Online Appendix to Trends in U.S. Spatial Inequality: Concentrating Affluence and a Democratization of Poverty

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Approximating the Bourguignon Index

The first term of B can be written:

$$\ln\left(\sum_i s_i v_i\right) = \ln\left(\sum_i s_i \exp\left(\ln v_i\right)\right).$$

A second order Taylor approximation of $\exp(\cdot)$ around the point $\overline{\ln v}$ yields

$$\exp\left(\ln v_i\right) \approx \exp\left(\overline{\ln v}\right)\left\{1 + \left[\ln v_i - \overline{\ln v}\right] + \frac{1}{2}\left[\ln v_i - \overline{\ln v}\right]^2\right\}.$$

Employing this approximation yields

$$\ln\left(\sum_i s_i v_i\right) \approx \overline{\ln v} + \ln\left(1 + \frac{1}{2}\sum_i s_i\left[\ln v_i - \overline{\ln v}\right]^2\right).$$

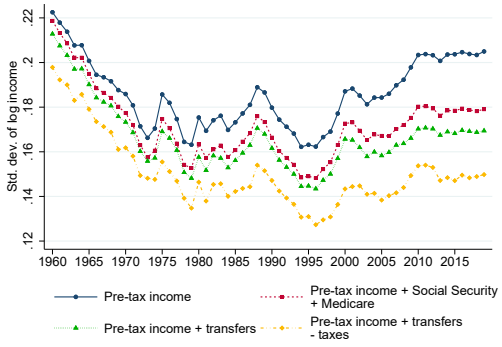
Hence, we can write

$$\begin{aligned} B &\approx \ln\left(1 + \frac{1}{2}\sum_i s_i\left[\ln v_i - \overline{\ln v}\right]^2\right) \\ &\approx \frac{1}{2}\sum_i s_i\left[\ln v_i - \overline{\ln v}\right]^2, \end{aligned}$$

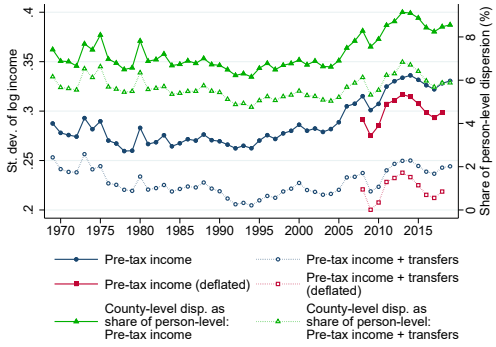
where the second line uses the approximation $\ln(1+x) \approx x$. This second approximation is extremely accurate in our setting because the variances we study lie far below one.

Additional results

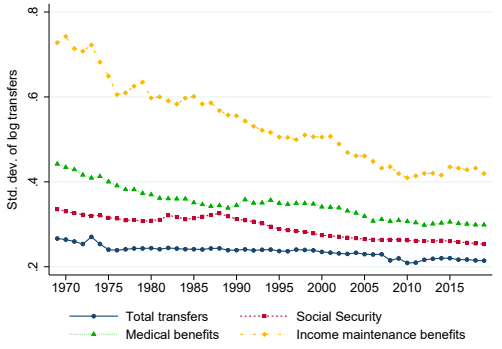
FIGURE A.I. UNWEIGHTED RESULTS



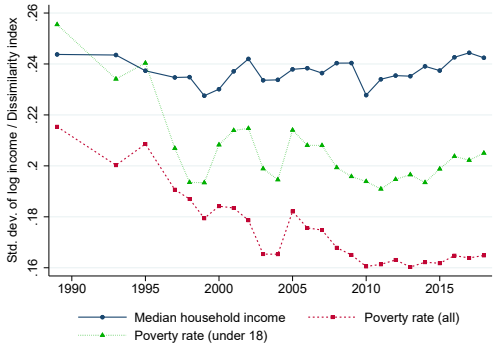
(a) Figure 1



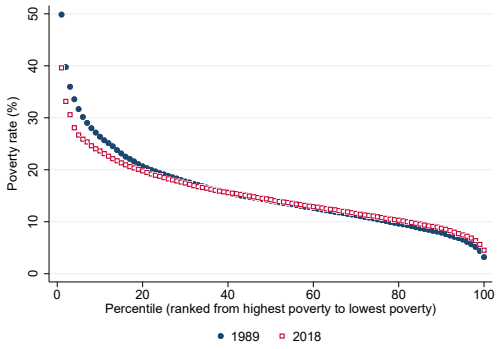
(b) Figure 2



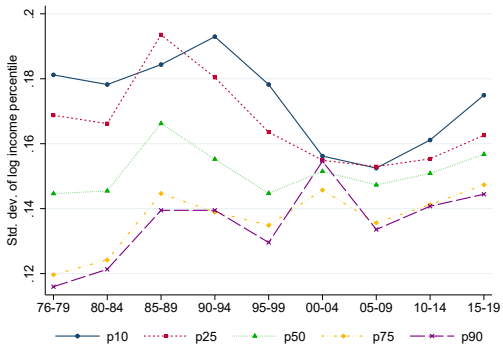
(c) Figure 3



(d) Figure 4



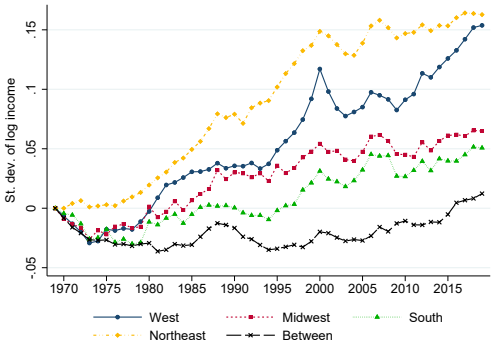
(e) Figure 5



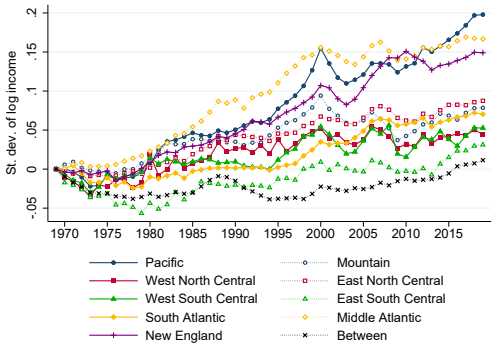
(f) Figure 6

Note: The above panels reproduce the figures in the text assigning equal weight to each geographic unit.

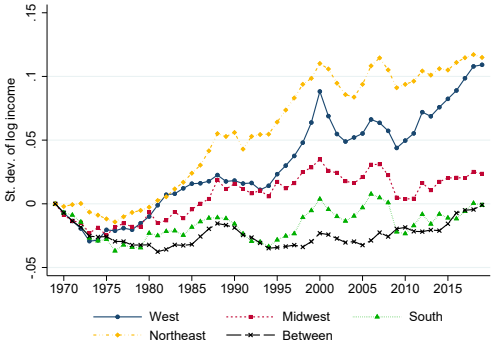
FIGURE A.II. REGIONAL RESULTS



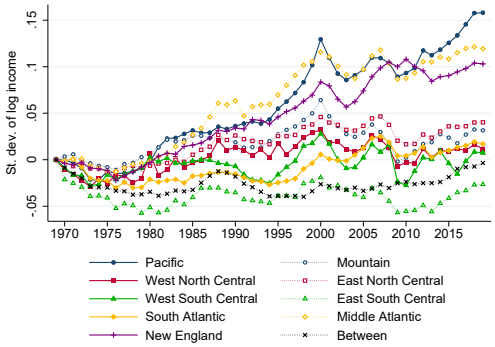
(a) Pre-tax income



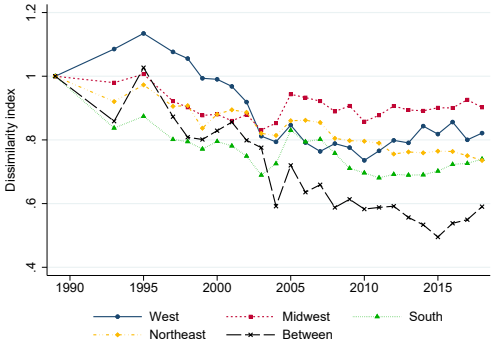
(b) Pre-tax income



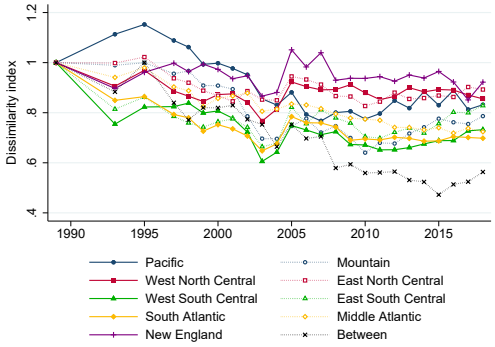
(c) Pre-tax income + transfers



(d) Pre-tax income + transfers



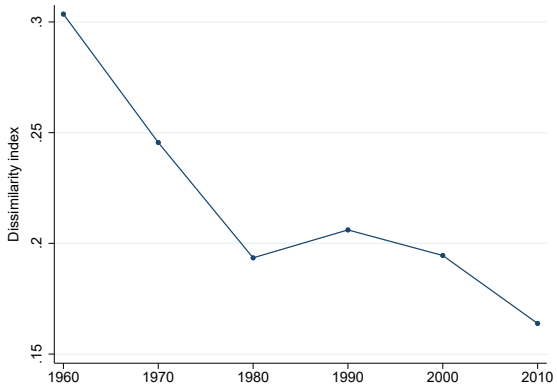
(e) Poverty rate



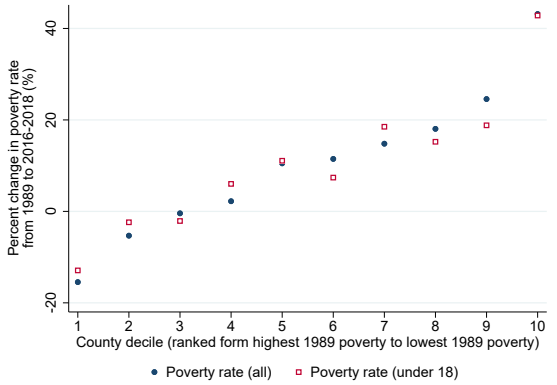
(f) Poverty rate

Note: These figures plot the population-weighted standard deviation across counties of the logarithm of two measures of BEA per capita income and the dissimilarity index of county poverty rates within Census regions and divisions. They also plot the population-weighted standard deviation of log mean income across regions and divisions and the dissimilarity index of mean poverty rates across regions and divisions ("between" dispersion). Income series are normalized by subtracting their value in 1969. Poverty rate series are normalized dividing by their value in 1989. *Source*: Bureau of Economic Analysis and Census Small Area Income and Poverty Estimates (SAIPE).

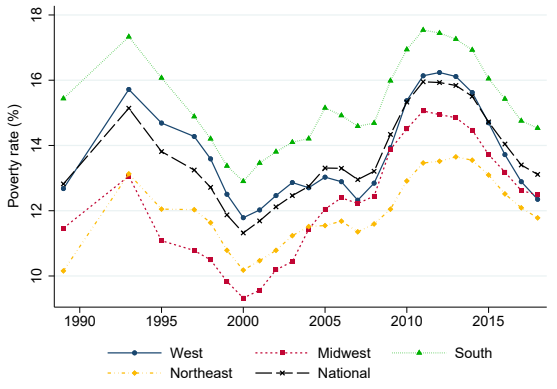
FIGURE A.III. ADDITIONAL POVERTY RESULTS



(a) Poverty rate dissimilarity index



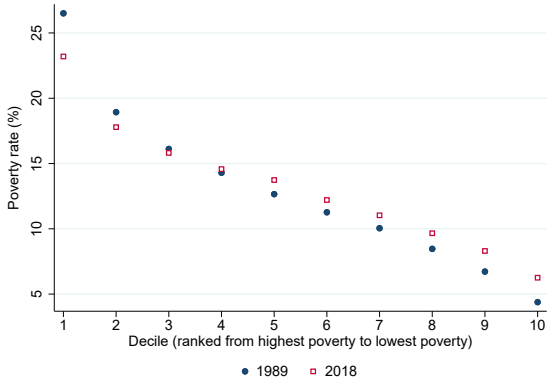
(b) Change in mean poverty rate by decile



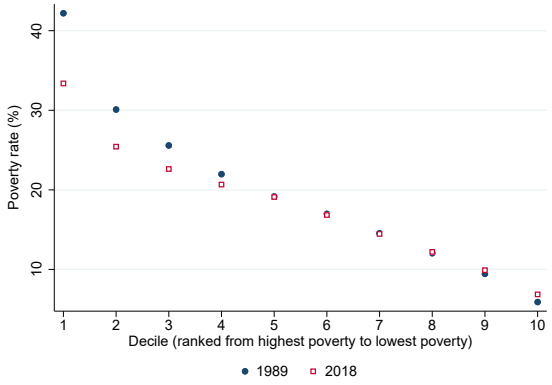
(c) Mean poverty rate by Census region

Note: Panel (a) plots the dissimilarity index of the poverty rate using county-level Decennial Census data. Panel (b) plots the log difference in mean county poverty rates between 1989 and the average 2016-2018 by 1989 county poverty rate rank. Data for 1989 is taken from 1990 Decennial Census and data for 2016-2018 is taken from SAIPE. Panel (c) plots the mean poverty rate by Census region using SAIPE county-level data.*Source*: 1980, 1990, 2000 Decennial Censuses and 5 year (2008-2012) ACS averages and Census Small Area Income and Poverty Estimates (SAIPE).

FIGURE A.IV. MEAN POVERTY RATE BY DECILE



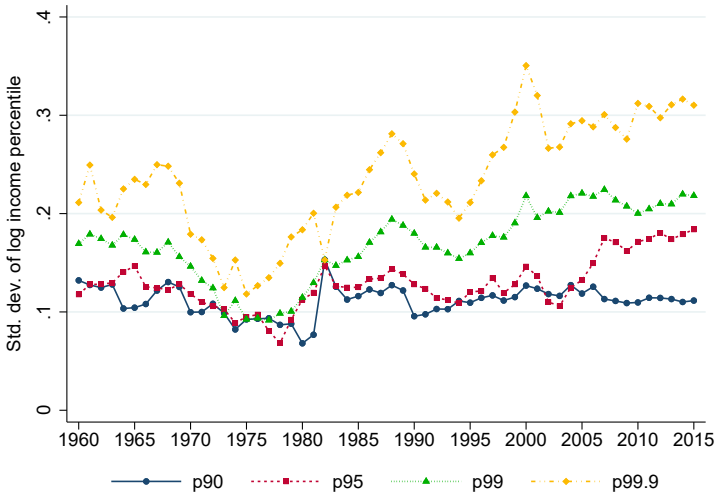
(a) All ages



(b) Under 18

Note: These figures plot mean poverty rates by population-weighted deciles built from county-level data, separately for 1989 and 2018. Panel (a) considers poverty rates for all ages. Panel (b) considers poverty rates for ages under 18. *Source*: Census Small Area Income and Poverty Estimates.

FIGURE A.V. DISPERSION IN STATE TOP INCOME PERCENTILES



Note: This figure plots the taxpayers-weighted standard deviation across states of top percentiles of the logarithm of gross income. Gross income equals adjusted gross income minus unemployment compensation and taxable Social Security benefits. Series includes capital gains.
Source: Sommeiller and Price (2018).

REFERENCES

Sommeiller, Estelle, and Mark Price. 2018. "The new gilded age: Income inequality in the US by state, metropolitan area, and county." *Economic Policy Institute*, 19.