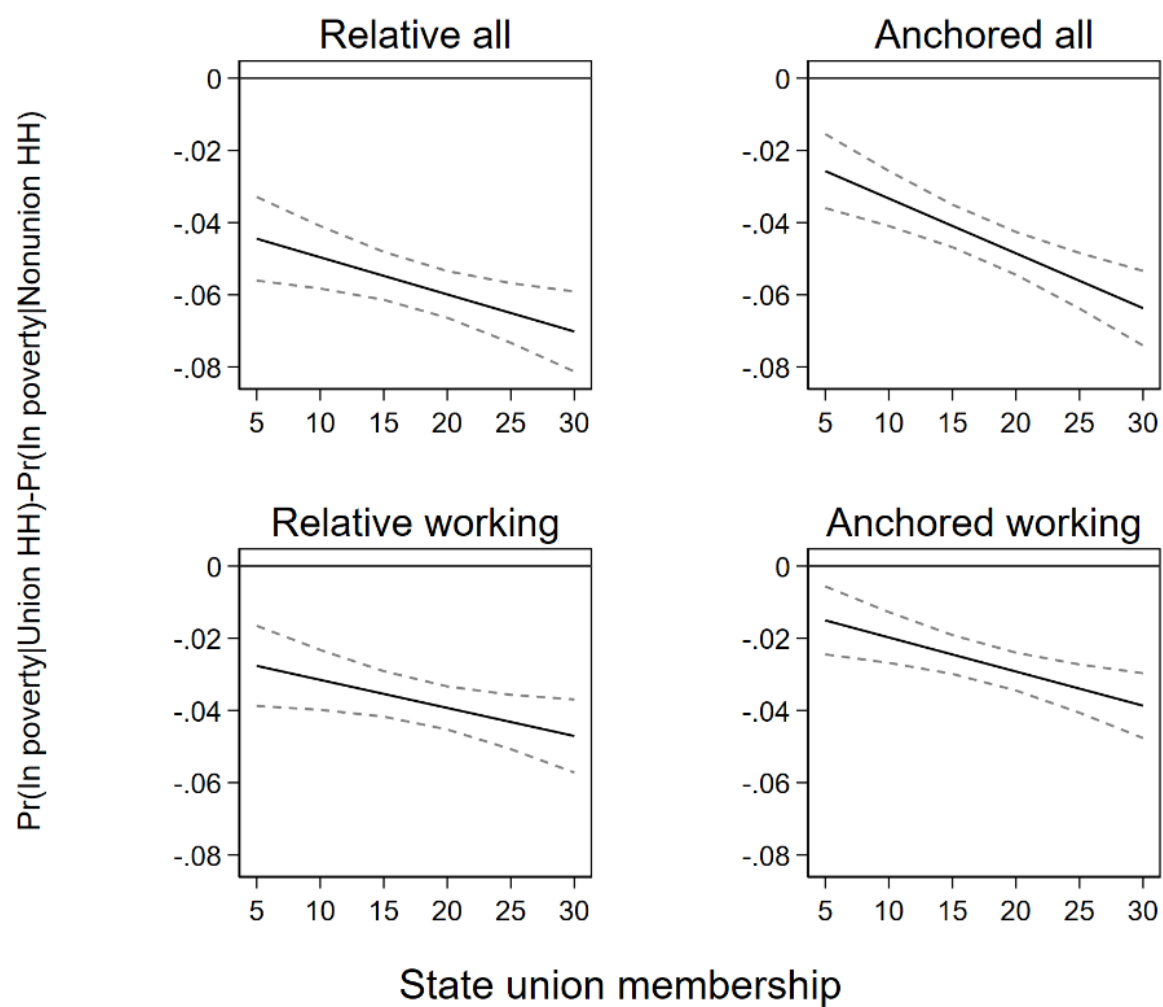
**Table A.4.** Table of Standardized Coefficients for Figure 4. Household and Standardized State-Level Associations with Poverty, Fixed-Effects Individual Slopes Models

|   | Working aged         |                      | Working              |                      |
|---|----------------------|----------------------|----------------------|----------------------|
|   | (1)                  | (2)                  | (3)                  | (4)                  |
|   | Relative             | Anchored             | Relative             | Anchored             |
| <b>Household-level effects</b>          |                      |                      |                      |                      |
| Union household                         | -0.056***<br>(0.003) | -0.045***<br>(0.003) | -0.037***<br>(0.003) | -0.027***<br>(0.003) |
| Single mother household                 | 0.126***<br>(0.005)  | 0.117***<br>(0.005)  | 0.129***<br>(0.006)  | 0.110***<br>(0.006)  |
| Young household head                    | 0.072***<br>(0.006)  | 0.059***<br>(0.005)  | 0.078***<br>(0.007)  | 0.065***<br>(0.006)  |
| Low educated                            | 0.085***<br>(0.008)  | 0.079***<br>(0.008)  | 0.064***<br>(0.008)  | 0.057***<br>(0.007)  |
| Unemployed household                    | 0.271***<br>(0.006)  | 0.300***<br>(0.007)  |                      |                      |
| <b>Standardized state-level effects</b> |                      |                      |                      |                      |
| State unionization                      | -0.018***<br>(0.005) | -0.017***<br>(0.004) | -0.014**<br>(0.004)  | -0.010**<br>(0.004)  |
| GDP per capita (thousands of dollars)   | -0.016**<br>(0.005)  | -0.012**<br>(0.005)  | -0.015**<br>(0.005)  | -0.011**<br>(0.004)  |
| Percent employed                        | -0.006<br>(0.006)    | -0.015**<br>(0.005)  | -0.001<br>(0.005)    | -0.010*<br>(0.005)   |
| GDP growth                              | 0.001<br>(0.001)     | 0.002***<br>(0.001)  | 0.002*<br>(0.001)    | 0.003***<br>(0.001)  |
| Logged population                       | -0.044<br>(0.025)    | 0.020<br>(0.023)     | -0.041<br>(0.023)    | 0.019<br>(0.020)     |
| N                                       | 379,076              | 379,076              | 321,654              | 321,654              |

Notes: Robust clustered standard errors in parentheses. Based on second models in Table 3.

\* p<0.05, \*\* p<0.01, \*\*\*p<0.001

**Figure A.2.** Marginal Effect of Household Union Membership by State Unionization



*Data source:* PSID 1976–2015.

*Notes:* Predictions from models 3, 6, 9, and 12 in Table 3.