

Discussion of “Sources of U.S. Wealth Inequality: Past, Present, Future” by Hubmer, Krusell, Smith*

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Hubmer, Krusell, Smith (HKS) use a heterogeneous agent model to quantify the sources of wealth inequality in the United States since 1960. They find that the substantial decline of US tax progressivity is a key driver of wealth inequality in America. Two other key model features are (1) allowing for heterogeneous returns and (2) portfolio heterogeneity.

My comments focus on the three main determinants that HKS emphasize, which I agree are quite important, and then discuss a few other drivers of wealth inequality that strike me as first order and worthy of more analysis and discussion in future work.

1 Discussion of Main Determinants in HKS

My assessment of the evidence is that the three forces that HKS emphasize—tax progressivity, portfolio heterogeneity, and return heterogeneity—are important drivers of wealth inequality in the United States. This section will describe and discuss each of these drivers in light of evidence in the literature.

Table 1: Contribution of various channels for steady state wealth inequality in HKS benchmark model

| # | | top 10% | top 1% | top 0.1% | top 0.01% | Gini |
|----------|--------------------------|---------------|---------------|---------------|---------------|---------------|
| 1 | β -heterogeneity | 8.8% | 7.7% | 3.8% | 2.0% | 0.050 |
| 2 | earnings heterogeneity | -27.5% | -17.8% | -9.5% | -6.4% | -0.173 |
| 3 | persistent | -5.0% | -7.5% | -4.2% | -2.9% | 0.009 |
| 4 | transitory | -11.6% | -4.3% | -1.7% | -0.9% | -0.109 |
| 5 | tax progressivity | -21.3% | -61.8% | -71.2% | -67.1% | -0.148 |
| 6 | return heterogeneity | 29.5% | 18.4% | 6.6% | 2.8% | 0.192 |
| 7 | mean differences | 25.8% | 16.7% | 6.0% | 2.6% | 0.174 |
| 8 | return risk | 0.7% | 2.2% | 3.3% | 2.5% | 0.004 |

Notes: Sourced from Table 2 of Hubmer, Krusell, and Smith (2020). Emphasis added.

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1.1 Tax Progressivity

One of the most striking features of U.S. tax policy is the decline in tax progressivity during the last half century (Saez and Zucman, 2019). While there is some disagreement about the exact magnitudes of this decline, it is quite clear that top income groups pay much lower taxes than they did in the first part in the post-war period. Quantifying how this decline in tax progressivity has fueled wealth inequality is a valuable contribution of HKS.

However, there are a few considerations about the decline of U.S. tax progressivity that are worth noting. One substantial force driving the decline as measured by Saez and Zucman (2019) is falling corporate tax revenues. McGrattan and Prescott (2005) argue that declines in taxes on corporate income and corporate distributions can account for much of the growth in US stock market value relative to GDP since 1960. Indeed Sialm (2009) finds that the declines in investor tax burden are capitalized into equity prices.

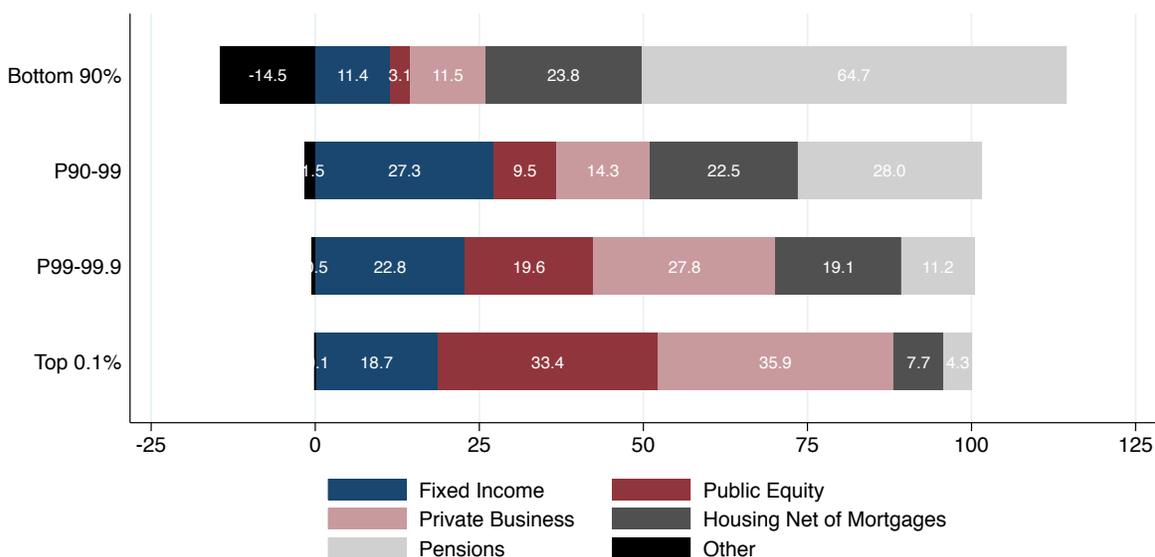
It is not clear how well HKS's calibration of the tax system captures both these aspects of capital taxation and the implications for the growth in equity prices. First, the marginal condition that uses after-tax rates of return $\beta(1 + r(1 - \tau'(y)))$ may not be the relevant tax rate for the decision to invest another dollar in practice. Dividends and capital gains taxes seem more relevant and the time series looks a bit different (see Figure 2 in Sialm (2009)) than marginal tax rates on earnings in HKS's Figure 5. I would suspect that a key if not more important role of declining progressivity of the personal tax system (outside of its effects via private business growth as in Smith, Yagan, Zidar and Zwick (2020)) is that high-income individuals have more after-tax resources that can be saved and grow more rapidly through compounding. It would be helpful for HKS to clarify these two different channels through which tax progressivity affects wealth inequality: (1) affecting after-tax returns in the Euler equation versus (2) higher resources after taxes for those with high income. Second, HKS use a somewhat outdated series that stops in year 2000 and then is assumed to be flat thereafter, but in practice there have been substantial declines in tax progressivity since 2000 (Zidar and Zwick, 2020), including the 2001 income tax cuts, the 2003 dividend tax cut, the 2001 estate tax cuts, the reduction in capital gains taxes in the early 2000s, as well as a range of cuts in the 2017 tax reform. Third, from a macro perspective, incorporating the multiple layers of capital taxation may change the level, evolution, and implications of the change in tax rate progressivity (see, for example, Figure 1 of Acemoglu, Manera and Restrepo (2020) and Figure 7 of Cooper, McClelland, Pearce, Prisinzano, Sullivan, Yagan, Zidar and Zwick (2016)). Forth, rise of pensions, non-profits, and foreigners is a key development for the role of taxes in asset markets. Large pools of capital no longer face the marginal rates HKS show in Figure 6. Rosenthal and Austin (2016) estimate that the share of U.S. corporate stock held by taxable shareholders has declined from roughly 90% in 1965 to about 25% in 2016.

Overall, in terms of taxes, my main two recommendations are (1) to compare the HKS tax series to those in more recent studies that account for income that adds up to national income (Piketty, Saez and Zucman, 2018; Auten and Splinter, 2019; Smith, Zidar and Zwick, 2020) and (2) to consider ways to incorporate the link between asset prices and tax policy that reflects some of the aforementioned issues.

1.2 Portfolio Heterogeneity

I completely agree with HKS that portfolios vary substantially across the wealth distribution, and that this heterogeneity can be an important aspect of understanding wealth growth. Among the bottom 90%, pension wealth, social security wealth, and housing are the main forms of wealth. Among top wealth groups, private and public equity become more important. For example, Figure 1 illustrates that two thirds of the top 0.1%'s wealth is in the form of public and private equity according to estimates from [Smith, Zidar and Zwick \(2020\)](#). It would be helpful for HKS to clarify how pension wealth is treated given its importance in the bottom and middle of the income distribution.

Figure 1: Portfolios vary across the wealth distribution



Source: Smith, Zidar, and Zwick (2020).

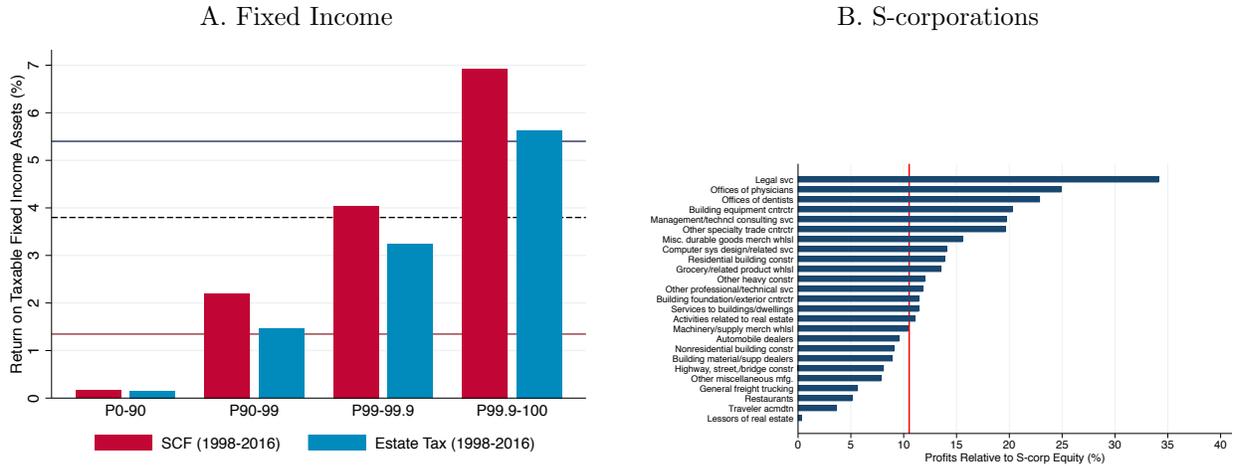
1.3 Heterogeneous Returns

Equation 13 in HKS, which characterizes how returns increase across and within asset classes as a function of wealth, is a key part of the model. They argue this characterization is a reduced-form way to capture an underlying model of portfolio choice. While I agree that heterogeneous returns along the wealth distribution, due in part to heterogeneous portfolio choices, are a key aspect of modeling wealth, I'd encourage HKS and future researchers to unpack the sources of this underlying heterogeneity, especially for private equity.

It is useful to consider the four asset classes in HKS: risk-free assets, private equity, public equity, and housing. For fixed income assets, [Smith, Zidar and Zwick \(2020\)](#) show that fixed-income portfolios vary substantially along the wealth distribution. Most households in America hold primarily low-yielding deposits, but richer households have fixed-income portfolios that have larger shares of higher-yielding bonds and fixed-income mutual funds that have different risk and duration than the typical fixed income portfolios. Panel A

of Figure 2 uses data from the Survey of Consumer Finance from [Smith, Zidar and Zwick \(2020\)](#) to illustrate the consequences of these different portfolios for returns on fixed-income assets. Most households earn very low returns on fixed income assets, but going further into the tail shows that the rich hold much higher yielding securities. [Smith, Zidar and Zwick \(2020\)](#) compare fixed income flows to stocks in both Survey of Consumer Finance data and estate tax data to establish this result. In short, in terms of fixed-income, using a heterogeneous portfolio model to capture the essence of underlying heterogeneity is well-founded.

Figure 2: Returns vary within asset classes



Source: Smith, Zidar, and Zwick (2020).

Heterogeneous returns from private equity holdings, however, are more complicated to interpret and could benefit from a richer model. [Smith, Yagan, Zidar and Zwick \(2019\)](#) use the change in firm performance following premature deaths of private business owners to estimate that 75% of business profits of closely-held firms in the United States represent the returns to human capital recharacterized as profits for tax purposes. Therefore, interpreting the heterogeneity in private equity returns in the United States requires grappling with a large role for human capital and expanding beyond a portfolio choice model. Panel A of Figure 2 plots estimates from [Smith, Zidar and Zwick \(2020\)](#) on the return on equity of S-corporations. It shows that some human-capital intensive firms like legal services, physician and dentist offices, and other consultancies that tend to rely heavily on human capital inputs generate substantial business income, which is often characterized as “profit” for tax purposes, relative to equity. Recognizing this empirical fact and feature of the U.S. tax system suggests that doctors and dentists are not necessarily the most skilled at portfolio allocation. Moreover, there are also some industries like autodealers that can generate substantial profits and exhibit considerable market power in local areas, which can lead to considerable heterogeneity in returns within the industry.

Finally, there has been substantial regional divergence in house price growth. Coastal cities have tended to exhibit more growth than in wealth than other locations ([Smith, Zidar and Zwick, 2020](#)). Thus, the portfolio choice aspect of housing reflects in part a location choice, that then reflects regional income growth and housing regulation and supply conditions, and can lead to meaningful heterogeneity across places and thus across people.

2 Discussion of Other Determinants

While heterogeneous returns and tax considerations are clearly important, HKS's discussion of the underlying drivers of wealth inequality could put more emphasis on other factors that strike me as first order: (1) lifecycle and demographic trends, (2) falling interest rates and concomitant asset price growth, (3) inherited wealth and family firms.

2.1 Lifecycle and Demographic Trends

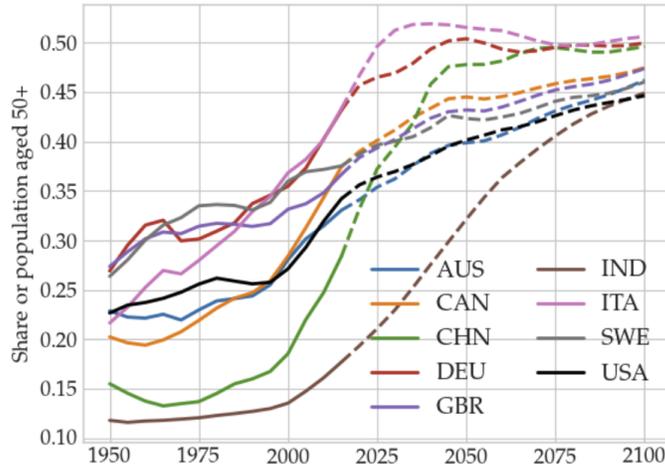
The combination of an aging population and wealth accumulation over the lifecycle plays a central role in capital accumulation and wealth dynamics. [Auclert, Malmberg, Martenet and Rognlie \(2020\)](#) present a compelling analysis of this issue. First, they document a striking rise in the share of people who are aged 50 or older across countries. Panel A of Figure 3 shows that this share is projected to more than double in many countries. For example, in China, 15% of the population was aged 50 or older in 1975, and the most recent data shows the share at roughly 30%. Moreover, some countries are even further along: Italy, for example, now has about 45% of its population aged 50 plus and is on track to have half of its population aged 50 plus by 2025. In the US, this panel suggests that about one in three individuals are currently aged 50 or older. And this share is projected to increase steadily over the next century.

One reason why these demographic trends matter is that there is a pronounced lifecycle profile in wealth accumulation. Panel B of Figure 3 shows this profile for pension wealth, which is one of the largest components of household wealth, and Panel C shows overall wealth among the rich over the lifecycle. Panel B, which is from [Smith, Zidar and Zwick \(2020\)](#)'s work with Survey of Consumer Finances data, shows an inverse-U shape pattern of pension wealth in which the young start accumulating wealth for retirement and then begin deaccumulating around retirement in their early-to-mid 60s. Panel C, which is from administrative wealth data in Denmark from [Jakobsen, Jakobsen, Kleven and Zucman \(2020\)](#), shows a similar accumulation process for the wealthy in their working years, but interestingly does not find much role for deaccumulation after retirement. [Jakobsen, Jakobsen, Kleven and Zucman \(2020\)](#) rationalize this behavior by putting wealth in the utility function, which can be a stand in for a large bequest motive or other force that explains why the rich don't tend to die with less wealth than they had at the start of retirement. In any case, the main point is that the combination of aging and these lifecycle patterns is that we now have more people who are further up their inverse-U shape lifecycle pattern, which means aggregate wealth will be much higher relative to income. Indeed, [Auclert, Malmberg, Martenet and Rognlie \(2020\)](#) do a simple shift-share exercise to estimate how much higher wealth accumulation is and will be due to a larger share of people being at a more advanced part of the lifecycle profile. They find that this compositional shift can explain much of the rise in wealth to income ratios and corresponding decline in real interest rates that we have seen in recent years. In terms of wealth inequality, these findings matter because many people at the top of the wealth distribution are older ([Smith, Zidar and Zwick, 2020](#)), so capturing these lifecycle dynamics and demographic trends strikes me as first-order for both explaining current and past levels of wealth inequality, and especially for making predictions about

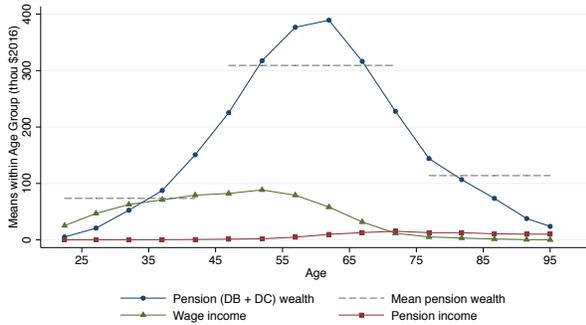
the future of wealth inequality in the United States and the world.

Figure 3: Wealth, Demographic Trends, and Lifecycle Profiles

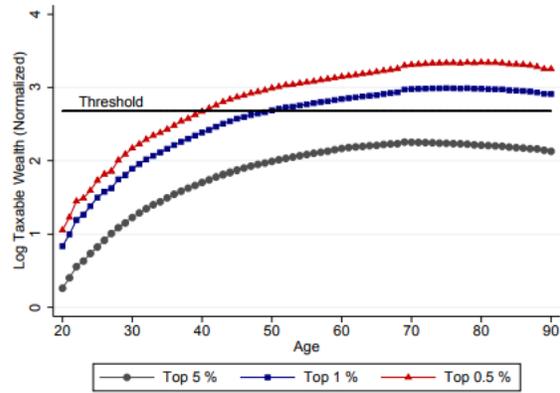
A. The world is getting much older



B. Pension wealth over the lifecycle



C. Top wealth over the lifecycle

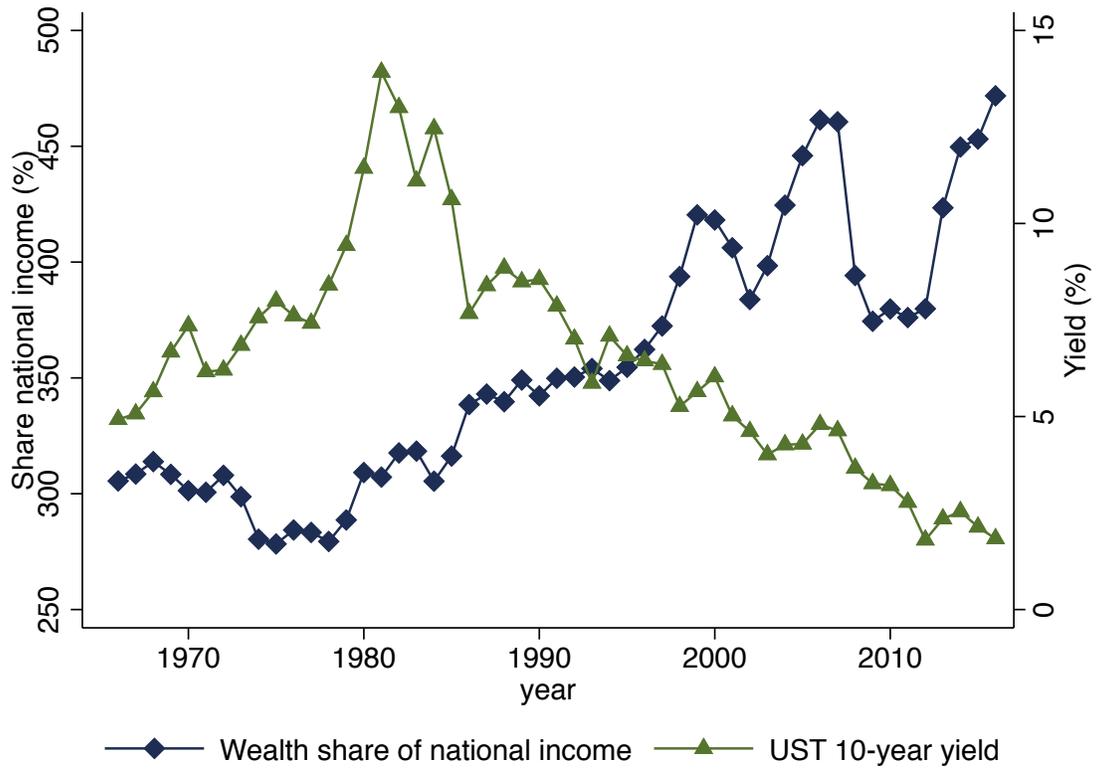


Source: Panel A: Auclert, Malmberg, Martenet and Rognlie (2020). Panel B: Smith, Zidar and Zwick (2020). Panel C: Jakobsen, Jakobsen, Kleven and Zucman (2020).

2.2 Falling Interest Rates and Asset Price Growth

As Auclert, Malmberg, Martenet and Rognlie (2020) point out, these demographic trends and lifecycle patterns contribute to falling interest rates. And the decline in interest rates has been an important force driving asset price growth, which plays a key role in rising wealth to income as well as wealth inequality trends. Figure 4 plots wealth as a share of national income in the United States along with the yields on US Treasury ten-year bonds. While there have been some cyclical fluctuations in the wealth to income ratio, such as during the Great Recession, lower rates tend to be associated with higher wealth to income. There is considerable recent evidence that asset price growth plays a key role in understanding recent wealth growth and savings behavior (Fagereng, Holm, Moll and Natvik, 2019; Smith, Zidar and Zwick, 2020; Mian, Straub and Sufi, 2020).

Figure 4: Interest rate declines contribute to asset price and wealth growth

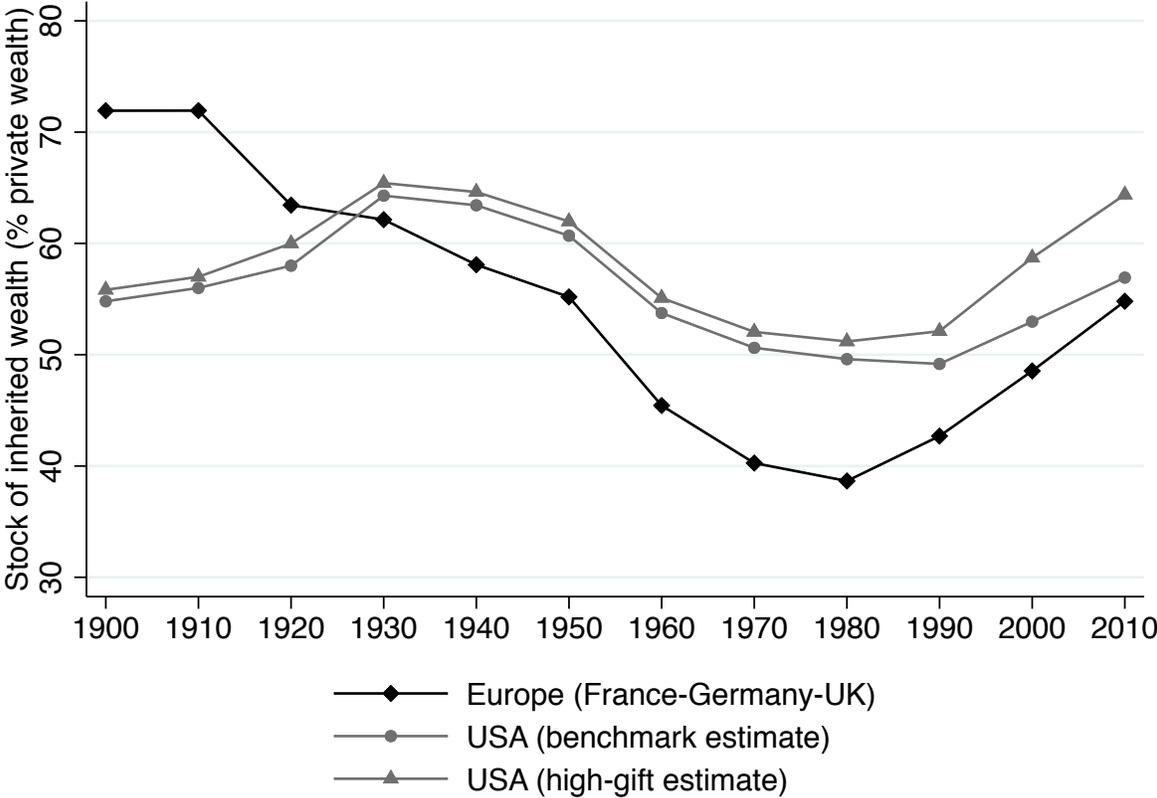


Source: Smith, Zidar, and Zwick (2020).

Another implication of the importance of falling rates and rising asset prices is that portfolio heterogeneity that HKS emphasize can play a leading role in wealth inequality since the responsiveness of an individual's portfolio to these asset price changes can vary considerably depending on how much exposure they have to stocks and other risky assets.

2.3 Inheritance

Figure 5: Inherited wealth can be a substantial share of total wealth



Source: [Alvaredo, Garbinti and Piketty \(2017\)](#).

A classic debate in public finance is the share of inherited wealth in total wealth (see, e.g., [Kotlikoff and Summers \(1981\)](#) versus [Modigliani \(1986\)](#)). While the exact magnitudes are debated, it is clear that inheritance plays a key role in wealth inequality in the United States. Figure 5 presents recent estimates from [Alvaredo, Garbinti and Piketty \(2017\)](#) which suggest that the inherited wealth may represent a majority of wealth in the United States in recent years. The importance of inheritance also interacts with HKS's key point about the decline of tax progressivity and the lifecycle patterns of the rich highlighted in [Jakobsen, Jakobsen, Kleven and Zucman \(2020\)](#). As tax progressivity has declined and the wealthy die with more wealth, it seems clear that inheritance should play a key role in the analysis of wealth inequality. And one of the striking contributors to the decline of tax progressivity has been the material reductions in estate taxation in recent decades (see

[Kopczuk \(2013\)](#) for a review and [Zidar and Zwick \(2020\)](#) for a sense of how much policy change there has been since 1997).

3 Conclusion

While these other components—demographics, lifecycle patterns, inheritance, family firms (see e.g., [Atkeson and Irie \(2020\)](#) for a recent analysis)—are important to consider in future work, I congratulate HKS for putting together an insightful analysis that contributes to our understanding of the drivers of wealth inequality, the importance of declining tax progressivity, and the future of wealth inequality in America.

References

- Acemoglu, Daron, Andrea Manera, and Pascual Restrepo.** 2020. “Does the U.S. Tax Code Favor Automation?” *Brookings Papers on Economic Activity*.
- Alvaredo, Facundo, Bertrand Garbinti, and Thomas Piketty.** 2017. “On the share of inheritance in aggregate wealth: Europe and the USA, 1900–2010.” *Economica*, 84(334): 239–260.
- Atkeson, Andrew, and Magnus Irie.** 2020. “Understanding 100 Years of the Evolution of Top Wealth Shares in the US: What is the Role of Family Firms?” Working paper.
- Auclert, Adrien, Hannes Malmberg, Frédéric Martenet, and Matthew Rognlie.** 2020. “Demographics, Wealth, and Global Imbalances in the Twenty-First Century.”
- Auten, Gerald, and David Splinter.** 2019. “Income Inequality in the United States: Using Tax Data to Measure Long-term Trends.” *Treasury Office of Tax Analysis Working Paper*.
- Cooper, Michael, John McClelland, James Pearce, Richard Prisinzano, Joseph Sullivan, Danny Yagan, Owen Zidar, and Eric Zwick.** 2016. “Business in the United States: Who Owns It, and How Much Tax Do They Pay?” *Tax Policy and the Economy*, 30(1): 91–128.
- Fagereng, Andreas, Martin Blomhoff Holm, Benjamin Moll, and Gisle Natvik.** 2019. “Saving behavior across the wealth distribution: The importance of capital gains.” National Bureau of Economic Research.
- Jakobsen, Katrine, Kristian Jakobsen, Henrik Kleven, and Gabriel Zucman.** 2020. “Wealth taxation and wealth accumulation: Theory and evidence from Denmark.” *The Quarterly Journal of Economics*, 135(1): 329–388.
- Kopczuk, Wojciech.** 2013. “Taxation of intergenerational transfers and wealth.” In *Handbook of public economics*. Vol. 5, 329–390. Elsevier.
- Kotlikoff, Laurence J, and Lawrence H Summers.** 1981. “The role of intergenerational transfers in aggregate capital accumulation.” *Journal of political economy*, 89(4): 706–732.
- McGrattan, Ellen R., and Edward C. Prescott.** 2005. “Taxes, Regulations, and the Value of U.S. and U.K. Corporations.” *The Review of Economic Studies*, 72(3): 767–796.
- Mian, Atif R, Ludwig Straub, and Amir Sufi.** 2020. “The saving glut of the rich and the rise in household debt.” National Bureau of Economic Research.
- Modigliani, Franco.** 1986. “Life cycle, individual thrift, and the wealth of nations.” *American Economic Review*, 76(3): 297–313.
- Piketty, Thomas, Emmanuel Saez, and Gabriel Zucman.** 2018. “Distributional national accounts: methods and estimates for the United States.” *Quarterly Journal of Economics*, 133(2): 553–609.
- Rosenthal, Steve, and Lydia Austin.** 2016. “The dwindling taxable share of US corporate stock.” *Tax Notes*, 151(6).
- Saez, Emmanuel, and Gabriel Zucman.** 2019. *The triumph of injustice: How the rich dodge taxes and how to make them pay*. WW Norton & Company.
- Sialm, Clemens.** 2009. “Tax Changes and Asset Pricing.” *American Economic Review*, 99(4): 1356–1383.
- Smith, Matthew, Danny Yagan, Owen M Zidar, and Eric Zwick.** 2019. “Capitalists in the Twenty-first Century.” NBER Working Paper No. 25442.
- Smith, Matthew, Danny Yagan, Owen M Zidar, and Eric Zwick.** 2020. “The Rise of Pass-Throughs and The Decline in the Labor Share.” working paper.
- Smith, Matthew, Owen M Zidar, and Eric Zwick.** 2020. “Top Wealth in America: New Estimates and Implications.” Working Paper.
- Zidar, Owen, and Eric Zwick.** 2020. “A modest tax reform proposal to roll back federal tax policy to 1997.” Working Paper.