UNDERSTANDING VARIATION IN ESTIMATES OF WEALTH INEQUALITY

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ABSTRACT. As the 2024 US Presidential Election looms, discussions on combating inequality intensify among economists, politicians, and journalists. Proposed measures include instituting a wealth tax, adjusting income tax rates, and revising exemptions. However, the effectiveness of such policies hinges on the accuracy of inequality estimates. Missteps in policy design can lead to adverse economic and social outcomes, emphasizing the need for precise estimations. Drawing from diverse research, this paper investigates conflicting claims on wealth inequality trends over the long and short term. By analyzing data from the Survey of Consumer Finances and the Individual Tax Model Public Use File, it illustrates how methodological choices influence these claims. The study contributes to the literature on wealth inequality dynamics and the use of administrative records for academic research, shedding light on the complexities of inequality measurement and its implications for policy.

1. INTRODUCTION

Amidst the upcoming 2024 US Presidential Election, economists, politicians, and journalists are discussing various measures aimed at combating inequality. However, whether such policies would prove effective at closing the gap between rich and poor without putting the economy at risk depends primarily on our ability to produce *accurate* estimates of inequality. Imposing a wealth tax that is too high or targeting the wrong subgroup can lead to a variety of economic and social consequences, such as capital flight, economic distortion, reduced tax revenue, etc. Conversely, if a wealth tax is needed but not implemented, several negative consequences can arise, including economic instability, social unrest, political polarization, etc. Since inequality has been a topic of discussion in the upcoming election, it is imperative to provide the general public with a clear understanding of how these estimates are constructed and why they are subject to variation. Otherwise, the voters could easily be misled to either under- or overestimate the levels and trends in inequality. This, in turn, may lead them to misconstrue the effectiveness of current policies, misjudge the proposals of new policies, and express support for policies that are either too liberal or too conservative.

In this paper, I investigate contradictory assertions concerning the trends in wealth inequality over both long and short periods. I aim to illustrate how each of these

opposing claims can be substantiated by selecting particular data and making specific modeling assumptions. My analysis is based on four sets of estimates: one constructed using the Survey of Consumer Finances (SCF, a triennial survey of household financial condition) and three constructed using the Individual Tax Model Public Use File (PUF, an annual sample of individual income tax returns). The first set of PUF estimates corresponds to wealth shares estimated under a homogeneity assumption imposed on all rates of return of the underlying capitalization model, whereas the other two sets allow for heterogeneous rates of return on taxable interest-bearing assets.

This paper primarily relates to Kopczuk (2015), which discusses available evidence about the evolution of top wealth shares in the US over the course of the 20th century as of ten years ago. It also contributes to the growing body of research on measuring wealth inequality. In particular, it directly builds upon work by Saez and Zucman (2016), Bricker, Henriques, Krimmel and Sabelhaus (2016), Saez and Zucman (2016), and Bricker, Henriques and Hansen (2018). Additionally, it adds context to Kopczuk and Saez (2004) and to most recent papers by Smith, Zidar and Zwick (2019, 2021, 2023),

Aside from the literature on wealth inequality, this paper contributes to the literature on the PUF sampling design (Czajka, Kirwan and Sukasih, 2014; Bryant, Czajka, Ivsin and Nunns, 2014, see) and the use of administrative records for academic research. Specifically, it proposes a bootstrapping technique that allows data users to estimate the PUF sampling error for any quantity of interest.

2. Data and modeling assumptions

In this study, I consider two data sources most commonly used in studying wealth inequality in the US, the SCF and the PUF.

As emphasized by the Board in relation to the SCF, "even under ideal operational conditions, the measurements of the survey are limited in a fundamental way by the fact that it is based on a sample of respondents rather than the entire population." The problem of data deficiencies pertains not only to self-reported survey data but also to data that comprise administrative records.

In this paper, I account for sampling errors in both the SCF and PUF. To estimate sampling errors for the estimates constructed using the SCF, I follow Bricker et al. (2018). To estimate sampling errors for the wealth shares estimated using the PUF, I develop a bootstrapping approach that utilizes publicly available information on taxpayers' strata and stratum-specific probability of selection. A detailed description of the procedure can be found in Online Appendix B.

2.1. **Modeling.** Throughout my analysis, I define wealth as total assets less total debt and construct four sets of estimates.[1]

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[1] The operational definitions of wealth in the SCF and the PUF differ in three asset categories: defined benefit pension plans and term life insurance policies, included in the PUF but not the SCF, and durable goods, included in the SCF but not the PUF.
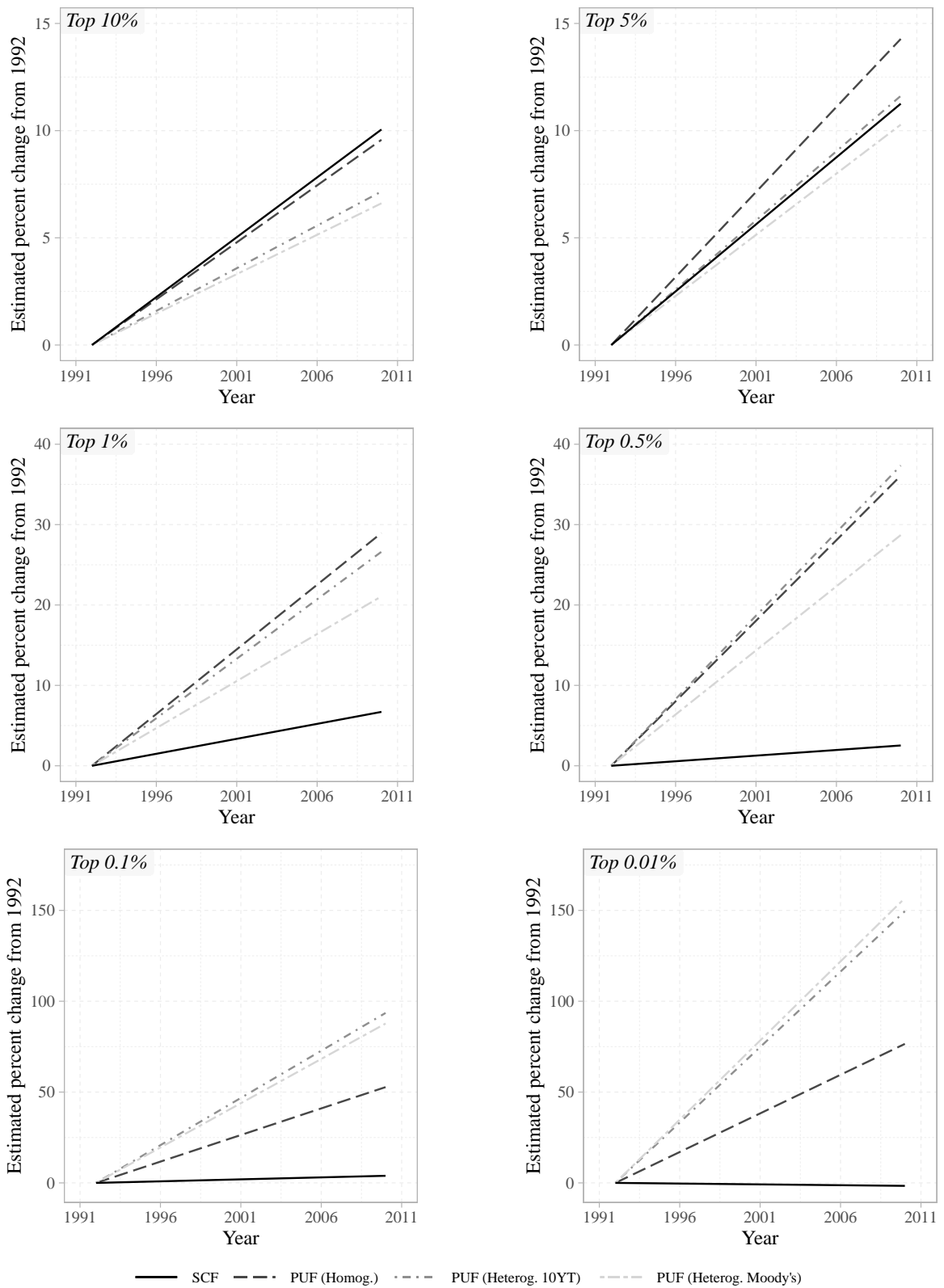
FIGURE 1. Estimated percent change in top wealth concentration

Measuring wealth in the SCF is straightforward and boils down to a simple accounting exercise. See Figure A.1 in Online Appendix A for a detailed description of the construction of the SCF wealth measure.

To measure wealth using tax data I employ capitalization models detailed in Saez and Zucman (2016) and Bricker et al. (2018). Specifically, I construct three sets of PUF estimates, one generated under a homogeneity assumption imposed on all rates of return and two sets of estimates constructed under a heterogeneity assumption, where I assume homogeneous rates of return on all income-generating assets except for those that generate taxable interests. Following Bricker et al. (2018), I assign a higher rate of return to the top 1 percent of the wealth distribution, and a lower rate to the bottom 99 percent.

3. Empirical results on wealth shares

In this section, I introduce two pairs of contradicting claims about the long- and short-term dynamics in top wealth inequality and illustrate how each of these claims can be supported using specific set of estimates. This section is meant to serve as a cautionary tale to provide a first-hand description of the variation in ongoing research on inequality, the resulting scope for manipulation, and dangers associated with cherry-picking estimates.

I estimate the long-term dynamics using weighted linear regressions for the time period between 1992 and 2010. The regressions are run on a constant and linear time trend, and the estimates are expressed as a percent change from 1992.[2] I proxy for the short-term dynamics using observed trends in the top 10 percent wealth share in the years leading to and following the onset of the 2007–09 Great Recession.

I begin the discussion with a first pair of claims on the long-term dynamics within the top 1 percentile of wealth distribution.

Claim (**A**). *Between 1992 and 2010, (1) there had been no increase in wealth concentration in the far right tail of the wealth distribution; vs (2) there had been a substantial increase in wealth concentration in the far right tail of wealth distribution.*

As shown in Figure 1, claim (A1) is fully supported by SCF regression results that indicate no evidence of a rising wealth concentration in the far end of the wealth distribution. On the other hand, the PUF estimates fully back up claim (A2). Despite substantive differences in levels across models, all three PUF estimates suggest at least a moderate increase in top wealth inequality.

Overall, I find that when analyzing more granular wealth shares, various claims can emerge and be supported by the data. One may make claims ranging from no change to a moderate increase to a staggering surge in wealth concentration at the very top. This is the case because the more granular the wealth shares, the larger the discrepancy between the estimates computed using the SCF and the PUF, as well

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[2]For more details and regression results see Table A.1 in Online Appendix A.

as the larger the discrepancy between the estimates derived from homogeneous and heterogeneous models. An observation that remains robust across the different data sets and modeling strategies is an increase in wealth concentration of the top 10 and 5 percent. This finding is supported by all four sets of estimates.

The second pair of claims, this time on the short-term dynamics, is as follows:

Claim (**B**). *In the aftermath of the Great Recession, (1) the top wealth shares came to near standstill once the recession ended; vs (2) continued to rise at a faster rate.*

As illustrated in Figure 2, the estimates can be used to support either of the two claims. The SCF and heterogeneous set of PUF estimates suggest that the Great Recession put an end to rising top wealth concentration. On the contrary, homogeneous PUF estimates suggest not only an increase of 2 percentage points between 2009 and 2012 but also a steeper trend line following the Great Recession. Intriguingly, the disparities in findings are not only attributable to different datasets but also to variations in modeling assumptions, particularly regarding rates of return on assets.
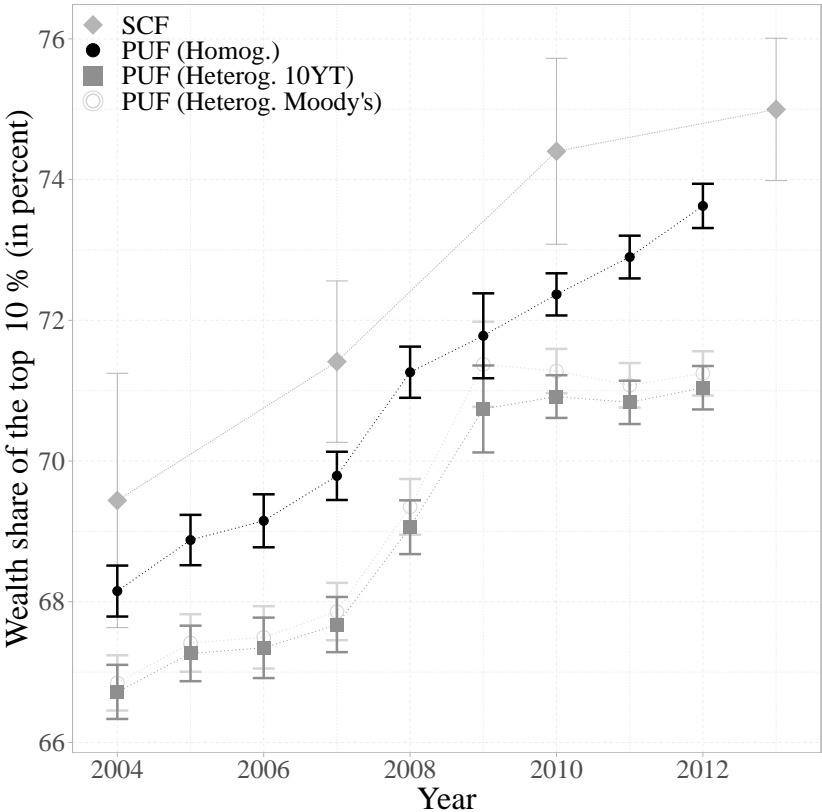

Figure 2. Wealth shares of the top 10 percent

4. Conclusion

This paper demonstrates the degree of variation in long- and short-term dynamics in top wealth concentration, where the documented variation is primarily driven by the choice of data. On one side of the spectrum lies the SCF, a comprehensive survey conducted every three years, which interviews approximately 6,200 households but as few as 24 (the 1988 SCF) to 100 (the 2006 SCF) concerning wealth concentration in the top 0.01 percent. On the other hand, there are individual income tax return data, which are abundant in observations but pose a challenge of indirectly inferring asset ownership based on income flows.

Ongoing efforts by both academic researchers and Federal Reserve staff, most recently by Smith et al. (2023), aim to refine estimates of wealth in the US. However, the work is far from over. In their concluding remarks, Smith et al. (2023) acknowledge the need for further improvements, including addressing issues like tax avoidance, refining pension wealth measurements, enhancing accuracy in assessing the Forbes 400, and integrating social insurance programs like Medicare and Social Security. An open question remains: by how much will the estimates change with new refinements?

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