MEASURING AGGREGATE BUSINESS INCOME WITH TAX DATA

James Pearce

Tax reform proposals, such as taxing all business entities in a similar manner under an entity level tax or moving to a cash-flow or valued-added consumption tax, require careful accounting so that estimates of the revenue impacts and distributional consequences are consistent across proposals. This paper constructs a broadly consistent measure of tax-based business income and details the correspondence between it and National Income and Product Accounts (NIPA) business income. The paper highlights the importance of addressing the double-counting of partnership income in tax data and the importance of investment income in explaining the differences between tax-based business income and NIPA business income.

Keywords: business income, NIPA, taxation, partnerships

JEL Codes: H25, E01

I. INTRODUCTION

Business tax reform is a perennial subject of discussion in Washington, DC. This discussion motivates analysis using various data sources to provide insights into the implications of various reforms. It is relatively straightforward to discuss and analyze the economic and revenue effects of reform proposals that maintain the current system whereby businesses can elect to have their income directly taxed at the entity level via the corporate tax or indirectly taxed at the owner level via a pass-through entity. It is significantly more difficult to analyze tax reform proposals that significantly alter this choice, such as taxing all business entities in a similar manner under an entity level tax (taxing all businesses like corporations) or moving to a cash-flow or valued-added consumption tax. One reason for this difficulty is that the data reported under the current tax system are not easily adapted to tracing the flows of business activity between businesses and owners. This is particularly true of partnerships whose owners can be individuals, corporations, other partnerships, tax-exempt entities, estates and trusts, and foreign individuals. Analysis of tax reform proposals that change pass-through
taxation requires information on all the business activity at each entity level as well as all of the income flows to the various types of owners. Without these flows it is difficult to consistently estimate the revenue impacts and distributional consequences of reform proposals.

A further difficulty is ensuring that forecasts of aggregate tax-based business income are consistent with the underlying assumptions used in the National Income and Product Accounts (NIPA). Without this consistency between tax-based business income and NIPA business income, the analysis of a VAT-style consumption tax estimated using NIPA-based business income might inadvertently differ from a theoretically identical cash-flow consumption tax estimated using tax-based business income.

As a first step to improving our understanding of aggregate business income, this paper constructs a broadly consistent time series of tax-based business income by entity-type and outlines the relationships between that tax-based business income and NIPA business income. It leaves the more complicated task of tracing the flows of business income between partnerships and other business entities to future work. In Section II, the paper discusses some business income basics. In Section III, the paper constructs a historical time series of tax-based business activity across entity types using administrative tax data. This is discussed using the concept of the income statement that is a part of each firm’s tax return. These income flows by entity type are then compared over time to give a clear idea of changes in business activity over the past 20 years. In Section IV, the paper compares these flows to NIPA business income and uses the differences between tax and NIPA accounting and definitions to reconcile the two series. The paper concludes with a discussion of how the conceptually consistent measures of tax-based business income developed can be used to forecast aggregate business income over a budget window as well as some of the difficulties not adequately addressed in earlier sections.

II. BUSINESS TAX BASICS

Although the Internal Revenue Service (IRS) collects income and expense data about all of the various types of businesses that operate in the United States, analysts often separate corporate business activity (e.g., all of the various Form 1120s) from non-corporate business activity (e.g., partnerships (Form 1065) and sole proprietorships (Form 1040, Schedule C)). This is how the NIPA disaggregate business activity. Others separate business activity by whether it is subject to the corporate income tax (e.g., C corporations, including insurance companies that file a Form 1120-L or a Form 1120-PC) or avoids the corporate income tax and instead passes through to the individual income tax (S-corporations (Form 1120S), real estate investment trusts (Form 1120-REIT), regulated investment companies (Form 1120-RIC), partnerships, and sole

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1 One aspect of consistency that this paper does not address is the labor compensation of business owners. It takes as given the rules written in the tax code. The discussion below provides more detail.
2 Farm income (Form 1040, Schedule F) and rental real estate and royalty income (Form 1040, Schedule E) are excluded from the analysis for both the tax data and NIPA data.
Measuring Aggregate Business Income with Tax Data

proprietorships). Of course, pass-through business activity can be further disaggregated by tax entity type if one prefers. RICs and REITs are sometimes excluded from business income due to the investment nature of their business activity. The NIPA include income from both of these types of entities to the extent the income is not capital gains income (that is, the income must be from current production) and is not a payment of interest, which is considered an expense in the NIPA.

One significant difference between tax-based and NIPA-based business income is the treatment of investment or portfolio income such as capital gains, interest, and dividends. NIPA-based business income only includes income from current production and ignores income from prior production. Tax-based business income generally includes investment income when realized. Because C corporations are taxed at a single rate on all types of income, it is often thought that investment income accruing to C corporations is directly related to their business activities (or else they would move it to where it could be taxed at preferential rates). The investment income of partnerships and S corporations is separately reported from ordinary business income and maintains their character as the income is allocated to the owners. In the case of owners who are individuals, the long-term capital gains and qualified dividends portion of this income will be taxed at preferentially low rates. In the case of tax-exempt entities, this income typically avoids taxation.

III. COMPREHENSIVE BUSINESS INCOME USING TAX DATA

The IRS Statistics of Income (SOI) division constructs separate detailed data samples of individual income tax payers, corporate income tax payers, and partnerships. These three data sources can be used to create a historical time series of tax-based business activity by the major entity types. The individual data files contain information on sole proprietorships. The corporate data files contain information on C corporations, S corporations, RICs, and REITs.

The SOI data files can be used to create simple aggregate income statements for each entity type based upon the information supplied on tax returns. Unfortunately, the tax returns for each of the various entity types are not structured identically. As a result, some adjustments must be made to improve comparability across the various income statements. The first step is to choose a definition of business income to use as an anchor. This paper uses the income definition on the front page of the Form 1120

3 RICs are required to pass-through all income except capital losses, which are kept by the RIC and used to offset future capital gains income.
4 It should be noted that the legal form of a business does not necessarily match the tax treatment of the business due to the check-the-box regulations that allow firms to choose whether they will be taxed as a C corporation or a pass-through entity.
5 The exception is income subject to the unrelated business income tax (UBIT) rules.
6 Recall that flow-through farm income and rental real estate and royalty activity by individuals are ignored in this paper.
7 C corporations include firms filing the regular Form 1120 as well as Forms 1120-F, 1120-L, and 1120-PC.
used by C corporations as its template for the other income statements. An attempt is then made to create comparable income statements for each of the other entity types.  

The front page of the Form 1120 is divided into three parts: income, deductions, and tax. The first two sections form a simple income statement. Three adjustments are made to this basic statement. First, cost of goods sold are moved from the income portion of the statement to the deductions portion of the statement. Second, tax-exempt interest income is included in the income section of the statement. Third, the domestic production activities deduction is ignored. The income section of the income statements constructed for this paper group income into one of three types: net business receipts, investment income, and other income. The investment income section includes interest, tax-exempt interest, rental income, royalty income, capital gains or losses, and dividend income. The other income section includes anything that C corporations put on the “Other income” line of the form 1120. The expenses section of the income statements constructed for this paper groups expenses into eight categories: cost of goods sold, compensation, interest paid, depreciation, depletion, advertising, charitable contributions, and other expenses. Compensation includes wages paid to employees and officers as well as other employee compensation such as pensions and health insurance benefits. The other expenses line includes repairs, bad debts, rent paid, taxes paid, amortization, and other deductions. The first column of Table 1 presents the income statement for all C corporations filing a form 1120, 1120-F, 1120-PC, or 1120-L for 2011. These entities had $19.096 trillion in net business receipts, $1.676 trillion in investment income, and $0.808 trillion in other income, for a total income of $21.580 trillion. From this, $20.923 trillion of expenses were subtracted, yielding a net business income of $657 billion.

Building comparable income statements for the other entity types requires some careful accounting. Although the front pages of the tax forms for all of the other entity types are structured like the form 1120 with separate sections for income, deductions, deductions, and tax. The first two sections form a simple income statement. Three adjustments are made to this basic statement. First, cost of goods sold are moved from the income portion of the statement to the deductions portion of the statement. Second, tax-exempt interest income is included in the income section of the statement. Third, the domestic production activities deduction is ignored. The income section of the income statements constructed for this paper group income into one of three types: net business receipts, investment income, and other income. The investment income section includes interest, tax-exempt interest, rental income, royalty income, capital gains or losses, and dividend income. The other income section includes anything that C corporations put on the “Other income” line of the form 1120. The expenses section of the income statements constructed for this paper groups expenses into eight categories: cost of goods sold, compensation, interest paid, depreciation, depletion, advertising, charitable contributions, and other expenses. Compensation includes wages paid to employees and officers as well as other employee compensation such as pensions and health insurance benefits. The other expenses line includes repairs, bad debts, rent paid, taxes paid, amortization, and other deductions. The first column of Table 1 presents the income statement for all C corporations filing a form 1120, 1120-F, 1120-PC, or 1120-L for 2011. These entities had $19.096 trillion in net business receipts, $1.676 trillion in investment income, and $0.808 trillion in other income, for a total income of $21.580 trillion. From this, $20.923 trillion of expenses were subtracted, yielding a net business income of $657 billion.

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and tax, not all of the relevant income and deductions are included in those sections. For example, S corporations and partnerships do not include investment income or certain deductions on the front page of Forms 1120S and 1065 because such items retain their character after passing through to owners.\footnote{For example, in the case of an owner who is an individual, interest income retains its character in the sense that the individual is required to include it on Schedule B of the Form 1040 with personal interest income, whereas ordinary business income from the business is included on Schedule E of the Form 1040.} These income and deduction items are instead included on the Schedule K that accompanies each form. At the end of Schedule K is a computation of net income (loss) that includes both the income and deductions from the front page of the tax form (called ordinary business income) plus investment income less the deductions that retain their form.\footnote{In the case of a partnership or S corporation, investment income includes net rental real estate income, other net rental income, interest, tax-exempt interest, royalties, capital gains or losses, dividends, and net section 1231 gains or losses. The other deductions include section 179 expenses, charitable contributions, investment interest expense, section 59(e)(2) expenditures, other deductions, and foreign taxes paid. The instructions for Form 1120S (Schedule K) or Form 1065 (Schedule K) provide more detail.} These investment income

\begin{table}
\centering
\caption{Income Statement by Entity Type, 2011 ($Billions)}
\begin{tabular}{lccccc}
\hline
 & C Corporations & S Corporations & REITs & RICs & Sole Proprietorships \\
\hline
Net business receipts & 19,096 & 6,102 & N/A & N/A & 2,109 & 1,242 \\
Investment income & 1,676 & 117 & 93 & 360 & 370 & 0 \\
Other income & 808 & 118 & 11 & 4 & 178 & 20 \\
\hline
Total income & 21,580 & 6,338 & 104 & 363 & 2,657 & 1,261 \\
\hline
Cost of goods sold & 12,382 & 3,798 & N/A & N/A & 1,283 & 389 \\
Compensation & 2,643 & 957 & 2 & 0 & 255 & 120 \\
Interest & 801 & 45 & 14 & 1 & 69 & 10 \\
Depreciation & 755 & 128 & 9 & 0 & 84 & 36 \\
Depletion & 26 & 1 & N/A & N/A & 1 & 1 \\
Advertising & 214 & 49 & 0 & 0 & N/A & 13 \\
Charitable contributions & 15 & 7 & N/A & N/A & 2 & 0 \\
Other expenses & 4,088 & 987 & 41 & 80 & 536 & 410 \\
\hline
Total expenses & 20,923 & 5,973 & 67 & 81 & 2,230 & 979 \\
\hline
Net business income & 657 & 365 & 37 & 283 & 427 & 282 \\
\hline
\end{tabular}
\footnotesize{Sources: Author’s calculations using SOI individual, corporate, and partnership data}
\end{table}
and deduction items that retain their character must be included to insure comparability of the income statements across entity types. Without this, it would not be clear what types of activity are being conducted in each business entity type.16

An additional complication is that partnerships make guaranteed payments to partners that are treated as expenses for the computation of ordinary income on the front page of the Form 1065, but are also included on Schedule K as an income payment to partners. In the tax data the guaranteed payments listed on the front page of Form 1065 do not match those listed on the Schedule K because of tax rules.17 It is assumed in this paper that guaranteed payments should be treated like wage payments made to owners of C corporations and S corporations.18 As a result, the partnership income statement includes the larger of the two values (the amount from the Schedule K) in the compensation expense line for partnerships.19 Guaranteed payments are then not included as other income from the Schedule K. This raises the broader question about separating the returns to labor from the returns to capital for business owners.20 In many analyses of business tax reform it would be useful to have a consistent split of business returns by capital and labor across the various entity types. This type of analysis would require a paper of its own, however.21 In the interest of simplicity and to facilitate comparison of tax-based business income data with NIPA business income data, this paper takes the labor compensation regimes for the owners of the various entity types as given and does not address the more difficult issue of trying to estimate a consistent measure of labor compensation for all owner-employees.

An even larger complication with the partnership income statements involves flows of partnership income between partnerships and corporations. The SOI data on partnerships are from a stratified random sample of partnership Form 1065s. At the end of the partnership’s Schedule K is the analysis of net income section with a decomposition of income based upon which type of partner receives the income flows. Income can flow to individuals, corporations, exempt organizations, nominees and others, and other partnerships. Because partnerships can be partners in other partnerships, some partnerships receive income and expenses that must then be reported on their Form 1065s. Thus, this income is reported twice, once on the subsidiary partnership’s Form 1065 and once on the parent’s Form 1065. Similarly, the partnership income that flows to corporations

16 One might want to exclude investment vehicles, which this method generally allows.
17 The IRS instructions for the Form 1065 provide more detail.
18 Sole proprietorships do not pay any wages in the traditional sense to their owners. All sole proprietorship income from Schedule C is payroll taxed as labor income, as noted in the brief discussion of the return to labor and the return to capital at the end of this paragraph.
19 This is an attempt to mirror the treatment of owner-employees at C corporations and S corporations that receive wages payments via a Form W-2 that are deductible to the business. Unfortunately, some guaranteed payments are for the use of capital as opposed to services (e.g., interest payments). These costs will be misallocated in the partnership income statement presented here.
20 It should be noted that the incentive for business owners to receive business income in the form of wages or labor income has changed over time as tax rates on capital gains and dividends have changed.
21 Congressional Budget Office (2012) provides one such example.
is reported as income by those corporations on their Form 1120, meaning that partnership income to corporations is counted twice, once on the 1065 and once on the 1120.

Fortunately, the information in the analysis of the net income section of Schedule K shows how much partnership income flows to other partnerships and to corporations. Unfortunately, it does not indicate which types of income or deductions make up these flows. Table 2 presents the share of partnership income flowing to each type of partner for the years 2007–2012. The table shows that about 28 percent of partnership net income was passed to other partnerships in 2007, 2010, and 2011 according to the SOI partnership file. This share was significantly lower in 2008 and 2009 (16 and 19 percent, respectively) due to the financial crisis. The table also shows that about 30 percent of partnership net income flowed to corporations in 2007, 2009, and 2010, but only 13 percent in 2008 and 25 percent in 2011 and 2012. To eliminate both types of double counting, this paper reduces partnership net income by the share that flows to other partnerships and the share that flows to corporations. Although the analysis of net income section does not describe how to allocate this reduction across the various income and deduction types, this paper assumes that the reductions for partnership to partnership flows and flows to corporations are proportional across all types of income and deductions. This is almost certainly incorrect, but it will insure tractability and internal consistency of the data for the tables presented here.

<table>
<thead>
<tr>
<th>Type of Partner</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporations</td>
<td>29.9</td>
<td>13.2</td>
<td>34.5</td>
<td>30.2</td>
<td>25.0</td>
<td>24.0</td>
</tr>
<tr>
<td>Individuals</td>
<td>25.8</td>
<td>58.6</td>
<td>42.0</td>
<td>27.1</td>
<td>30.9</td>
<td>27.2</td>
</tr>
<tr>
<td>Partnerships</td>
<td>28.1</td>
<td>15.8</td>
<td>19.0</td>
<td>29.3</td>
<td>28.0</td>
<td>32.7</td>
</tr>
<tr>
<td>Exempt organizations</td>
<td>5.4</td>
<td>0.8</td>
<td>–2.6</td>
<td>5.0</td>
<td>6.1</td>
<td>5.9</td>
</tr>
<tr>
<td>Nominee/other</td>
<td>10.8</td>
<td>11.6</td>
<td>7.0</td>
<td>8.4</td>
<td>9.9</td>
<td>10.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Author’s calculations from the analysis of net income of the Schedule K of the Form 1065 using SOI partnership data

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22 A full decomposition could theoretically be done using the Schedule K-1 issued to partners. These information returns summarize all of the income and deductions, by type, that flow to each partner. Although SOI collects the K-1 for each partner, not all of the data fields are transcribed, making a complete decomposition impossible.

23 With respect to the adjustment for partnership flows to corporations, one could instead reduce corporate income by the size of the flows.

24 This assumption counts the dollars where they flow (to corporations and other non-partnership partners) and not where the economic activity occurs (in partnerships).
Columns 2 through 6 of Table 1 present the aggregate income statements for S corporations, REITs, RICs, partnerships, and sole proprietorships for 2011 using tax data. S corporations were the largest of the flow through entities in terms of total income and deductions, with $6.3 trillion of income and $6.0 trillion of deductions. While partnerships generated only about 42 percent of the income and 37 percent of the expenses of S corporations in 2011, they generated more net income ($427 billion versus $365 billion). Sole proprietors generated about $1.3 trillion in income and $1.0 trillion in deductions in 2011, for a net income of $282 billion. Although RICs generated only a small amount of income in 2011 ($363 billion), they had very small costs ($81 billion), thus yielding a net income of $283 billion. REITs are even smaller than RICs, with income of $104 billion, costs of $67 billion, and net income of $37 billion.

Figure 1 graphs the composition of tax-based net business income by entity type for the years 1993–2012. The underlying data for this figure are summarized in Tables 3A and 3B. The well-known growth of partnerships and S corporations relative to
C corporations and sole proprietors can be seen in Figure 1 and Table 3. As a share of tax-based business income, partnerships have increased from 10.2 percent in 1993 to 21.4 percent in 2012. S corporations have increased from 8.3 percent of tax-based business income in 1993 to 17.5 percent in 2012. C corporations’ share of tax-based business income has decreased from 47.4 percent in 1993 to 36.0 percent in 2012, while sole proprietors’ share has decreased from 20.9 percent in 1993 to 11.3 percent in 2012. Although REITs are not a major contributor to tax-based business income, their growth was also tremendous over the 1993 to 2012 time frame, from 0.2 percent of net business income in 1993 to 1.7 percent in 2012.

In addition to these secular trends, Figure 1 and Tables 3A and 3B show important cyclical patterns in the share of net business income by entity type. During both the

25 The cyclical nature of business income makes comparisons of start and end dates difficult to generalize.
2001 and 2008 recessions the share of business income accruing to C corporations declined dramatically, bottoming out at 22.7 percent in 2001 and 19.3 percent in 2008. The share of net income accruing to partnerships also declined significantly during the 2008 recessions. The share of business income for both C corporations and partnerships recovered rapidly after these declines.\textsuperscript{26} In contrast, the share of business income from sole proprietorships and S corporations has temporarily increased during each of the last two recessions, implying that these business types are less cyclical than partnerships and C corporations.

\begin{table}[h]
\centering
\caption{Tax-based Net Business Income by Entity Type (Percent), 1993–2012}
\begin{tabular}{lcccccc}
\hline
 & C Corporations & S Corporations & REITs & RICs & Partnerships & Sole Proprietors & Total \\
\hline
1993 & 47.4 & 8.3 & 0.2 & 12.9 & 10.2 & 20.9 & 100.0 \\
1994 & 48.6 & 10.8 & 0.3 & 11.6 & 9.1 & 19.7 & 100.0 \\
1995 & 48.8 & 9.9 & 0.3 & 14.2 & 10.1 & 16.7 & 100.0 \\
1996 & 47.5 & 11.3 & 0.7 & 13.6 & 11.4 & 15.5 & 100.0 \\
1997 & 44.0 & 12.1 & 1.6 & 15.5 & 12.4 & 14.4 & 100.0 \\
1998 & 39.2 & 15.2 & 1.8 & 14.3 & 13.7 & 15.8 & 100.0 \\
1999 & 35.8 & 14.1 & 2.2 & 18.1 & 14.9 & 14.8 & 100.0 \\
2000 & 33.4 & 14.7 & 2.5 & 18.5 & 15.8 & 15.0 & 100.0 \\
2001 & 22.7 & 18.7 & 3.4 & 18.1 & 15.6 & 21.5 & 100.0 \\
2002 & 23.2 & 19.4 & 4.2 & 14.9 & 14.8 & 23.4 & 100.0 \\
2003 & 33.0 & 16.9 & 3.4 & 11.4 & 16.2 & 19.0 & 100.0 \\
2004 & 38.2 & 16.3 & 2.8 & 9.5 & 18.7 & 14.5 & 100.0 \\
2005 & 47.9 & 13.5 & 2.6 & 9.0 & 17.2 & 9.9 & 100.0 \\
2006 & 42.4 & 14.2 & 3.1 & 12.0 & 18.3 & 10.0 & 100.0 \\
2007 & 35.3 & 14.6 & 2.7 & 15.9 & 21.6 & 9.9 & 100.0 \\
2008 & 19.3 & 21.4 & 3.0 & 23.0 & 15.5 & 17.6 & 100.0 \\
2009 & 26.6 & 20.1 & 1.9 & 20.4 & 11.9 & 19.2 & 100.0 \\
2010 & 35.2 & 16.4 & 2.1 & 14.0 & 18.8 & 13.5 & 100.0 \\
2011 & 32.0 & 17.8 & 1.8 & 13.8 & 20.8 & 13.8 & 100.0 \\
2012 & 36.0 & 17.5 & 1.7 & 12.2 & 21.4 & 11.3 & 100.0 \\
\hline
\end{tabular}
\footnotesize{Source: Author’s calculations using SOI individual, corporate, and partnership data}
\end{table}

\textsuperscript{26} The large increase in the share of net business income going to C corporations in 2005 is in large part the result of additional dividends received from foreign corporations due to the repatriation holiday.
IV. COMPARING TAX-BASED AND NIPA BUSINESS INCOME

The NIPA provide measures of net domestic business income that can be compared with the tax data discussed in Section III.\textsuperscript{27} Tax analysts generally use forecasts of NIPA data as the basis for forecasting incomes and tax receipts and estimating the revenue effects of tax proposals. The NIPAs separate firms into two groups depending upon whether they are incorporated or not. Corporations include C corporations, S corporations, REITs, and RICs. Unincorporated businesses include partnerships and sole proprietorships.\textsuperscript{28} Figure 2 graphs NIPA corporate and non-corporate business income.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure2.png}
\caption{NIPA Business Income as a Share of GDP (Percent), 1993–2012}
\end{figure}

\textsuperscript{27} This paper focuses upon domestic business income because domestic business income corresponds best to the corporate tax base. Business income from investments abroad is not generally part of the tax base until repatriated..

\textsuperscript{28} The NIPA refer to non-corporate businesses as proprietors. This paper will use non-corporate as a substitute for proprietors. Also, only non-farm proprietors’ income is used in this paper.
as a share of GDP for 1993 through 2012. In 1993, business income as reported in the NIPA was about 12.3 percent of GDP, with corporate income at 6.5 percent of GDP and non-corporate income at 5.8 percent. As a share of GDP, non-corporate income has been fairly stable over the 1993 to 2012 time period, growing from 5.8 percent of GDP in 1993 to about 7.8 percent in 2002 before declining slightly thereafter. Corporate income, on the other hand, has been significantly more volatile over the same period, fluctuating between 5.5 and 10 percent of GDP over the business cycle. Figure 2 also shows that aggregate business income in the NIPA has fluctuated significantly over the business cycle, due mostly to changes in corporate income, accounting for between 12.3 and 17.4 percent of GDP.

The tax-based business income constructed in Section III and NIPA business income graphed in Figure 2 are compared in Figure 3 as a share of GDP for the period 1993–2012. Figure 3 shows that the tax-based and NIPA business incomes as a share of GDP differed significantly after the 2001 recession. There are numerous reasons for the observed differences, some of which imply that even the apparent similarity in the two measures between 1993 and 2000 is a coincidence.

Figure 4 disaggregates Figure 3 by comparing the tax-based income and the NIPA-based income as a share of GDP separately for corporations (top panel) and non-corpora-

![Figure 3](https://example.com/figure3.png)

**Figure 3**
Tax-Based and NIPA Business Income as a Share of GDP (Percent), 1993–2012

Source: Author’s calculations using tax data and NIPA data
Figure 4
Tax-based and NIPA Business Income as a Share of GDP (Percent) by Entity Type, 1993–2012

Corporations

Non-corporations

Source: Author’s calculations using tax data and NIPA data

The large cyclical differences seen in Figure 3 after 2001 suggest differences in depreciation and capital gains accounting between tax and NIPA data. These types of differences are well known because the NIPA are based upon economic accounting principles while the tax data are based upon the tax accounting rules legislated by Congress. The Bureau of Economic Analysis uses published tax data as the primary source for NIPA business income and then adjusts the tax data to account for the differences in accounting principles, definitions, and concepts, as well as misreporting errors that occur in the tax data.\textsuperscript{29} Line items in NIPA Tables 7.6 and 7.16 document NIPA modifications for corporate (C, S, REIT, and RIC) tax data, while line items in NIPA Tables 7.6 and 7.14 do the same for non-corporate tax data.\textsuperscript{30}

Using tax data and these NIPA tables, this section details how the tax-based business income constructed in Section III can be adjusted to approximate NIPA business income. This approximation is imperfect because it uses the tax-based business income data outlined in Section III to simplify a few of the adjustments. As the following graphs will show, the differences with published NIPA data are relatively small.

Table 4 details the adjustments from the tax-based corporate and non-corporate business income to approximate NIPA income for the years 2007–2011. For corporations, the major adjustments included in Table 4 are: removal of RIC income,\textsuperscript{31} removal of S corporation investment income and Schedule K deductions,\textsuperscript{32} removal of net gains from the sale of property, removal of income on equities in foreign corporations,\textsuperscript{33} depreciation adjustments (called capital consumption adjustments (CCA) in the NIPA), removal of write-downs for bad debts, inclusion of misreported income (tax avoidance and tax

\textsuperscript{29} Chapters 11 and 13 of Bureau of Economic Analysis (2014), Bureau of Economic Analysis (2002), and Rassier (2012) provide more detail.

\textsuperscript{30} NIPA Table 7.6 details the capital consumption adjustment (the difference between NIPA tax depreciation and economic depreciation) by entity type. NIPA Table 7.16 details the derivation of NIPA corporate profits before taxes from IRS corporate total receipts less total deductions (TRLTD). Tax-based business income as calculated in Section III differs from TRLTD in a number of ways. NIPA Table 7.14 details the derivation of NIPA non-farm proprietors’ income from IRS net profit of non-farm proprietorships and partnerships, plus payments to partners. Tax-based business income as calculated in Section III differs from this in a number of ways.

\textsuperscript{31} Table 4 removes all RIC tax-based business income as constructed in Section III. The NIPAs adjust for RIC income in at least two places and do not remove all net income from RICs. The portion due to current production is kept.

\textsuperscript{32} This is not a NIPA adjustment because this income is not included in the TRLTD concept used as a basis for the NIPA, as noted in footnote 30.

\textsuperscript{33} This adjustment and the adjustment for the sale of property may include some income flows from RICs, which means that this income is taken out twice in the Table 4.
Table 4
NIPA Adjustments to Tax-based Business Income, 2007–2011
($Billions)

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax-based corporate income</td>
<td>1,932.5</td>
<td>999.5</td>
<td>875.3</td>
<td>1,329.6</td>
<td>1,341.2</td>
</tr>
<tr>
<td>Less RIC business income</td>
<td>-448.9</td>
<td>-344.4</td>
<td>-259.1</td>
<td>-274.4</td>
<td>-282.6</td>
</tr>
<tr>
<td>Less S corporation investment income</td>
<td>-122.7</td>
<td>-78.0</td>
<td>-32.3</td>
<td>-51.0</td>
<td>-70.9</td>
</tr>
<tr>
<td>Less gains (net of losses) from sale of property</td>
<td>-324.5</td>
<td>-69.4</td>
<td>-59.3</td>
<td>-152.3</td>
<td>-175.2</td>
</tr>
<tr>
<td>Less income from equities in foreign corporations</td>
<td>-286.3</td>
<td>-288.0</td>
<td>-282.9</td>
<td>-336.1</td>
<td>-304.4</td>
</tr>
<tr>
<td>Plus corporate capital consumption adjustment (CCA)</td>
<td>-179.9</td>
<td>-60.4</td>
<td>-82.2</td>
<td>-53.3</td>
<td>78.1</td>
</tr>
<tr>
<td>Plus bad debt write-downs</td>
<td>130.0</td>
<td>253.9</td>
<td>379.4</td>
<td>316.3</td>
<td>252.2</td>
</tr>
<tr>
<td>Plus misreported income</td>
<td>287.5</td>
<td>286.8</td>
<td>313.5</td>
<td>401.5</td>
<td>366.5</td>
</tr>
<tr>
<td>Plus post-tabulation amendments and revisions</td>
<td>68.0</td>
<td>71.7</td>
<td>80.0</td>
<td>78.6</td>
<td>94.5</td>
</tr>
<tr>
<td>Plus other NIPA adjustments</td>
<td>81.2</td>
<td>133.9</td>
<td>114.6</td>
<td>92.8</td>
<td>114.9</td>
</tr>
<tr>
<td>Tax-based corporate income after NIPA adjustments</td>
<td>1,136.9</td>
<td>905.6</td>
<td>1,046.9</td>
<td>1,351.8</td>
<td>1,414.2</td>
</tr>
</tbody>
</table>

<p>| | | | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Non-corporate Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax-based non-corporate income</td>
<td>888.8</td>
<td>495.5</td>
<td>394.9</td>
<td>634.9</td>
<td>709.1</td>
</tr>
<tr>
<td>Less partnership investment income</td>
<td>-477.5</td>
<td>-147.0</td>
<td>-84.3</td>
<td>-263.5</td>
<td>-304.2</td>
</tr>
<tr>
<td>Plus corporate capital consumption adjustment (CCA)</td>
<td>76.7</td>
<td>140.0</td>
<td>133.9</td>
<td>145.1</td>
<td>188.0</td>
</tr>
<tr>
<td>Plus bad debt write-downs</td>
<td>21.2</td>
<td>32.2</td>
<td>40.4</td>
<td>32.6</td>
<td>14.8</td>
</tr>
<tr>
<td>Plus misreported income</td>
<td>514.6</td>
<td>431.5</td>
<td>443.9</td>
<td>481.8</td>
<td>495.1</td>
</tr>
<tr>
<td>Plus other NIPA adjustments</td>
<td>26.1</td>
<td>29.8</td>
<td>11.9</td>
<td>10.9</td>
<td>10.9</td>
</tr>
<tr>
<td>Tax-based non-corporate income after NIPA adjustments</td>
<td>1,049.9</td>
<td>982.0</td>
<td>940.7</td>
<td>1,041.9</td>
<td>1,113.7</td>
</tr>
</tbody>
</table>

Sources: In the top panel, RIC business income is from Table 3A. S corporation investment income includes Schedule K deductions and is from SOI corporate data. Gains (net of losses) from sale of property and income from equities in foreign corporations are from NIPA Table 7.16. The capital consumption adjustment is from NIPA Table 7.6. Bad debt write-downs are from SOI corporate data. Misreported income, post-tabulation amendments and revisions, and other NIPA adjustments are from NIPA Tables 7.16 and 6.14 and SOI corporate data. In the bottom panel, partnership investment income includes Schedule K deductions and is from SOI partnership data. Capital consumption adjustments are from NIPA Table 7.6. Bad debt write-downs are from SOI partnership data. Misreported income and other NIPA adjustments are from NIPA Table 7.14 and 6.14.
evasion), post-tabulation amendments and revisions,\textsuperscript{34} and other NIPA adjustments.\textsuperscript{35} For non-corporate data, the major adjustments included in Table 4 are depreciation adjustments (CCA), removal of write-downs for bad debts, inclusion of misreported income, other NIPA adjustments not elsewhere counted,\textsuperscript{36} and removal of partnership investment income and Schedule K deductions.

Figure 5 graphs the adjustments in Table 4 as a share of GDP for 1993–2012 to better understand their cyclical nature. In the top panel of Figure 5, the nine adjustments to corporate income from Table 4 are re-grouped into four bins for clarity. The first four corporate adjustments are grouped together because they all relate to investment income that is either not from current domestic production (foreign income or investment income) or considered an expense in the NIPA (interest payments by RICs). The CCA for depreciation and the bad debts adjustment are graphed individually. The remaining corporate adjustments from Table 4 are grouped together as other adjustments.\textsuperscript{37} As the figure shows, the adjustments for investment activity have been highly cyclical due to the 2001 recession and the financial crisis of 2008. The bad debt adjustment also shows cyclicality for the same reasons. The CCA for depreciation shows a marked change after 2001 due to tax legislation for bonus depreciation.\textsuperscript{38} The other NIPA adjustments have been very stable over time.

The bottom panel of Figure 5 graphs the non-corporate NIPA adjustments from Table 4 after combining the misreporting and other adjustments together. Again, the investment income adjustment is the most cyclical item due to the 2001 recession and the 2008 financial crisis. The bad debts adjustment shows a small amount of cyclicality around 2008 and 2009 due to the financial crisis. The CCA shows a pattern similar to the corporate version in the top panel of Figure 5. Finally, the other adjustments to non-corporate business income shows little variation except for a downward adjustment in 2007 and 2008, which is due to a reduction in misreported income around that time.

Figure 6 updates Figure 3 to include the tax-based business income after adjusting for the major differences with NIPA as detailed in Table 4. The post-adjustment tax-based business income tracks NIPA business income closely despite the differences

\textsuperscript{34} The post-tabulation amendments and revisions include several definitional adjustments, including adjustments for intangible amortization, the domestic production activities deduction, business entertainment expenses, and S corporation pass-through income. Footnote 1 of NIPA Table 7.16 and Chapter 13 of Bureau of Economic Analysis (2014) provide more detail. Note that because the domestic production activities deduction was not included in the construction of the tax-based business income constructed in Section III, it should be excluded from the post-tabulation amendments and revisions to prevent error. This adjustment is made in “Other NIPA adjustments.”

\textsuperscript{35} These include adjustments for income from organizations that are not required to file a tax return (including Federal Reserve banks), depletion for minerals, mining depreciation, intellectual property depreciation, state and local corporate income taxes paid, disaster expenses, costs of trading or issuing corporate securities, unfunded/overfunded pensions liabilities, inventory valuation, and dividends received from domestic corporations.

\textsuperscript{36} This includes adjustments for depletion for minerals, mining depreciation, income received by fiduciaries, income of tax-exempt cooperatives, and intellectual property depreciation, disaster expenses, and inventory valuation.

\textsuperscript{37} This includes misreported income, post-tabulation amendments, and other NIPA adjustments.

\textsuperscript{38} This is discussed in more detail in Chapter 13 of Bureau of Economic Analysis (2014).
Figure 5
NIPA Adjustments to Tax-based Business Income as a Share of GDP (Percent) by Entity Type, 1993–2012

Corporations

Non-corporations

Sources: Author’s calculations using tax data and NIPA data. Investment income includes adjustments for RIC income, S corporation investment income and Schedule K deductions, gains (net of losses) from sale of property, and income on equities in foreign corporations. Other includes adjustments for misreporting, post-tabulation adjustments, and other NIPA adjustments. Table 4 provides additional information.
discussed above. Figure 7 updates Figure 4 to include the tax-based corporate income after adjusting for the major differences with NIPA (top panel) and tax-based non-corporate business income after adjustment (bottom panel). After adjusting for NIPA differences, both the corporate and non-corporate tax-based income tracks the NIPA business income closely.

V. DISCUSSION AND CONCLUSIONS

As a first step to improving our understanding of aggregate business income, this paper constructs a broadly consistent measure of tax-based business income and details the correspondence between it and NIPA business income. The hope is that this information will help improve analysis of business tax reform proposals that significantly alter the choice of which tax structure to use for business purposes. Tax reform proposals that significantly alter this choice, such as taxing all business entities in a similar manner under an entity level tax (taxing all businesses like corporations) or moving to a cash-flow-type or valued-added consumption tax, require careful accounting so that estimates of the revenue impacts and distributional consequences are consistent across
Figure 7
Tax-based and NIPA Business Income as a Share of GDP (Percent) by Entity Type, 1993–2012

Corporations

Non-corporations

Source: Author’s calculations using tax data and NIPA data
proposals. Maintaining the careful linkages between tax-based business income and NIPA business income can help insure that theoretically identical tax reform proposals could be comparably estimated using either data source.

This work also highlights a number of important issues. First, the discussion of partnerships in Section III identifies the double-counting in the tax data of business income that flows between partnerships and from partnerships to corporations. Addressing this double-counting is important for tracking tax-based business income and it points out the importance of connecting businesses to their owners. Lacking these linkages, this paper made the naïve assumption that the distribution of income types was proportional which neglects one of the significant flexibilities that partnerships provide relative to other organizational forms. Tracing the flows of business income between a specific partnership and its partners requires significant research and would likely have to rely on much richer data sources than the SOI samples utilized in this paper.

Second, the discussion in Section IV of how tax-based business income and NIPA income compare shows the significance of investment income in the tax-based data. One likely way for tax reform proposals to differ is in how investment income is (or is not) taxed. Under a cash-flow type consumption tax a significant portion of these flows would no longer be taxable to businesses.

Third, the discussion makes it easy to see that, given a forecast of NIPA business income, it should be possible to forecast the major NIPA adjustments discussed to construct a forecast of tax-based business income. This forecasted tax-based business income could then be shared across the various tax entities and then with the owners to create a baseline forecast of tax-based income that could be used as the basis for analyzing and estimating business tax reform proposals.

As mentioned earlier, this paper does not say anything about the types of business income that flow between businesses. Being able to track these flows is important for partnerships and S corporations because different types of income and deductions retain their character and can be comingled with personal income of a similar type on owners’ tax forms. In the case of partnerships, tracking these flows is also important because partnerships pass their income to individuals subject to the individual income tax, corporations subject to the corporate tax, estates and trusts subject to the income tax, tax-exempt entities that are not subject to tax, and foreign individuals who are taxed via withholding but presumably receive a foreign tax credit in their home country. The detailed samples of business tax data and individual data constructed by SOI do not readily permit the tracking of incomes between businesses and owners because their samples do not include the owners of all businesses in the other samples. Tracing these flows requires using the population of IRS tax returns.

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39 As noted above, the exception is income that is taxed via the UBIT provisions.
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DISCLOSURES

The author of this article has no financial arrangements that might give rise to a conflict of interest.

REFERENCES


