Economic Policy Papers

Taxing Wealth

Economic theory and empirical measurement aren't yet able to provide accurate predictions on the impact of wealth taxation

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EXECUTIVE SUMMARY

Some have proposed wealth taxation as a means of reducing economic inequality, but such proposals are premature. While economic theory and data measurement have solid grounding when analyzing other forms of taxation, such as income or sales taxes, this is not the case for wealth.

Total estimates of the two most widely used measures of wealth, fixed assets and net worth, vary widely over the six decades for which data are available. Trend lines in these two wealth measures are rarely correlated. In addition, the relationship between the two—and explanation of why they differ so radically—remains a theoretical puzzle for economists. Given this state of affairs, accurate predictions for the impact, and design, of wealth taxation policies are not yet possible.

Introduction

There has been much discussion recently, in both academic and policy circles, about instituting taxes on wealth to reduce its dispersion and avoid "arbitrary and unsustainable inequalities that radically undermine the meritocratic values on which democratic societies are based" (Piketty, 2014, p. 1). In this paper, I argue that any such policy advice is premature. Better measurement of "wealth" and better theory that relates various measures of wealth are needed before economists can accurately predict—or provide sound policy direction regarding—the actual impact of taxing wealth.

In the United States, wealth is currently estimated with two conceptually different measures: (1) fixed assets, from the Department of Commerce, and (2) net worth, from the Federal Reserve. Neither is perfectly estimated, but both are needed to do the required policy analysis. More importantly, economists need a quantitatively valid theory of their relationship; currently, we lack sufficient understanding of their respective components and linkages, let alone the implications of taxing them. Here, I discuss recent progress in this direction, but caution that the theory is not yet policy-ready.

Measurement

There are two widely used measures of total wealth in the United States. They provide completely different estimates. Both are needed, however, to predict the impact of "wealth" taxation.[1]

The first measure is *fixed assets*, as calculated by the U.S. Department of Commerce's Bureau of Economic Analysis (BEA 2014a) in its measurement of the nation's wealth.[2] The BEA defines fixed assets as nonfinancial assets used in production for more than one year. This includes houses and office buildings, business equipment and consumer durables. The BEA recently added some intellectual property (IP) products; namely, research and development (R&D) and entertainment, literary and artistic originals.[3]

The second widely used measure of wealth, calculated by the Federal Reserve's Flow of Funds Accounts (FFA) division, is the *net worth* of households and nonprofit organizations. This measure is the sum of nonfinancial and financial assets, less liabilities. Nonfinancial assets include the market value of real estate and BEA estimates of certain fixed assets.[4] Financial assets include deposits and securities held by financial intermediaries, directly held shares of corporations and equity in noncorporate businesses. Liabilities include debts such as home mortgages and other loans taken out by households and nonprofits.

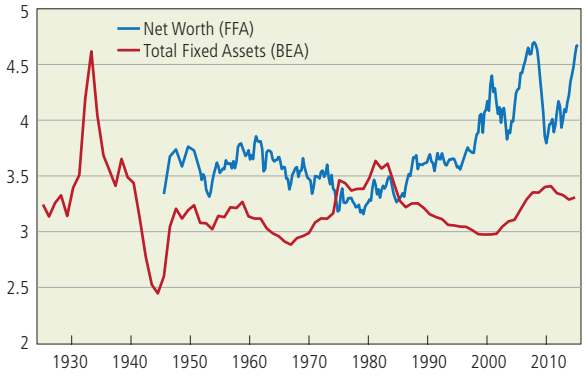
Both of these wealth measures are logically valid, though conceptually distinct, and both agencies measure their components quite carefully. How do they compare numerically? The following discussion and graphs indicate that *these two wealth measures have rarely been close to one another* during the roughly 60 years for which corresponding data are available. Several of their respective components, though logically similar, have also been quite different numerically.

Figure 1 plots the BEA's measure (total stock of fixed assets) and the Fed's FFA measure (net worth of households and nonprofit organizations) relative to gross domestic product (GDP).[5] For nearly the entire period for which data on both measures are available (1952-2013), the FFA measure is higher.

Moreover, the two measures do not move in sync with one another. In fact, if the FFA series is annualized, there is a slightly negative correlation with the BEA measure. Starting in the mid-1960s, the BEA measure of wealth rises relative to GDP, while the FFA wealth measure falls. These trends reverse in the early 1980s. During the 1990s technology boom, the BEA wealth measure of fixed assets remains below historical trends, relative to GDP, and then starts to rebound in the 2000s. The FFA's net worth measure of wealth rises relative to GDP over the 1990s, but then experiences large swings, on the order of 1 times GDP in level changes over a few years.

Figure 1

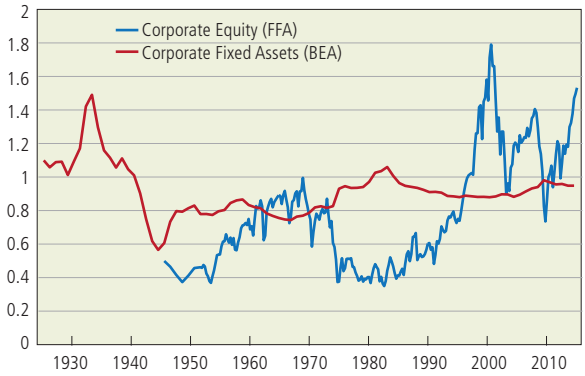
Household Net Worth and Total Fixed Assets
(Relative to GDP)



Source: Author's calculations

Figure 2

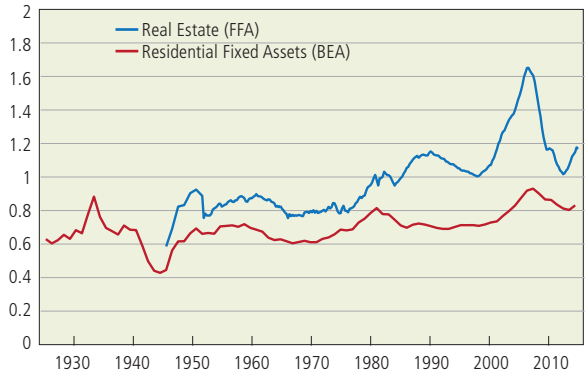
Corporate Equity and Corporate Fixed Assets
(Relative to GDP)



Source: Author's calculations

Figure 3

Real Estate and Residential Fixed Assets
(Relative to GDP)



Source: Author's calculations

There are also significant differences between the FFA and BEA wealth estimates on two often-discussed asset subcategories: corporate equities and real estate.

Figure 2 displays the market value of U.S. corporate equities (the FFA measure) and corporate fixed assets (the BEA measure), both relative to GDP.[6] Again, the two measures are very different. There is a slightly positive correlation between the annualized series, but the magnitudes in certain periods are different by a factor of 2. For example, in the late 1970s and 1980s, the FFA measure is around 40 percent of GDP, whereas the BEA measure is roughly equal to GDP. During the technology boom, corporate valuations shot up to 1.8 times GDP, while fixed assets hovered below 1 times GDP. At the start of the 2000s, equity values relative to GDP collapsed, rose sharply, collapsed and rose sharply once again. Meanwhile, BEA fixed assets remained close to 1 times GDP.

Figure 3 plots the FFA measure of real estate and the BEA's measure of residential fixed assets, both relative to GDP.[7] Compared to the overall BEA and FFA wealth measures, and the corporate equity component, this segment of wealth is fairly similar, as measured by the BEA and the FFA. The correlation of the two annualized series is high, around 85 percent. Nonetheless, there are periods in which deviations between the series become large. In particular, real estate values rose relative to current-cost fixed asset values over the 1980s, with some reversal in the 1990s, and then rose dramatically in the early 2000s before reverting to the trend. The value of residential fixed assets also rose, but much less so.

Why are these measures of wealth so different? A small part of the difference is due to measurement; neither the BEA nor the FFA has perfect data, so estimates must be made. For example, the BEA includes R&D capital in fixed assets, but there are no data on R&D investments prior to 1953 (when the National Science Foundation began surveying firms) and no data on prices or

depreciation of R&D for any years. For the FFA, almost no data are available on equity values of noncorporate businesses and, therefore, the Federal Reserve imputes values.[8] But, even if we had perfect data, the series are mechanically different because the BEA's measure of wealth is found by accumulating investment and the FFA's measure compiles values from available market transactions. Thus, they are conceptually different series.

To fully understand this difference, we need better theory.

Theory

Understanding the conceptual difference between the two measures of wealth just described is equivalent to understanding variations over time in Tobin's Q, a statistic named after Yale economist and Nobel Laureate James Tobin. Tobin's Q is the ratio of the market valuation of assets—the FFA measure of wealth—and the replacement or reproduction costs of those assets—the BEA measure of wealth.

As Brainerd and Tobin (1977) noted, "[T]his ratio has considerable macroeconomic significance and usefulness, as the nexus between financial markets and markets for goods and services."[9]

In the simplest theoretical model taught to first-year economics graduate students, Tobin's Q is equal to 1. In other words, the market valuation of assets is equal to the expected present value of dividends or services paid to the asset holders and this, in turn, is equal to the cost of reproducing the physical stock of capital of the asset's owner.

Consider, for example, the value of all U.S. corporations. If Tobin's Q is 1 for corporate assets, then the value of all corporate equities (assuming debts are repaid first) is equal to the cost of replacing all physical capital in the corporate sector (such as buildings and equipment). More simply, corporate shareholders are owners of the capital stocks accumulated by corporations and, therefore, the stock market value should be equal to the value of corporate physical capital.

There are specific reasons that might explain why Tobin's Q is not always 1. For example, Hall (2004) suggests that if it is costly for a firm to upgrade its capital stock quickly in response to an unexpected increase in demand, that would cause Tobin's Q to vary from 1, but he finds that such "adjustment" costs are too small to make much of a difference.

McGrattan and Prescott (2005, 2010) analyze two other factors that show more promise in accounting for variations in Tobin's Q: taxes on corporate distributions and intangible capital. Taxes on *corporate distributions* (dividends and share buybacks) directly affect Tobin's Q; the higher is the tax rate, the larger is the government's share of the distributions. In the 1960s, effective taxes on corporate distributions were high and equity valuations were low. Over time, tax rates have fallen and equity valuations have risen. Still, higher taxes don't fully account for the dramatic variations we see in the data. (See the appendix for elaboration.)

Another factor that causes variations in Tobin's Q is *intangible capital*. Intangible capital stocks that are not included in the BEA fixed assets, such as accumulated brand equity or organizational capital, are valued by corporate shareholders and do show up as part of the FFA's measure of wealth. However, changes in these stocks are unlikely to imply the dramatic year-to-year or even day-to-day variations in stock market valuations that we observe in the U.S. time series.

So, two promising ideas—corporate distribution taxes and intangible capital—fail to fully account for the gap between theory and data. Still needed, then, is some factor that can account for dramatic swings in prices of financial assets, with little change in the physical capital stocks. Unfortunately, current economic theory is unable to explain the wide fluctuations in Tobin's Q.

Policy implications

The fact that theoretical predictions for Tobin's Q are not aligned with actual movements is significant for policy proposals to tax wealth. Piketty (2014) proposes taxing financial wealth, which corresponds to the measure of wealth reported by the Federal Reserve.[10] To assess the impact of such taxation requires an accurate assessment of the policy's impact on individual or household welfare, which economists usually measure as a function of lifetime consumption and leisure. That calculation, in turn, requires an accurate assessment of the policy's impact on corporate decisions about investment in fixed assets, summarized in BEA data.

And, herein lies the problem: Economists need to better understand the nexus Tobin described between financial markets and markets for goods and services—the relationship between stock market valuation and fixed asset costs. As just discussed, current theory doesn't explain why the two wealth measures have so rarely coincided.

This is not the case for many other types of taxation. Taxes on incomes, goods and property, for example, are well understood in theory, and the impact of tax changes is relatively easy to predict. Furthermore, most nations have centuries of practical experience with such taxes and recorded data that economists can study. In the case of a tax on financial wealth, we lack both theory and data.

This lack of previous experience with taxing financial wealth may stem from the fact that most governments need a stable revenue source for much of their spending needs. Infrastructure and public pensions, for instance, require long-term budget planning. Because financial wealth is volatile—as seen in Figure 1—it may not be a desirable tax base. Furthermore, government budget planning is difficult if tax bases are geographically mobile, especially as financial markets become more globally integrated.

Conclusion

In this paper, I've discussed two measures of wealth: fixed assets and net worth. Understanding their relation (summarized as Tobin's Q) is an essential step before implementing policies that impact the distribution of financial wealth. Unfortunately, current theory on this is insufficiently developed. Without a quantitatively valid theory or previous experience with taxing financial wealth, economists cannot make accurate predictions about the impact that such taxes will have on either aggregate wealth or its dispersion. Thus, any proposals to tax wealth are, at this point, premature.

Endnotes

[1] In this discussion, I abstract from the wealth represented by human capital.

[2] More precisely, I am referring to the current-cost net stock of fixed assets and consumer durable goods. Earlier BEA documents refer to these stocks as fixed reproducible wealth. Current Federal Reserve documents use the terminology "replacement-cost value."

[3] More exactly, according to the BEA's definition, fixed assets are produced (nonfinancial) assets that are used continuously in processes of production for more than one year. (See U.S. Department of Commerce 2014b.) BEA measures of fixed assets include residential and nonresidential structures (e.g., houses and office buildings), business equipment and consumer durables. As mentioned, the BEA recently added several intellectual property (IP) product categories. While accountants expense these IP products, the BEA includes them with fixed investment because they provide long-lasting services and profits to businesses and governments. Investment in fixed assets is included in the U.S. national income and product accounts; namely, as gross private domestic investment, government gross investment and expenditures of consumer durables. To construct net stocks in a particular year, the BEA uses the perpetual inventory method, which begins with stock from the year before, adds new investment and subtracts estimates of capital depreciation.

[4] These assets include consumer durable goods, equipment of nonprofits and intellectual property products of nonprofits. The Fed uses the BEA estimate of fixed assets in certain asset categories when no market transactions are available.

[5] The BEA's fixed asset data are available annually beginning in 1925 (with GDP for the pre-1929 period taken from early Department of Commerce documents), and the Flow of Funds Accounts (FFA) data are available annually for the period 1945-1951 and quarterly thereafter.

[6] To avoid double counting corporate equity holdings (FFA Table L.213), I sum issues of nonfinancial plus financial corporations and subtract holdings of U.S.-chartered depository institutions, foreign banking offices, property-casualty insurance companies, closed-end funds, exchange-traded funds, brokers and dealers, and funding corporations.

[7] The real estate value in household net worth includes owner-occupied housing as well as the residential land values. The BEA measures both owner-occupied and tenant-occupied residential structures, but I only include owner-occupied structures in the series shown in Figure 3 to make it comparable with the FFA measure. The BEA measure, however, does not include land, because land is not a fixed asset.

[8] Piketty and Zucman (2014) collect data for the United States as far back as 1770. The earliest data are based on probate and tax records and are not reliable estimates of the FFA measure of wealth currently reported by the Federal Reserve. In fact, even early data reported by the Federal Reserve can be considered somewhat unreliable because roughly half of corporate value in 1945 was in businesses that were not publicly traded.

[9] See also Tobin (1969).

[10] National wealth is reported in the Federal Reserve's Flow of Funds Accounts (2014) and household wealth is reported in its Survey of Consumer Finances (2013).

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Appendix

Theoretically, changes in tax rates on corporate distributions (dividends and share buybacks) of the magnitude observed in the United States should generate large movements in Tobin's Q. (See McGrattan and Prescott 2005 and McGrattan 2012.) The theory is that a government tax on distributions effectively changes the ownership of the corporate payout stream and therefore changes the price that the public is willing to pay for corporate equity.

For example, if an individual faces a tax rate of 50 percent, then half of the dividends are paid to the government and the value to the individual is half of what it would be if the tax rate were 0 percent. In general, as the tax rises, the stock market value recorded by the FFA falls. But if household budgets are not greatly affected (because, say, the tax revenue is used for transfers or to buy goods that households value), then there is little change in household decisions regarding investment in physical capital and hence little change in the fixed assets measure recorded by the BEA.

In other words, distribution tax rate changes affect the FFA measure of corporate equities but not the BEA measure, leading to a Tobin's Q that deviates from 1. Over the post-WWII period, the effective tax rate on distributions has fallen significantly as statutory rates have fallen and tax deferrals through pensions have risen. Thus, theory would predict a rise in the FFA measure of corporate wealth and a rise in Tobin's Q. Unfortunately, though, this factor doesn't have enough explanatory power. Predictions generated by economic models that incorporate changes in distribution tax rates are not nearly as volatile as the actual U.S. observations.
