Private business wealth and rates of return in the U.S.*

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Abstract

Privately owned business assets are the largest source of wealth for many of the wealthiest families across the globe and the rate of return on these assets are important to understanding the future of both wealth and income concentration. Measurement issues typically hamper our understanding of private business income and assets, but we show here—through comparisons to external aggregates and wealth models—that the Survey of Consumer Finances (SCF) captures U.S. private business wealth and income across the wealth distribution. We use the detail of the SCF to calculate rates of return on private business assets and show the extent to which it varies across the wealth distribution. We then explore how the mapping between business income and business wealth can influence our understanding of wealth models that predict wealth from income.

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1. Introduction

Privately owned business assets are the largest source of wealth for many of the wealthiest families in the United States (Bricker and Volz, 2020, Smith, Zidar, Zwick, 2020, Saez and Zucman, 2020), and across the world (Fagerang et al 2019; Bach et al 2016; Bach, Bartels, and Neef, 2020). Income generated from these firms has also served to increase income concentration in recent years (Smith, Yagan, Zidar, Zwick, 2019, Saez and Zucman, 2020, Austin and Splinter 2020), and the current levels of wealth and income concentration is directly influenced by the level and concentration of private business equity and income. Consequently, the future path of wealth and income concentration will be influenced by the rate of return on private business equity, the degree to which it varies by wealth, and if the rate of return outpaces returns on publicly-held equities.

Measuring the worth and income of private businesses presents a number of challenges. In contrast to public firms, shares of private businesses do not trade on exchanges, and private businesses do not need to file regular public disclosures. Though such businesses report taxable income to the tax authority, they do so confidentially, and reporting incentives may lead businesses to under-report income (GAO 2015, Johns and Slemrod, 2010, NIPA). Such businesses must also report estimates of assets and book value to the tax authority, though intangible asset valuation can distort already fraught models that relate book value, assets, and income to market value (as in Saez and Zucman, 2020, the Financial Accounts of the United States, and Smith, Zidar, Zwick, 2020).[1]

In this paper, we use owner-reported values of privately-held business and income from the Survey of Consumer Finances (SCF) to describe trends in private business equity and provide estimates of rates of return on private business equity. The SCF data have clear benefits. First, the SCF uses tax data to select a wealthy oversample, which ensures that the coverage of the top—where private business wealth is concentrated—is comparable to the income tax data (Bricker Hansen and Volz, 2019). Second, both income and business wealth are measured independently in the SCF—in contrast to efforts that use income tax data to infer business wealth—so the SCF data offer the clearest way to estimate rates of return.

[1] Alternate data collected on sales prices of private firms only measure firms that transact, which can suffer from the same sample selection issues that plague repeat-sales home price indices.

Due to inherent difficulty in measurement, the starting point for many researchers is to be skeptical of private business wealth and income data, especially so for survey data (Bhandari, Brinici, McGratten, and See, 2020—hereafter BBMS20).[2] Thus, we first demonstrate that business income and business valuations in the SCF align closely to external aggregates, and provide evidence and explanations for why the SCF estimates should—or should *not*—align with alternate sources.

First, we show that SCF business income aggregates line up well with external aggregates from the Statistics of Income (SOI) at the IRS. The SCF questionnaire collects business income in two places: first when collecting details on private businesses, and later when respondents are asked to enumerate all sources of income.[3] When business income is collected the first time, though, it is in the "business section" of the survey and is collected along with a set of detailed questions—about the industry, size, organization, financing needs, cost basis, and net worth, among others—of each business owned by the family. This information is the main source of our private business rates of return.

Aggregate business income collected in the business section is larger than business income collected both later in the SCF survey and collected in the income tax data (and shown here in figure 1), which can raise concerns over the use of these data, many of which are described in BBMS20. But, as we show here, comparing the SCF aggregates to comparable SOI data—in terms of income concept—alleviates these concerns.

We first note that—as in BBMS20—there is far more income from partnerships that is reported in the SCF business section than there is partnership income paid out as ordinary business income on individual income tax filings. Partnerships, though, generate many types of income for a variety of owner types, and ordinary business income is a relatively small share of that total: dividends, interest, and rental income make up most of aggregate income generated from partnerships (Di Carlo and Shumovsky 2019). Because partnerships are "pass-through" businesses, all of this income flows to the tax returns of the partners, and the ordinary business income generated by a partnership will flow to the business income line of a personal 1040

[2] Owners, though, may have the best idea of value given the degree of private information inherent in these firms (Kartashova, 2014; Moskowitz and Vissing-Jorgenson, 2002).

[3] This request comes after a prompt to recall their most recent income tax filing. Unsurprisingly, this measure of business income is most comparable to ordinary business income collected in income tax data—for reasons discussed later—and the two are nearly identical in level and trend (figure xx), especially after augmenting the income tax data for under-reporting (as in BBMS20, Reck Zucman et al 2020, and NIPA).

filing, while dividend income and interest income will flow to their respective lines (and *not* to the business income line). Thus, a comparison of aggregate partnership income in the SCF business section to ordinary business income from a tax return—which excludes the dividends, interest, and rent that these firms generate—as in BBMS20 is incomplete.

The Integrated Business Data (IDB) data release from SOI includes all forms of income generated by partnerships, and aggregate annual partnership income in the IDB is nearly identical to aggregate partnership income from the business section of the SCF (figure 1a). In fact, aggregate income from all pass-through businesses—partnership, S-Corp, and sole proprietor filings—in the IDB data are virtually identical to aggregate pass-through income in the SCF business income section (figure 1c).[4] Aside from partnerships, other business forms only generate nominal amounts of non-ordinary business income for their owners, and SCF business income data line up well with their personal tax line counterparts.

We then compare SCF private business valuations to external valuations data from the Financial Accounts of the United States. The aggregate value of private business in the SCF is unsurprisingly larger than the Financial Accounts B.101.h valuations, as the SCF data are market values while the FA data are a combination of book values and market values, which themselves are estimated from income (Batty et al 2019). The aggregates in each dataset, though, follow the same trend over time.

A separate way of assessing SCF private business valuations is to use valuations of public firms as a comparison. Through trading on exchanges, the valuations of public firms should reflect all public information on macroeconomic conditions applicable to all firms (such as interest rates and aggregate demand), and information on the firm itself (such as earnings and

[4] We also note that such a comparison to the IDB—a broader measure of partnership income—would be moot if the SCF business section income question directly refers to ordinary business income. Though BBMS20 write that the SCF business section income variable (x3132) "…asks respondents to report on special lines of IRS tax forms…", this is not actually the case. The question text—"[w]hat was the business's total pre-tax net income in [the year prior]"—references neither ordinary business income nor income tax returns. These authors, though, have observed a screen instruction in the SCF codebook that refer to lines on tax forms. Screen instructions *are not a part of the question text* and are visible only to the interviewer. In the case of x3132, the screen instructions that refer to lines on the business tax return are actually the third level of help for the interviewer: first, the interviewer would restate the question using different terms (as shown in the codebook): "[w]hat was the pre-tax profit of the business…" Then, if that didn't help, the interviewer can open a virtual glossary of terms to help define business income ("…gross income of the business minus the costs of doing business…"). Finally, to close things off, they can refer to the lines on the business tax forms (as shown in the codebook). Though there is generally no prompt from the interviewer to refer to tax documents in the business section, in contrast, the business income questions later in the survey—as part of enumerating all income sources—does comes after a verbal prompt from the interviewer to refer to personal income tax documents. As we show later, income here aligns well with SOI income.

expected growth). We begin by showing that valuations trends in SCF private businesses, aggregated by industry, follow the same trends as public firms in the Compustat/CRSP data (figure xx).[5]

But self-reported valuations, though, may be biased up or down in ways that cannot be picked up in a time series comparison, or may reflect a concept more akin to an ask price. To gauge whether private business valuations are governed by similar fundamentals to public firms, we apply multiples of value-to-income and value-to-earnings estimated from Compustat/CRSP—by industry and year—to the SCF business sales and business income. Because pass-through business income may represent a mix of business profits and labor for the owner (while the Compustat/CRSP should represent pure profits) we initially deflate business income by 75 percent (as in Smith, Zidar, Zwick, 2020), by about 50 percent (as in SZ20), and according to rules from Moskowitz and Vissing-Jorgenson (2002). These predicted business valuations can approximate the aggregate self-reported SCF business valuations, though are typically a bit lower. We then estimate our own capital-labor share of private business income using value-to-earnings estimated from Compustat/CRSP and find capital shares similar to SZZ and SZ20.

After establishing that SCF income and SCF private business values align to available external data, we use both to calculate rates of return on private businesses. We present estimates of rates of return across the wealth distribution under various assumptions about the capital income share of private business income.

Our mapping of business income to business wealth also allows us to calculate rates of return by business organization, an important input for wealth capitalization models (Smith, Zidar, Zwick, 2020, Saez and Zucman, 2020, and SCF sampling models).

And we will also show that the return sometimes does and sometimes does not outpace return on public equities (as in Kartashova, 2014; Moskowitz and Vissing-Jorgenson, 2002).

2. Data: the SCF, CRSP/Compustat, and income tax data.

A. SCF data

[5] [Further, aggregate sales in the private SCF firms also track to Compustat…]. [Trends in price to sales ratios are also the same.] We also use ratios of value to earnings, value to sales from Compustat to predict SCF business values and find the SCF values are pretty good, (and maybe a lower bound).

The SCF is a cross-section survey, conducted every three years by NORC on behalf of the Federal Reserve Board (FRB) and with the cooperation of the Department of Treasury (SOI).\footnote{See \cite{Bricker2017} for results from the most recent triennial SCF. } The survey combines a wealthy oversample with a nationally representative set of families, and collects a comprehensive snapshot of the assets, liabilities, income, and demographic characteristics of these families.[6] The SCF represents all U.S. families by combining this oversample with a nationally representative geographic sample. There are about 6,000 families in the recent surveys, of which about 1,500 are from the oversample.

The SCF identifies wealthy households to sample by predicting wealth based on administrative records derived from income tax returns—the INSOLE data that are discussed in the next section. The SCF oversample uses two models to predict wealth from income: a capitalization model—similar to SZ20 and SZZ20—and an empirical model estimated from a link between sampling income and SCF wealth collected in past surveys, which allows flexibility in the relationship between income and wealth beyond what's available in a tax form.

The SCF verifies that wealthy families participate by grouping sampled families into classes of increasing wealth and targeting response rates in each wealth group. Using the sampling data, we demonstrate that the nonresponse in the SCF is effectively missing at random by showing that the distribution of income and expected wealth of wealthy SCF respondents mirrors that of SCF wealthy nonrespondents (appendix X).

The SCF cannot sample families in the *Forbes* 400, leading to under-coverage at the top of the wealth—and income—distribution. However, under-coverage does not arise until the extreme top: the wealthiest SCF families have wealth comparable to the lower end of the *Forbes* 400 (Vermuelen (2018), Kennickell (1999), and replacing the top end of the SCF wealth distribution yields similar results to appending the *Forbes* wealth to the SCF (Bricker, Hansen and Volz 2019).[7] Though we have developed ways of incorporating the Forbes wealth in general (Bricker, Hansen and Volz, 2019), we do not have detailed enough balance sheets to include them in this analysis, and when we present here will not include these families.

[6] This analysis updates Bricker et al. (2020) to incorporate more recent aggregate data and improved methodology, which minimally changed estimates. See Bricker, Henriques, and Moore (2017) for more information on the SCF sampling process and Bricker et al. (2016) for more information on top-end coverage in the SCF.

[7] The *Forbes* list relies, in part, on public knowledge of wealth (public filings or voluntary disclosures). Privately held forms of wealth---businesses, notably---can evade such public knowledge

i. Business income, business assets, and business traits in the SCF

The SCF asks respondents for income derived from businesses in two places: first in a set of detailed questions about the business—the "business section"—and later as part of an enumeration of all types of income sources, as in a personal tax filing, in the "income section." There is no restriction in the questionnaire (or in data review) that business income in the two sections must agree, for a few reasons. First, businesses can have more than one way of paying out owners, and the business section question places no restrictions on what form of profit payout can be reported, while the income section question specifically refers to Schedule E business income. Other forms of profit payouts that a business may pay its owners—dividends, interest, rent, and other capital income forms—may be reported as one profit payout in the business section, while they are reported on their separate tax lines in the income section. Second, the income section refers to last year income and the business section refers to current businesses; in the case that a business folded then there may be time disagreement.

The SCF business section includes a set of detailed questions on up to two actively managed private businesses, a set of mop-up questions on any additional actively-managed businesses, and something in between for any business that are owned by that family but not actively managed. The set of detailed questions includes the net worth of the SCF family's share of the firm, total income, sales, and cost basis of the firm, the industry of the firm, the number of employees, and the legal business organization, among others. For non-actively managed businesses, the questionnaire collects income, net worth, cost basis and legal business organization.

SCF families are asked later to report income from all sources from the prior year—including from business sources. The framing of these questions draws directly from a personal income tax form, and SCF respondents are explicitly prompted by the field interviewer to think of and use income tax forms in this section in a way that they just aren't in the earlier section. The income reported here are also different from the earlier in that there is no division of total income across multiple owners—the family just reports the total amount of Schedule C and Schedule E income, as on a tax form. Many families pull out their tax form here, though some don't.

B. Income tax filings

The Statistics of Income (SOI) at the Internal Revenue Service (IRS) produces several datasets on business income, and individual business income. The Individual and Sole Proprietor (INSOLE) data are a set of administrative records derived from personal income tax returns (see, for example, \cite{SOI12}). The Integrated Business Data (IDB) data from SOI are generated from business tax filings of all types business organizations: Form 1120S for S corporations, Form 1120C for C Corporations, Form 1065 for partnerships, and Schedule C for sole proprietorships.

The data differ in the details around business income. The IDB includes many forms of business profits that are paid out to business owners: ordinary business income, dividends, interest, and other forms of capital income. The INSOLE data have the same information, but distribute each income form to its appropriate line on a personal 1040 tax filing. In the INSOLE data, then, "business income" is just the ordinary business income that flows to Schedules E and C (and lines x and y on a 1040), while the other potential income sources form business ownership flow to their respective 1040 lines: line 7 for the interest income, line 10 for dividends, and so forth.

Business income that gets reported to the tax authority is a particular concept that is arrived at after tax rules are applied to business profits. The incentives of taxes and the incentives around these rules may lead to a distorted picture of business income. Audit studies typically find that business income is under reported to the U.S. tax authority (Johns and Slemrod, 2010, Reck Zucman et al 2020, BBMS20); separately, the profits of about 20% of partnerships cannot be traced back to their owners tax returns because of the complicated structure of some private firms (Cooper et al 2016). The GAO (2015) estimates that at least 18% of S Corporation and partnership income is under reported, and the U.S. national accounts infer that self-employment income is under reported by half (NIPA tables). In some of the following figures, then, we adjust SOI business income by these factors.

C. CRSP/Compustat

Valuations of public firms are maintained in the CRSP database and accounting details of each firm are maintained by Compustat. We merge the two datasets to get prices, income, firms size, sales, and other variables on active and inactive public firms.

3. Business Income

Business income collected in a household survey may be different from business income collected for income tax purposes for reasons associated with surveys: respondent recall bias, or lack of coverage of business owners in the survey. Even the concept of business income can obscure comparisons, as business income in tax data could refer to all profits that owners accrue from owning a business—those that get reported to a Schedule K1—or just to "ordinary business income" that gets reported to Schedule E.

So it is with comparisons of the SCF to tax data on business income collected by SOI. In figure 1, we plot aggregate SCF business income collected for all families that own partnerships (dotted blue line); this income is collected along with details for each business owned by the family. We compare that to aggregate partnership income collected in the Integrated Business Data from K1 tax filings, which includes "ordinary business income" that partnerships generate as well as all other capital income that they generate for their owners as part of the functioning of the business: interest, dividends, rent (dark orange line). The light orange line shows aggregate partnership income (and rent) that is declared on Schedule E—the "ordinary business income" part of the total partnership income.

Aggregate SCF income from partnerships lines up well with aggregate income from partnerships in the IBD data. As noted in Bhandari et al (2020), aggregate partnership income in the SCF is considerably larger than aggregate partnership income collected as business income on a Schedule E, but that is because most income form partnerships is not business income that gets reported to Schedule E (orange lines). A comparison of the SCF to Schedule E partnership income, then, is notably incomplete.

Is there some reason to think that the SCF is collecting Schedule E, though, and just doing it badly? Such a comparison to the IDB—a broader measure of partnership income—would be moot if the SCF business section income question directly refers to ordinary business income. Though BBMS20 write that the SCF business section income variable (x3132) "…asks respondents to report on special lines of IRS tax forms…", this is not actually the case. The

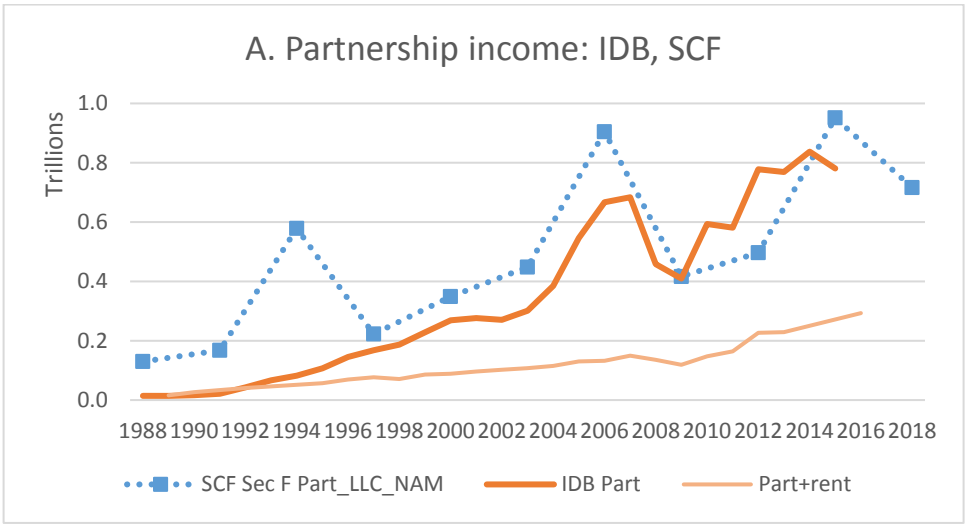
question text—"[w]hat was the business's total pre-tax net income in [the year prior]"—references neither ordinary business income nor income tax returns.[8]

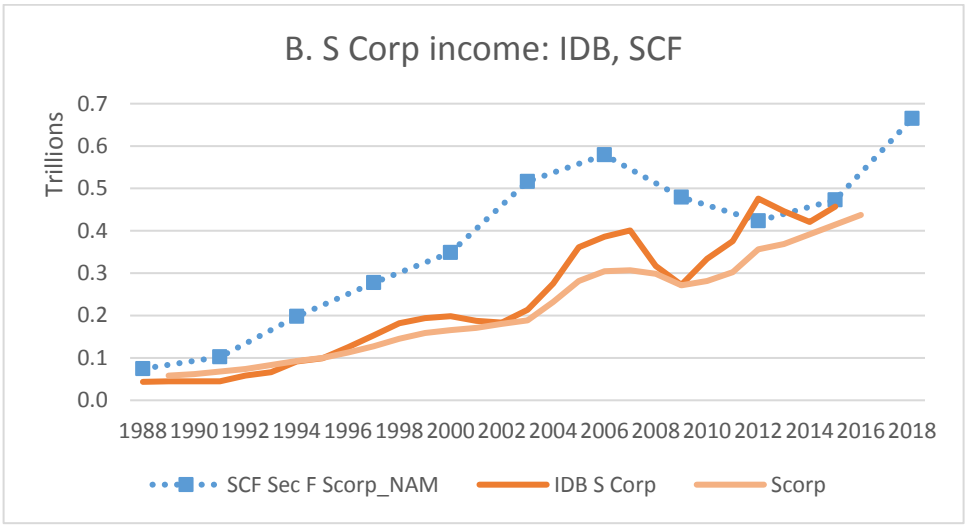
Aggregate business income from S Corporations owned by SCF families is shown in the middle panel of figure 1, plotted with aggregate income of S Corporations from all sources in the IDB, and aggregate income from S Corporations that flows to Schedule E in the SOI personal income tax data. S Corporations mainly produce business income, and the SCF aggregate values are generally comparable in magnitude and in time trend.

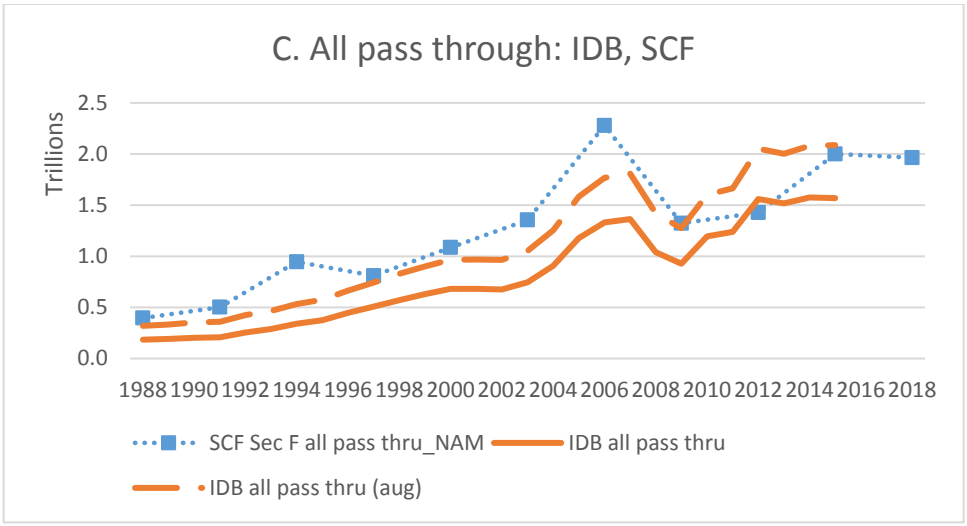
In fact, when comparing aggregate pass-through income collected in the SCF business questions—whether from partnerships, S Corporations, or sole proprietorships—are generally comparable in magnitude and in time trend to the IDB aggregates (bottom panel). Pass-through business income that is reported to the IRS, though, has been found to be under reported by about 18 percent in the case of S Corps and partnerships (GAO 2015) and by nearly half in the case of sole proprietorships (NIPA). Adjusting the IDB income tax data for under-reporting (as in BBMS20, Reck Zucman et al 2020, and NIPA) leads to even greater correspondence to SCF aggregates (dashed orange line).

[8] These authors, though, may have interpreted a screen instruction in the SCF codebook that refers to lines on tax forms as part of the question text, or as a prompt to refer to tax documents. Screen instructions in the SCF, though, are not a part of the question text and are visible only to the interviewer. Screen instructions are part of a multi-pronged strategy of clearing up confusion in questions, and screen instructions appear throughout the questionnaire. In the case of x3132, the screen instructions that refer to lines on the business tax return are actually the third level of help for the interviewer if there is confusion in this question: first, the interviewer would restate the question using different terms, as shown in the codebook: "[w]hat was the pre-tax profit of the business…". Then, if that didn't help, the interviewer can open a virtual glossary of terms to help define business income ("…gross income of the business minus the costs of doing business…"). Finally, to close things off, they can refer to the lines on the business tax forms (as shown in the codebook). An unsystematic poll of SCF interviewers reveals few instances of referring to this screen instruction. In contrast, the business income questions later in the survey—as part of enumerating all income sources—does comes after a verbal prompt from the interviewer to refer to personal income tax documents. As we show later, income here aligns well with SOI Schedule E income.

Figure 1. Business income in the SCF and SOI, by business organization







3. Business Values

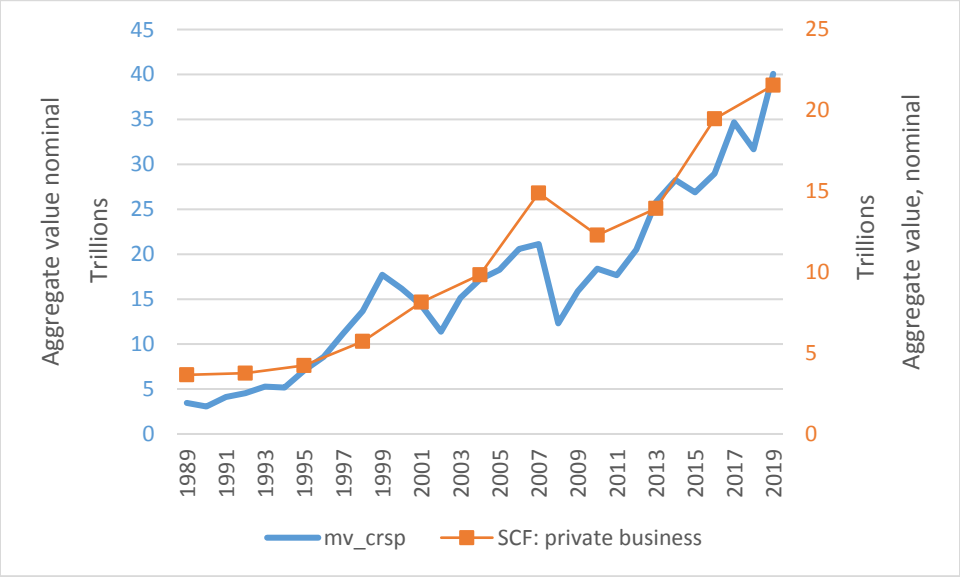
In the SCF data, private business wealth is the most important component of the wealthy asset portfolio (Bricker et al 2016). But how accurate are these self-reported business valuations? There are few sources to use as a comparison. The first is the Financial Accounts of the United States, which provide aggregate estimates of total non-corporate business valuations held by the household sector. The SCF aggregate is [significantly] larger than the B.101 value, but these data are modeled [partially from tax data] and a mixture of book and market values (Batty et al 2019). Alternatively, there is data on transacted private businesses—such as Pratt's Stats— but suffer from the same sample selection issues that other transactions data suffer from (Gallin et al 2019) (and market is much thinner than real estate).

Finally, there is data on valuation trends for public companies in the U.S. We can compare trends over time in SCF private equity and U.S. public companies in the merged CRSP/Compustat dataset. While there are obvious differences in size and funding, economic fundamentals should affect both public and private firms' valuations. Publicly traded firms' values should reflect all known information about the current and future profitability of the firm, as one would hope owner valuations of their firms would.

Trends

Below we see the aggregate market value of firms in CRSP/Compustat and aggregate market value of SCF private businesses. The two series are plotted on different y-axes because of the unsurprising difference in levels for public equity in the CRSP/Compustat and private equity in the SCF—$40 trillion and $21.6 trillion, respectively, in 2019. The figure makes clear that the two data series have grown in tandem since 1989, and both have similarly grown procyclically during this time, as well.

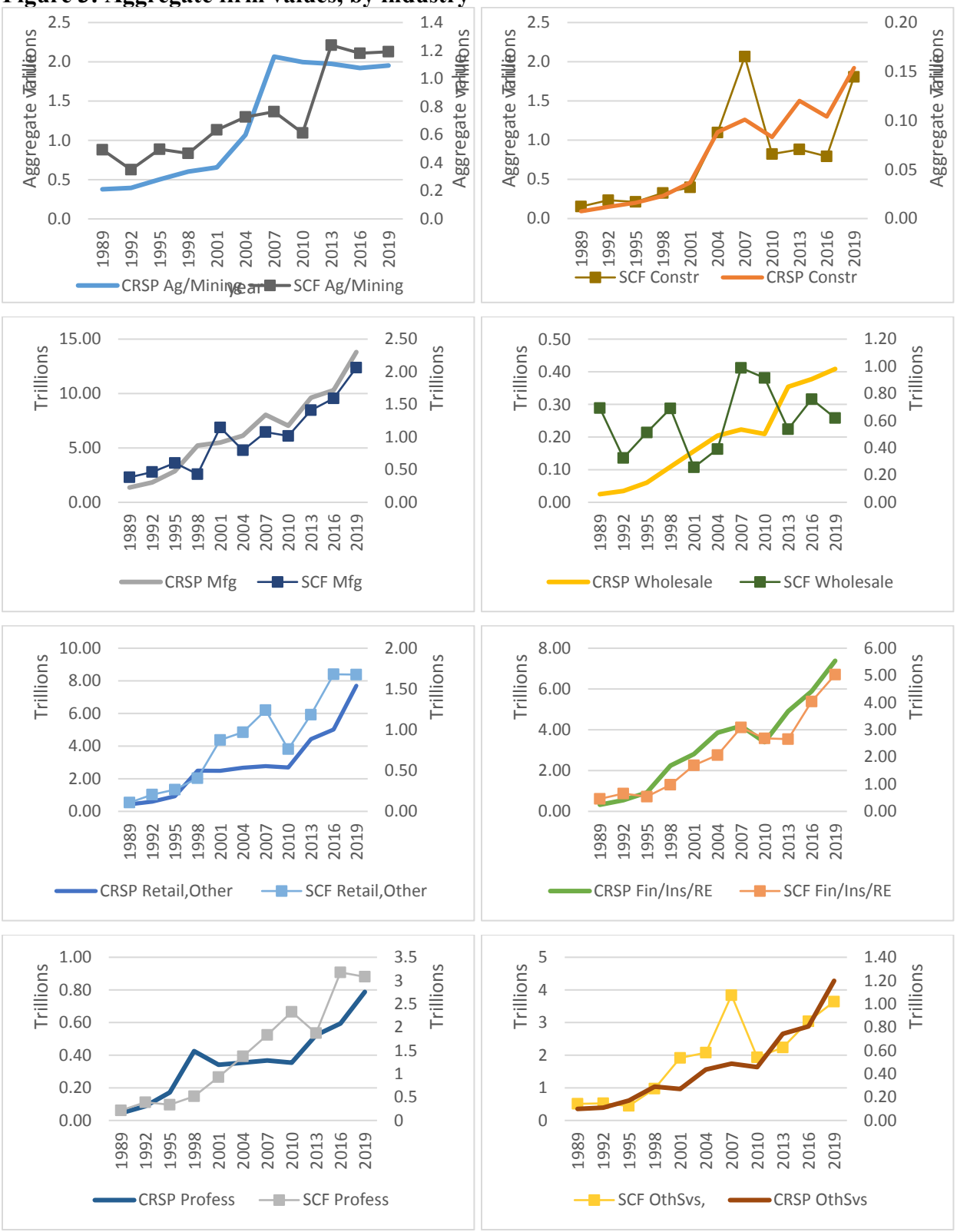
Figure 2: Aggregate market value of private and public firms 1989-2019



Note: Calculated (or Derived) based on data from *CRSP* ©2020 Center for Research in Security Prices (CRSP), The University of Chicago Booth School of Business, and Survey of Consumer Finances.

The above figure shows us that the SCF valuations grow with the overall macro environment. But macro effects can vary across industry sectors, so we also compare aggregate values by industry across time. Again we plot aggregates on different axes, which removes the level differences but allows us to see growth over time. In each industry, the aggregate valuations of SCF private businesses—as valued by their owners—follow the time trend of publicly-traded firms. Aggregate valuations across a range of industries—agriculture, construction, manufacturing, wholesale, retail, finance, professional, and services—in the SCF private businesses.

Figure 3: Aggregate firm values, by industry



Note: Calculated (or Derived) based on data from *CRSP* ©2020 Center for Research in Security Prices (CRSP), The University of Chicago Booth School of Business, and Survey of Consumer Finances.

Levels

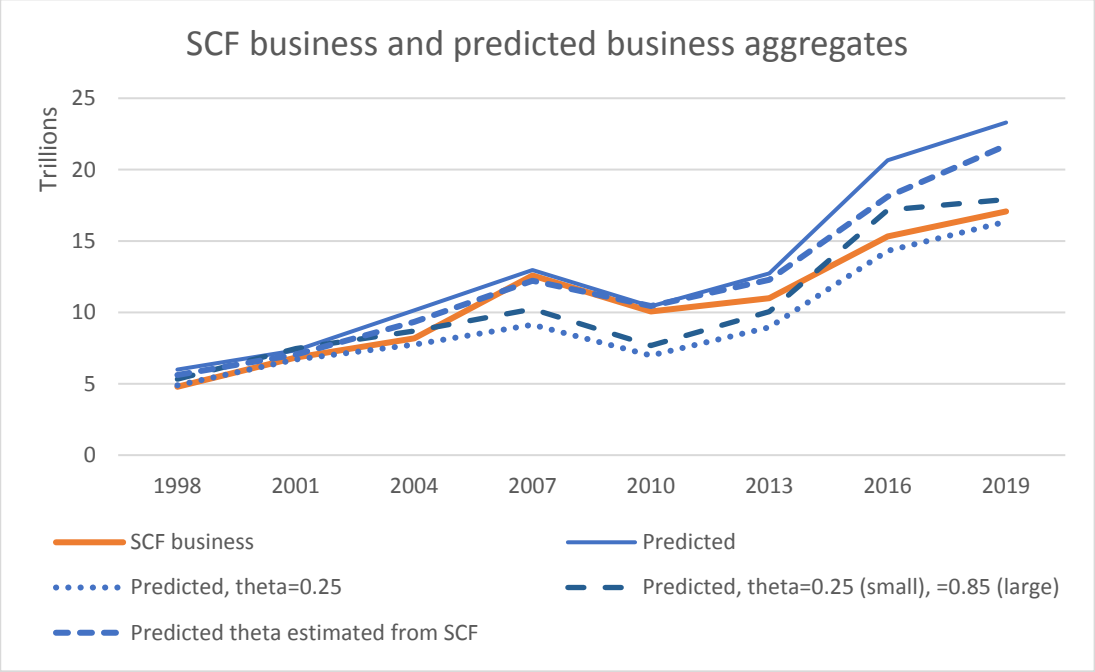
The trends in private business equity look reasonable in previous figures compared to trends in public business equity. Evaluating the *levels* of private business wealth in the SCF—which are judged to be too low (BBMS20) or too high (Smith Zidar and Zwick 2020) in other work—is made complicated by the lack of comparable external data on private business values.

One way to check on valuation levels is to predict business wealth using other business-specific data collected in the SCF—annual sales and income from each business. Both value-to-sales and value-to-income ratios can be estimated with public firms in the CRPS/Compustat data. We apply a weighted average of these two ratios—a modified version of a model in Smith Zidar and Zwick (2020)—using the SCF business income and business sales, each of which are calculated in each of our eight industry groups in each year and predict SCF business value for each business via formula:

$$\widehat{bus^{scf}} = \sum_{\forall k} \frac{1}{2} \times \left\{ sales^{scf} * \left(\frac{\overline{value}}{sales}\right)_k^{CRSP} \right\} + \frac{1}{2} \times \left\{ \theta inc^{scf} * \left(\frac{\overline{value}}{income}\right)_k^{CRSP} \right\}, \text{ where}$$

$(value/sales)$ and $(value/inc)$ vary by broad industry (k) and are taken from CRSP/Compustat for each SCF year.

Figure 4: Private business values, SCF and predicted from SCF income and sales



The predicted SCF private business wealth described by the above equation is shown in the dark blue line and is typically a bit higher than the actual SCF business values (orange lines).[9] Others studies use a fraction of business income when predicting wealth, as not all business income represents a pure return to capital, as private business is income is a mix of capital and labor income. Tax incentives, for example, can lead to owners of private businesses to pay themselves in business profits rather than wage income.

Dashed blue lines show that, under two different assumptions about the capital-labor split, still looks similar to the SCF survey value. The dotted line uses 25 percent of business income, allocating 75 percent to labor (as in Smith Zidar and Zwick 2020). The dashed line takes the Smith Zidar and Zwick (2020) capital labor allocation for small firms but allocated 75% of income to capital in larger firms (as in Saez and Zucman 2020).

We also estimate our own allocation of capital and labor, which varies by year and finds θ that sets $\widehat{bus^{scf}} = bus^{scf}$. The capital share is typically a bit larger than 0.25—as in Smith Zidar and Zwick (2020)—in most survey years, though ranges from 0.38 to 0.67 in 2007-2013.

4. Overall rates of return

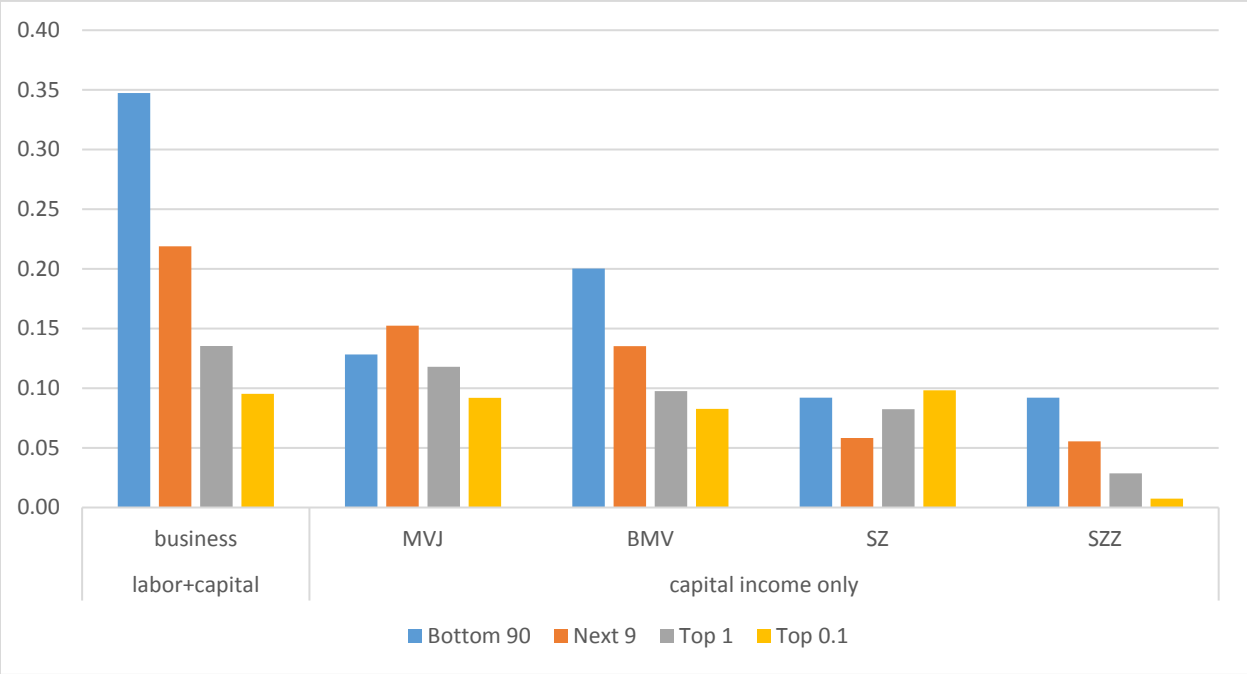
We construct rates of return on private business, then, with a simple ratio of business income to business value, as in BBMS20, Smith Zidar and Zwick (2020), and Saez and Zucman (2020). We construct rates of return first not differentiating between capital and labor in business income, and then under four estimates of the capital-labor split of pass-through business income, retaining only the capital income share of business income.

The first set of estimates in figure 5 shows the rate of return on businesses, where all business income is used to calculate the return. In the four set of estimates that follow, we first remove labor income as in Moskowitz and Vissing-Jorgenson (2002)—denoted MVJ in the figure. We next remove labor income in a similar fashion described above but find θ_{ind} that sets $\widehat{bus}_{ind}^{scf} = bus_{ind}^{scf}$—this is denoted BMV in the figure. Next, we remove labor income as in Saez and Zucman (2020), and finally remove labor income as in Smith Zidar and Zwick (2020).

[9] In contrast to figure 2, this figure uses only actively managed businesses (which have both industry, income and sales information to predict with)

In most specifications, the wealthiest families realize about a 10 percent return on private business assets. In the BMV and SZZ specifications, the wealthiest tend to have lower returns than the less wealthy—possibly because they own established businesses while the less wealthy have younger, growing businesses. In the Saez and Zucman (2020) specification, the wealthiest have the highest rate of return, while in the MVJ specification, rates of return are about equal across the wealth distribution.

Figure 5. Rates of return on private business assets, by wealth percentile and under different assumptions about capital income. All surveys (1989-2019) pooled.



5. Conclusion

Measuring the value and income of private businesses is challenging due to the private nature of these firms. In this paper, we use owner-reported values of privately-held business and income from the Survey of Consumer Finances (SCF) to describe trends in private business equity and provide estimates of rates of return on private business equity. Though many researchers are skeptical of survey data on private business wealth and income (Bhandari, Brinici, McGratten, and See, 2020—hereafter BBMS20), we show here that that business income and business valuations in the SCF align closely to external aggregates and show that the sales-

to-value and income-to-value ratios of SCF private businesses align well with publicly-traded firms.

We then derive rates of return on business assets for families across the wealth distribution. Our mapping of business income to business wealth will also allow us to calculate rates of return by business organization, an important input for wealth capitalization models (Smith, Zidar, Zwick, 2020, Saez and Zucman, 2020, and SCF sampling models).

And we will also show that the return sometimes does and sometimes does not outpace return on public equities (as in Kartashova, 2014; Moskowitz and Vissing-Jorgenson, 2002).

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