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Are the rich taxed enough? President Biden clearly doesn't think so. Since entering the Oval Office, his seemingly favorite mantra has been that "the rich" need to start paying their "fair share."[1]   When thinking about this issue, it's important to recognize that there cannot be a definitive answer to any question along the lines of "Does 'group X' pay its 'fair share' of taxes?," since by its very nature such a question is subjective. Any answer must be based upon what economists would characterize as normative statements (as opposed to positive statements), which rest upon value judgements and subjective notions of fairness unique to the person assessing taxation outcomes (as opposed to objective observations of measurable facts). This being said, hopefully any person's normative answer to this question is supported by accurate positive facts, which is the only way to have an informed opinion about the fairness or lack of fairness of our tax system.

A commonly applied notion of tax equity is vertical equity, which states that for a tax to be fair people with greater economic capacity should have greater tax burdens. This sounds very reasonable, so why doesn't it settle the issue? We see how disagreements can easily arise, once we attempt to apply this notion of fairness. Should economic capacity be measured by simply income? Likewise, should tax burden be measured by dollars paid in taxes or perhaps by percentage of income paid in taxes?

If we take the positions that economic capacity should be measured by income and tax burden should be measured by percentage of income paid in taxes, then vertical equity gives us an argument in favor of what are called progressive taxes. Defining Average Tax Rate as taxes paid divided by income (i.e., percentage of income paid in taxes), a progressive tax is one for which higher income individuals have a higher Average Tax Rate.[2]

Even if everyone agrees that taxes should be progressive, how progressive should they be? Consider a simple example. Suppose Andy earns $100,000 of income and pays $10,000 in income taxes, giving him an Average Tax Rate of 10%. If Beth earns $500,000 of income her tax bill must be more than $50,000 (i.e., more than 10% of her income) for vertical equity to *not* be violated. But would fairness dictate that she pay $60,000 or $75,000 or $100,000 in taxes?

The U.S. Federal Income Tax is (and since its inception has always been) a progressive tax. Higher income individuals not only pay more dollars in income taxes, they pay a greater percentage of their income in taxes than do lower income individuals. This can be seen by looking at Table 1 below, which reports the Average Tax Rate of different segments of the population of people who filed Federal Income Tax returns in 2021 (the most recent year for which such data is available).[3] Fecverage of ttIn pop4 (popul)-2 (a)4 (t)-2 (i)-2 (on)TJ -0.013 Tc 0. ofled Fedellnt in 204 (s)d-h (I)1

those taxpayers with Adjusted Gross Income in the Top 25% but outside the Top 10% (i.e., the 15% of the population with Adjusted Gross Income above $94,440 but below $169,800) paid, as a group, 10.3% of their income in Federal Income Taxes. The fact that the values of "Average Tax Rate of Group" get larger and larger as we move to higher income groups reveals that the Federal Income Tax is indeed progressive.

So, looking at the U.S. Federal Income Tax, "the rich" are clearly paying not only more dollars in taxes than the middle class or poor, but they are even paying a higher percentage of their

tax the Stroup Coefficient is positive. A larger value reveals taxation outcomes that are "more progressive," in that the burden of paying the tax falls more disproportionately on higher income earners. In the extreme, if all tax dollars collected were paid by only the single highest income earner in a society, the Stroup Coefficient would be equal to 1.

Using data from the IRS's Statistics of Income reports (along with data from the Bureau of Economic Analysis and the U.S. Census Bureau), values of the Stroup Coefficient for the U.S. Federal Income over the entire adult population have been computed for every year from 1929 through 2021 – see Figure 1.[5] Over this time the value of the Stroup Coefficient ranged from a low of .4452 (in 1969) to a high of .9980 (in 1929). The index value was .9850 or higher (recall that, mathematically, the maximum value is 1) in every single year between 1929 and 1939, when the Federal Income Tax was still a tax on the very elite as opposed to a tax on the masses. Over the entire time from 1929 to 2021, the mean (i.e., average) index value was .6382 and the median (i.e., middle) index value was .5985.

A visual inspection of Figure 1 reveals that since realizing its low value of .4452 in 1969 there has been a consistent and steady increase in the degree of progressivity of the U.S. Federal Income Tax. To examine this trend in greater detail, Figure 2 plots the value of the Stroup Coefficient in each of the 53 years between 1969 and 2021, along with the linear line of best fit for this time-series (i.e., the red "trendline"). The equation of this trendline as reported in Figure 2 reveals that over these decades the value of the Stroup Coefficient was consistently increasing by .0054 per year. Moreover, the value was: below .5 in every year from 1969 to 1974; between .5 and .6 in every year between 1975 and 1992; between .6 and .7 in every year between 1993 and 2007; and above .7 in every year between 2008 and 2021. There has been a continuous march toward greater tax progressivity – that is, "the rich" bearing a greater portion of the burden of taxation – for more than five decades.

Most recently, when the Tax Cuts and Jobs Act altered the tax code between 2017 and 2018 (mainly by changing the standard deduction in a way which resulted in fewer people itemizing their deductions), the value of the Stroup Coefficient increased from .7083 to .7217.

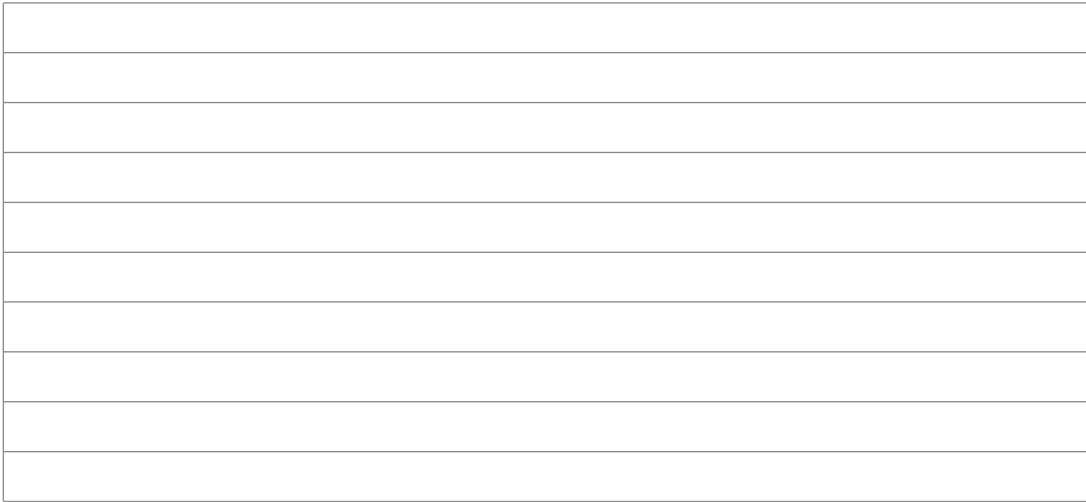*Figure 1 – Stroup Coefficient, U.S. Federal Income Tax (1929 to 2021)*

Figure 1 – Stroup Coefficient, U.S. Federal Income Tax (1969 to 2021 with trendline)