

Alan J. Auerbach, Public Finance Implications of Economic Inequality

Online Appendix: Calculating the Cyclical Sensitivity of Incomes of Different Groups

How much does the income of any group in the income distribution, Y_i , change with a cyclical increase in overall income, Y ? Given that $Y_i = \left(\frac{Y_i}{Y}\right) Y$, it follows that:

$$(A1) \quad \frac{dY_i}{dY} = \left(\frac{Y_i}{Y}\right) + \frac{d\left(\frac{Y_i}{Y}\right)}{dY/Y}$$

We estimate the second term on the right-hand side of expression (A1) with the coefficient from a regression of the first difference of the annual income shares displayed in Figure 3 in the paper on the percent change in real GDP from 1980 to 2020. (The results are similar if we use as the independent variable the percent change in real GDP less the percent change in real potential GDP, to focus on cyclical changes.) Data on calendar-year real GDP and real potential GDP are from the file Annual_CY_Feb24.xlsx in CBO (2024).

The coefficient for the top percentile income group is 0.267 (with a standard error of 0.117), meaning that for each increase in a dollar of aggregate market income, the top percentile's market income rises by its income share (Y_i/Y) plus 0.267. For the 2020 top-percentile before-tax income share of .193, this implies an increase of .46, meaning that nearly half of the change in income would be accounted for by the income of those in the top percentile. Given the increasing pretax income share of the top income percentile, one might expect the regression coefficient to increase over time. Adding a time trend and an interaction term between the time trend and the percent change in real GDP to the regression does generate a positive coefficient on the interaction term, but with a low t-statistic. Including this interaction term would result in a total effect in 2020 of .58, rather than .46.

References

Congressional Budget Office. 2024. *Historical Economic Data*, February. Accessed at <https://www.cbo.gov/system/files/2024-02/55022-2024-02-Historical-Economic-Data.zip> on April 9, 2024.