ESTIMATES OF U.S. FEDERAL INCOME TAX COMPLIANCE BURDEN FOR SMALL BUSINESSES

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INTRODUCTION

The U.S. federal tax system has been estimated to impose 3.5 billion hours of compliance burden time plus an additional 140 billion dollars in out-of-pocket and business compliance burden costs.[1] These are costs of administering the tax system above and beyond the revenue collected by the federal government.[2] By way of comparison, the federal tax system collected about 2.2 trillion dollars in fiscal year 2006.[3] Previous studies have examined the burden incurred by individual taxpayer as well as by large and medium-size businesses.[4] Moody (2002)[5] has attempted to extrapolate from the quite dated Arthur D. Little (ADL, 1988) study[6] to estimate the burden of the small business population. Evans (2003)[7] reviews the international compliance burden literature. This paper presents preliminary findings from a survey of taxpayer income tax compliance costs. The present study[8] presents new preliminary estimates of 1.7-1.8 billion hours and 15-16 billion dollars in small business income tax compliance burden for calendar year 2004.

Many of our key findings meet our prior expectations regarding the pattern of burden for these taxpayers: an overwhelming proportion of the time burden is spent on recordkeeping; most money burden is spent on securing the help of paid professionals; preparation method generally follows our hypothesis that businesses paying a professional to prepare their taxes are substituting monetary expenditures for spending time on tax compliance; some industry groups have higher tax compliance burden because of the nature of those businesses (e.g., transaction oriented retail businesses have the highest time burden while equipment heavy manufacturing businesses have the highest money burden); both time and money tax compliance burden generally show a monotonically increasing relationship with business size measured several ways, consistent with an explanation of some initial fixed compliance burden costs coupled with decreasing marginal burden as size increases.

SMALL BUSINESS SURVEY RESEARCH DESIGN AND OUTCOMES

In order to understand associated taxpayer characteristics and compliance burden, we conducted a large-scale survey of small business taxpayers. Data collection was accomplished in two major surveys: IRS Income Tax and IRS Employment Tax. In conjunction with the qualitative data and analysis, data from both small business surveys served as direct inputs for model estimation and production. This paper focuses on the survey research design and outcomes of the income tax survey.

Sample Design

The population universe for the survey was the IRS definition of a small business: a business with assets totaling no more than $10 million that is organized as a C corporation, S corporation, or Partnership. The large-scale survey we administered asked taxpayers about their experience complying with their federal income tax obligations, and focused on the burden experienced during the prefiling and filing time period.

The sampling frame was developed using Processing Year 2003 Midwest Automated Compliance System (MACS) data. MACS is an IRS administrative data source containing tax return information. The majority of the records in this file were from Tax Year 2002.

We segmented tax returns into strata based on the following variables:

- ***Primary Form Filed*:** Forms 1065, 1120, 1120S, 1120A, and several of the 1120 Specials including 1120F, 1120FSC, 1120H, 1120POL, and Other

- ***Asset Class*:** Negative Assets, Zero Assets, $1 - $99,999, $100,000 - $249,999, $250,000 - $499,999, $500,000 - $999,999, $1,000,000 - $4,999,999, and $5,000,000 - $10,000,000
- ***Tax Preparation Method*:** Paid Professional or Self-Prepared
- ***Employees*:** Has Employees or Does Not Have Employees
- ***Industry*:** Real Estate or Non-Real Estate (as defined by the NAICS codes)

Initially, 14,000 small business taxpayers were selected from the income tax sample frame to begin data collection. Of these 14,000, only those with phone numbers were included in the telephone sample; the remaining observations were placed in the mail sample. During the data collection process, additional smaller samples were selected as needed in order to meet the target number of 7,000 completed interviews within a reasonable time frame without unnecessarily deflating the survey's response rate.

Questionnaire Design

Insights gained from qualitative research helped guide the development of the questionnaire. During this design phase, we spoke with more than one hundred small businesses to understand the activities in which they engage to comply with their tax obligations. These sessions provided valuable information about the components of compliance burden as well as the way that taxpayers think about these issues.

One of the biggest challenges in developing the questionnaires for the small business taxpayer population was how to address joint costs. Joint costs refer to the fact that many activities in which businesses engage are done for general business reasons as well as tax purposes. We confronted this challenging issue by instructing taxpayers on the questionnaire to consider which activities are part of our definition of federal tax compliance and which activities are not part of federal tax compliance and are therefore out of scope. By carefully instructing taxpayers in this way, we believe that a good measure of federal income tax compliance costs was obtained that effectively excluded time and money associated with normal business/managerial processes. This view was reinforced in our qualitative research. In the in-depth interviews with taxpayers, we discussed taxpayers' ability to isolate federal tax compliance costs from costs associated with state or local tax, or normal business functions and found that with carefully worded questions this was possible. One caveat to this general conclusion surrounds the reporting of tax-related software costs. The amounts reported in this area appear to closely match the pricing for business tax software with bookkeeping bundled in. Further research and analysis seemed warranted before making a final determination as to the degree to which this burden is purely tax-related. In contrast, taxpayers seemed much more capable of separating out tax-related professional fees from more general bookkeeping, business advisory, and legal fees.

After the draft questionnaire was developed, it was vetted through day-long workshops with the IRS and the project's interagency working group. It was pretested on a small sample of taxpayers to determine the length of the questionnaire and identify areas where questions needed to be dropped or modified. The final income tax questionnaire is divided into 11 sections, each focusing on one of the major compliance activity categories that we devised (e.g., recordkeeping, working with a paid professional, etc.) and takes approximately 20 minutes to complete. Skip patterns are used so taxpayers avoid spending time on sections that are not applicable to their situation.

Survey Data Collection and Processing

The income tax survey was conducted using a mixed-mode telephone and mail protocol. We believe this methodology, which was previously used in our earlier studies, is the most effective way to maximize response rate given the target goals and time frame.

The mixed-mode methodology enhances response rates in three ways. First, it relies initially and primarily on telephone interviews, which typically achieve a higher response rate than do self-administered mail questionnaires. Second, it provides a means to contact taxpayers for whom no phone numbers are available. Third, it offers an avenue for follow up beyond repeated telephone calls. Taxpayers who are called and request a mail version can be accommodated. Taxpayers who cannot be contacted by telephone will be sent a mail questionnaire, resulting in additional responses. In fact, some respondents who refused over the telephone completed a mail questionnaire when it was sent to their address unsolicited.

The preliminary overall response rate was 38 percent for the income tax survey. After examining the income survey responses and comparing the populations that completed an interview with the populations that did not on critical demographic variables available (i.e., number of employees, preparation method, return form type, asset size), no substantial differences are found between the two groups.

Item nonresponse is also very low for an overwhelming majority of the survey questions. Ninety-seven percent of the questions had nonresponse below 15 percent. The item nonresponse observed primarily is due to skip pattern instructions on the mail questionnaire not being followed properly. Most of the questions that generated relatively high item nonresponse were difficult and somewhat obscure tax-related questions (e.g., the highest being a question about "accrual and hybrid accounting"), and not questions about compliance burden (i.e., time and money). Even though item nonresponse is low for the questions covering compliance burden, careful treatment is taken to produce accurate and unbiased population estimates. Typically there are two general ways to handle item nonresponse in surveys. The first is to exclude the response through deletion. This can either be through list-wise deletion, the exclusion of all records with any missing information, or pair-wise deletion, the exclusion of the missing response for only the one question used in current analysis. The alternative to record exclusion is record imputation, assigning a value or set of values to replace the nonresponse.

We have chosen imputation rather than deletion for several reasons. Removing records through list-wise deletion is unsatisfying since burden is measured independently through 10 questions covering the separate tax compliance activities. Nonresponse for one particular activity may not imply that the estimates for another activity are not accurate. Correcting for nonresponse through pair-wise deletion assumes that the missing responses are missing completely at random and are exactly similar to those individuals who do respond. Assuming that the nonrespondents to any particular question closely resemble the question's respondents could lead to biased estimates. Therefore, an imputation approach that attempts to control for differences between the respondent and nonrespondent populations will minimize the potential for this bias.

To produce these preliminary estimates, we rely on a nearest neighbor algorithm to replace missing values of relevant survey variables. Nearest neighbor methods replace a missing value for a particular question with the valid response obtained from a record that closely resembles the respondent who reported the missing value. When a survey respondent reports more than one missing value, then all the valid data from the nearest neighbor is used in the imputation. We are currently investigating more sophisticated imputation techniques to refine the final estimates.

While reviewing the imputation methodology we are also exploring refined treatment of outlier identification and treatment. We are currently exploring multivariate outlier analysis techniques using the relationship between burden data and reported administrative data on labor costs and relevant deductions. The estimates presented in the paper incorporate two separate univariate treatments of outliers in an attempt to bracket a range of results around where we think we may conclude.

We hope these two areas of refinements will finalize the estimates, but the qualitative nature of the results shown below does not appear to be sensitive to choices in outlier and imputation treatment. For additional details on the survey design and imputation approach, refer to DeLuca et al. (2007).

RESULTS

In this section, we provide a preliminary analysis of total burden results and share insights into the total compliance burdens experienced by the small business population. With item nonresponse corrections, we provide aggregate estimates for the total small business population using sample weights.

Who Are Small Businesses?

The small business (SB) taxpayer population, which the IRS defines as businesses having assets of $10 million or less, includes a wide range of taxpayers with diverse characteristics. While noting characteristics common to the majority of SB taxpayers, we also wanted to faithfully capture and represent the more uncommon and uniquely situated members. Table 1 gives a quick view of the distribution of returns relative to the number of employees, asset size, and entity type, three cat-

Table 1
Small Business Taxpayers by Entity Type, Asset Size, and Number of Employees

		(Thousands of Taxpayers)						
		Size of Assets						
Type of Taxpayer	*Number of Employees*	*Zero or Negative*	*Less Than $50,000*	*$50,000 to < $100,000*	*$100,000 to < $500,000*	*$500,000 to < $1 million*	*$1 million and over*	*Total*
C corporations	No Employees	150	350	82	164	62	46	854
	1 to 5	29	226	79	159	19	25	538
	6 to 10	3	40	28	85	23	19	199
	11 to 15	1	17	13	33	13	15	93
	16 to 25	2	9	7	37	20	42	117
	26 to 50	(*)	5	3	22	10	32	71
	More than 50	1	1	1	5	7	22	39
	All	187	648	214	505	154	202	1,909
S corporations	No Employees	328	542	140	249	57	58	1,375
	1 to 5	144	483	179	201	22	14	1,044
	6 to 10	10	53	67	129	29	21	308
	11 to 15	5	27	23	70	11	18	154
	16 to 25	0	13	5	31	24	18	91
	26 to 50	(*)	2	9	34	13	46	104
	More than 50	2	(*)	(*)	8	13	43	68
	All	491	1,120	423	721	170	218	3,142
Partnerships	No Employees	668	213	102	375	167	340	1,865
	1 to 5	40	48	26	47	9	22	192
	6 to 10	5	19	8	16	6	9	61
	11 to 15	2	3	4	7	3	4	22
	16 to 25	1	2	1	7	2	6	19
	26 to 50	(*)	(*)	(*)	5	2	9	16
	More than 50	1	1	2	3	2	7	16
	All	717	286	142	459	191	397	2,192
All Small Businesses	No Employees	1,147	1,104	325	787	286	443	4,093
	1 to 5	214	758	284	406	50	62	1,773
	6 to 10	18	112	102	229	57	50	567
	11 to 15	8	46	40	110	27	37	269
	16 to 25	3	24	13	74	46	66	227
	26 to 50	(*)	7	12	61	24	86	191
	More than 50	4	2	3	16	23	73	122
	All	1,394	2,054	780	1,684	515	816	7,243

Note: Details may not add to totals due to rounding.

(*) Less than 1,000 Taxpayers

egorizations we used to examine the population's compliance burden.

The reporting small businesses are well represented across the three main entity classifications Partnerships, S corporations, and C corporations, with approximately 44 percent filing as S corporations, 26 percent as C corporations and 30 percent as Partnerships. While 56 percent of small businesses do not report having employees and 48 percent have assets less than $50,000, 11 percent of the population also has assets over $1 million. Additionally, while C corporations and S corporations tend to have higher number employees as asset size increases, partnerships have a relatively more stable distribution of employees across the asset sizes.

With a brief understanding of the business characteristics of the reporting population, we will now focus in the next few sections on the resulting tax compliance burden.

Compliance Costs by Activity

In the survey, we asked businesses to report income tax compliance burden at the activity category level. We collected information about time spent in the following distinct activities: working with a paid professional, tax planning, keeping records, completing forms, submitting forms, making estimated tax payments, and working with the IRS and/or utilizing prefiling and filing services. This allows us to understand which aspects of the tax compliance process impose the largest compliance costs for different groups of small business taxpayers.

Our survey found that the overwhelming majority of time burden is spent in recordkeeping activities (Table 2). Additionally, total money burden is almost entirely Paid Professional Fees. To compensate for the fact that not all taxpayers incur each activity there are two sets of means provided. The first mean provides a population mean that includes values of 0 for taxpayers who did not participate in a particular activity. The second mean provides the mean burden for only those taxpayers who incurred burden, or were the affected population. For categories with relatively few numbers of taxpayers incurring any burden, the second may provide a more accurate level of burden for those who actually undertake that activity. For example, reporting average money burden for software purchases while including taxpayers who do not purchase software as zero is potentially misleading. For estimating the compliance burden-by-burden category across the entire taxpaying population, the first average is more appropriate.

Firm Structure

Another demographic factor impacting compliance burden is firm structure/taxpayer entity type (Table 3). The small businesses in our sample are structured as C corporations, S corporations, and Partnerships. Each of these business structures has unique tax characteristics which influence their tax situation and presumably, the level of compliance burden. For example, both Partnerships and S corporations are pass-through entities and all tax liability is passed through to the individual owners. In addition, each of these firm structures have different recordkeeping requirements, file different primary tax forms, deal with different sections of

Table 2
Burden Summary, by Burden Category for Taxpayers Reporting Burden

	Small Business Income Tax Compliance Burden								
	Amount (Millions of Hours)			*Population Average (Hours)*			*Affected Average (Hours)*		
All Time Categories	*(Low)*	-	*(High)*	*(Low)*	-	*(High)*	*(Low)*	-	*(High)*
Paid Professional Time	123.7	-	137.8	17	-	19	20	-	23
Recordkeeping Time	1,451.8	-	1,559.6	200	-	215	238	-	255
Form Completion Time	18.4	-	19.6	3	-	3	20	-	21
Form Submission Time	12.4	-	15.1	2	-	2	5	-	6
Making Estimate Tax Payments	8.0	-	8.2	1	-	1	14	-	15
Tax Planning Time	63.1	-	70.2	9	-	10	12	-	13
IRS Time	31.6	-	33.8	4	-	5	10	-	10
Total Time	1,709.0	-	1,844.2	236	-	255	236	-	255
	Amount (Millions of Dollars)			*Population Average (Dollars)*			*Affected Average (Dollars)*		
All Money Categories	*(Low)*	-	*(High)*	*(Low)*	-	*(High)*	*(Low)*	-	*(High)*
Paid Preparer Money	13,989.6	-	$15,186.2	$1,932	-	$2,097	$2,522	-	$2,738
Software Money	867.3	-	$1,079.4	$120	-	$149	$945	-	$1,177
Other Money	119.6	-	$145.5	$17	-	$20	$56	-	$68
Total Money	14,976.5	-	$16,411.1	$2,068	-	$2,266	$2,068	-	$2,266

Note: Details may not add to totals due to rounding.

Table 3

Burden Summary, by Entity Type

	Taxpayers (Thousands)		Time Burden: Amount (Millions of Hours)			Time Burden: Average (Hours)			Money Burden: Amount (Millions of Dollars)			Money Burden: Average (Dollars)		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	1,709.0	-	1,844.2	236	-	255	$14,976.5	-	$16,411.1	$2,068	-	$2,266
Type of Taxpayer														
C corporation	1,909	26.4%	480.3	-	499.1	252	-	261	$3,920.7	-	$4, 156.4	$2,054	-	$2,177
S corporation	3,142	43.4%	752.0	-	805.2	239	-	256	$6,444.2	-	$7,045.3	$2,051	-	$2,242
Partnership	2,192	30.3%	476.6	-	540.0	217	-	246	$4,611.5	-	$5,209.3	$2,104	-	$2,377

Note: Details may not add to totals due to rounding.

the tax code, and produce different types of information returns.

Preparation Method

Another crucial characteristic which influences the compliance burden level and type is the preparation method chosen. During the survey, we asked taxpayers to tell us how they completed their tax returns: using a paid professional (paid preparers); in-house using tax software (software preparers); or completing the return in-house without tax software (self-preparers). Our findings from the small business study, as well as from the individual taxpayer studies, tell us that preparation method is one of the most, if not the most, important variable in explaining the level and composition of total compliance burden. *A priori*, we expected that small businesses that elect to use a paid professional are substituting monetary expenditures for time spent on tax compliance and will therefore have higher levels of total money burden and lower levels of time burden. We also expect that those businesses that complete their taxes in-house without tax software will have relatively less complex tax situations and will therefore spend smaller amounts of time on tax compliance. In addition, monetary burden outlays of self-preparers might be expected to be relatively minimal, as such businesses incur costs only in form submission (e.g., photocopies, postage, and transportation). We expect that software preparers will have significant expenses associated with tax software. Software can often serve as a proxy variable for a more complex tax situation driving higher time compliance burden.

Table 4 below presents our findings by preparation method. Ignoring the impact of firm size and looking at all firms in the sample, taxpayers who use a paid preparer have the highest average money burden. Self-preparers have both the lowest average time and money burden. Paid-professional users and software-prepared taxpayers have very similar average time burden figures. Money burden increases some with the presence of software users and more with the use of a paid professional. It is also important to note that 86 percent of small businesses use a paid professional for tax preparation, and therefore is the population driving the aggregate results.

Industry

The next demographic characteristic we reviewed is how industry affects compliance bur-

Table 4
Burden Summary, by Preparation Method

	Taxpayers (Thousands)		Time Burden: Amount (Millions of Hours)			Time Burden: Average (Hours)			Money Burden: Amount (Millions of Dollars)			Money Burden: Average (Dollars)		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	1,709.0	-	1,844.2	236	-	255	$14,976.5	-	$16,411.1	$2,068	-	$2,266
Type of Taxpayer														
Paid Professional	6,273	86.6%	1,511.6	-	1,616.4	241	-	258	$14,311.9	-	$15,531.8	$2,281	-	$2,476
Self-Preparer - NO Software	408	5.6%	65.9	-	66.9	161	-	164	$20.2	-	$20.7	$49	-	$51
Self-Preparer - WITH Software	561	7.7%	131.4	-	160.9	234	-	287	$644.3	-	$858.6	$1,148	-	$1,529

Note: Details may not add to totals due to rounding.

den (Table 5). The industry can be a controlling indicator for the types of business and tax compliance activities a business encounters. Construction businesses may not have many transactions on a daily basis, but do face particular income accounting requirements for projects that overlap with accounting periods. Retail businesses, however, may have many transactions on a daily basis and must handle a much higher volume of receipts as well as returns. As industry is an indication of business activities, we now look at what influences the time and money spent on compliance activities.

The largest single industry represented by finance, insurance, and real estate accounts for almost 27 percent of the small business population, and in general terms have relatively low time burden and have average money. Retail Trade incurs the largest average time burden; Manufacturing the largest average money burden. Agriculture, forestry, and fisheries incurred the smallest average time and second smallest average money burden.

Size of Business

Business size is itself a general term and can be measured through several metrics. Defining the size of a business through one metric can be misleading depending upon the particulars of a business. As an example, a real-estate partnership with two partners may have millions of dollars of assets but may not have daily business and recordkeeping activities. This partnership may be very different from a law partnership with a low number of assets but has 50 employees. These two businesses can each be large relative to the metric that is selected. Because of this distinction, the results of this section are displayed across three such metrics.

The number of employees is the first measure of business size used for this analysis (Table 6). The number of employees is identified by matching Form 941 and Form 943 employment tax returns to the responses. In our population 56 percent of businesses did not report having an employee. The next single largest category had between one and five employees. Generally, both average time and average money burden increase monotonically with the number of employees. Businesses with more than 50 employees experienced the highest average time and money burden.

As a second measure of business size, the population was categorized by size of total receipts (Table 7). In an attempt to accurately categorize businesses with size of income, total receipts are

Table 5

Burden Summary, by Industry

	Taxpayers (Thousands)		Time Burden: Amount (Millions of Hours)			Time Burden: Average (Hours)			Money Burden: Amount (Millions of Dollars)			Money Burden: Average (Dollars)		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	1,709.0	-	1,844.2	236	-	255	$14,976.5	-	$16,411.1	$2,068	-	$2,266
Industry														
Agriculture, Forestry & Fisheries	314	4.3%	56.6	-	57.8	180	-	184	$467.2	-	$498.9	$1,489	-	$1,590
Mining & Utilities	53	0.7%	10.5	-	11.2	196	-	210	$80.3	-	$80.5	$1,503	-	$1,506
Construction	644	8.9%	200.2	-	201.0	311	-	312	$1,418.7	-	$1,647.9	$2,202	-	$2,558
Manufacturing	323	4.5%	98.1	-	100.2	304	-	310	$884.9	-	$908.4	$2,740	-	$2,813
Wholesale Trade	334	4.6%	93.1	-	104.1	279	-	312	$769.6	-	$883.1	$2,306	-	$2,647
Retail Trade	734	10.1%	238.5	-	243.0	325	-	331	$1,491.8	-	$1,619.8	$2,033	-	$2,208
Transportation & Warehousing	163	2.3%	37.9	-	46.1	233	-	284	$385.7	-	$401.0	$2,371	-	$2,465
Professional & Scientific	1,357	18.7%	271.3	-	280.2	200	-	206	$2,948.3	-	$3,015.2	$2,172	-	$2,222
Finance, Insurance & Real Estate	1,946	26.9%	382.1	-	426.1	196	-	219	$4,227.3	-	$4,827.7	$2,172	-	$2,480
Education & Health	394	5.4%	85.5	-	86.9	217	-	220	$839.2	-	$877.5	$2,128	-	$2,225
Arts & Entertainment	798	11.0%	202.4	-	206.7	254	-	259	$1,160.1	-	$1,346.4	$1,453	-	$1,686
Industry n.e.c.	182	2.5%	32.8	-	80.8	180	-	444	$303.3	-	$304.7	$1,666	-	$1,674

Note: Details may not add to totals due to rounding.

Table 6
Burden Summary, by Number of Employees

	Taxpayers (Thousands)		Time Burden						Money Burden					
			Amount (Millions of Hours)			Average (Hours)			Amount (Millions of Dollars)			Average (Dollars)		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	1,709.0	-	1,844.2	236	-	255	$14,976.5	-	$16,411.1	$2,068	-	$2,266
Number of Employees														
No Employees	4,093	56.5%	813.4	-	895.9	199	-	219	$7,328.2	-	$8,187.6	$1,790	-	$2,000
1 to 5	1,773	24.5%	395.2	-	427.2	223	-	241	$2,987.6	-	$3,214.1	$1,685	-	$1,813
6 to 10	567	7.8%	168.5	-	183.2	297	-	323	$1,551.9	-	$1,700.2	$2,735	-	$2,997
11 to 15	269	3.7%	86.2	-	87.0	321	-	324	$866.5	-	$928.6	$3,223	-	$3,454
16 to 25	227	3.1%	89.0	-	89.5	392	-	394	$798.0	-	$866.6	$3,514	-	$3,816
26 to 50	191	2.6%	90.0	-	90.8	471	-	475	$795.0	-	$852.9	$4,157	-	$4,460
More than 50	122	1.7%	66.7	-	70.5	549	-	580	$649.3	-	$661.1	$5,341	-	$5,438

Note: Details may not add to totals due to rounding.

Table 7
Burden Summary, by Size of Total Receipts

	Taxpayers (Thousands)		Time Burden						Money Burden					
			Amount (Millions of Hours)			Average (Hours)			Amount (Millions of Dollars)			Average (Dollars)		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	1,709.0	-	1,844.2	236	-	255	$14,976.5	-	$16,411.1	$2,068	-	$2,266
Total Receipts														
$0 or Less	895	12.4%	159.1	-	205.5	178	-	230	$ 1,865.3	-	$ 2,081.9	$2,084	-	$2,326
Less than $10,000	815	11.3%	109.6	-	111.3	135	-	137	$ 1,210.9	-	$ 1,213.2	$1,486	-	$1,489
$10,000 to $20,000	303	4.2%	44.2	-	44.3	146	-	146	301.9	-	$ 345.1	$998	-	$1,140
$20,000 to $50,000	677	9.3%	124.7	-	126.9	184	-	188	851.0	-	$ 1,090.6	$1,257	-	$1,611
$50,000 to $100,000	715	9.9%	148.1	-	175.4	207	-	245	$ 1,174.4	-	$ 1,329.1	$1,643	-	$1,859
$100,000 to $500,000	2,029	28.0%	485.7	-	508.6	239	-	251	$ 3,568.0	-	$ 3,742.8	$1,758	-	$1,844
$500,000 to $1 million	705	9.7%	194.3	-	196.7	276	-	279	$ 1,725.4	-	$ 1,866.6	$2,447	-	$2,647
Over $1 million	1,104	15.2%	443.2	-	475.7	402	-	431	$ 4,279.6	-	$ 4,741.9	$3,878	-	$4,296

Note: Details may not add to totals due to rounding.

a calculated field summing several items available from the IRS administrative data. As reported in the previous section, 27 percent of the population reports values on the low end. Approximately 12 percent of taxpayers report 0 or fewer. Excluding zero reporting cases, both average time and average money burden generally increase monotonically with total receipts. Businesses with more than $1 million in total receipts experienced the highest average time and money burden.

As a third measure of business size, the population was categorized by size of total assets as reported on the front of the primary income tax return (Table 8). Due to IRS reporting requirements, Partnerships are not required to report assets if total receipts are less than $250,000, total assets are less than $600,000, and the partnership files all K-1's to all partners on time. In total, 19 percent of small businesses report zero or no assets, a number inflated by the reporting requirement. Average time and average money increases with size of total assets, excluding the zero and negative asset category. Businesses with more than $1 million in assets experienced the highest average time and money burden.

Across all three measures of business size, total time and money burden are highly correlated with the size of a business. Excluding special cases of reported zero's for each of these measures, both time and money generally increase linearly with the size of business. In the next section we will take a look at how time and money change relative to each other.

Burden Measured as Percent or Fraction of Size of Business

This section looks at money burden (and monetized time burden) as a percent or fraction of three size measures in an attempt to measure "effective" burden as a portion of total business receipts received, total assets, or burden per employee. To include costs of the time spent by businesses, an hourly monetization rate of $45.40[9] was assumed to compare with other dollar measures. Firms must investigate whether or not a particular provision applies to their tax situation or set up general accounting procedures to record appropriate receipts, a portion of which comes as a fixed cost independent of the amount of revenue a firm generates. For this fixed portion of compliance, taxpayers with small size would have a higher burden relative to their size. The following three

Table 8

Burden Summary, by Size of Total Assets

	Taxpayers (Thousands)		Time Burden: Amount (Millions of Hours)		Time Burden: Average (Hours)		Money Burden: Amount (Millions of Dollars)		Money Burden: Average (Dollars)	
	N	*Percent*	*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*
All Businesses	7,243	100.0%	1,709.0	1,844.2	236	255	$14,976.5	$16,411.1	$2,068	$2,266
Total Assets										
$0 or Less	1,394	19.2%	277.4	325.2	199	233	$1,813.5	$1,992.5	$1,301	$1,430
Less than $10,000	872	12.0%	146.7	177.1	168	203	$1,155.4	$1,439.0	$1,325	$1,651
$10,000 to $20,000	399	5.5%	62.4	63.4	156	159	$676.2	$705.6	$1,694	$1,767
$20,000 to $50,000	783	10.8%	156.6	178.9	200	229	$1,342.2	$1,485.1	$1,715	$1,897
$50,000 to $100,000	780	10.8%	160.9	165.0	206	212	$1,552.0	$1,661.2	$1,991	$2,131
$100,000 to $500,000	1,684	23.3%	434.6	441.2	258	262	$3,608.2	$3,768.5	$2,142	$2,237
$500,000 to $1 million	515	7.1%	128.4	135.3	249	263	$1,542.4	$1,696.6	$2,996	$3,295
Over $1 million	816	11.3%	342.0	358.1	419	439	$3,286.6	$3,662.7	$4,025	$4,486

Note: Details may not add to totals due to rounding.

tables (Tables 9, 10, and 11) compare the burden per unit of size across our three firm size measures.

The results are consistent with the assumption that small businesses face significant fixed compliance costs combined with decreasing marginal costs as the business grows. It is important to note that the imprecise nature of each size measure to accurately capture a taxpayer's size of business activities may exaggerate the ratio for the smaller sized categories. For example, a business with low total assets and high total receipts would have a very different ratio of compliance burden per unit of size depending upon which classification scheme is used. The general trend, however, holds consistent across all three of our measurements of size. For the smallest businesses (those with less than $10K in total receipts), the compliance costs may rival the magnitude of the business' total receipts. In contrast, business with over $1M in total receipts typically incur compliance costs that are only barely significant (about 0.5 percent) as a contributor to the business' expenses. When comparing burden to the size of the assets, the same assumption holds valid with the smallest businesses (those with less than $10K in total assets) incurring compliance costs that rival the magnitude of the businesses' assets, and the largest businesses in this population incurring nominal costs of less than 1 percent of total assets.

We also present burden per dollar of gross revenue and burden per employee stratified across

Table 9

Money Burden and Total Monetized Burden per Employee

	Taxpayers (Thousands)		*Money Burden Per Employee*			*(Time Monetized @$45.4/hr) Per Employee*		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	$ 349	-	$ 383	$ 2,159	-	$ 2,336
Number of Employees								
1 to 5	5,680	78.4%	$ 1,101	-	$ 1,221	$ 6,926	-	$ 7,622
6 to 10	662	9.1%	$ 328	-	$ 338	$ 2,106	-	$ 2,204
11 to 15	310	4.3%	$ 244	-	$ 285	$ 1,293	-	$ 1,404
16 to 25	261	3.6%	$ 184	-	$ 193	$ 1,074	-	$ 1,088
26 to 50	204	2.8%	$ 122	-	$ 134	$ 760	-	$ 777
More than 50	126	1.7%	$ 51	-	$ 52	$ 289	-	$ 304

Note: Details may not add to totals due to rounding.

Table 10

Money Burden and Total Monetized Burden as a Percent of Total Receipts

	Taxpayers (Thousands)		*Money Burden Percent of Receipts*			*(Time Monetized @$45.4/hr) Percent of Receipts*		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	0.2%	-	0.3%	1.5%	-	1.6%
Total Receipts								
$0 or Less	895	12.4%	n.a.	-	n.a.	n.a.	-	n.a.
Less than $10,000	815	11.3%	46.8%	-	46.9%	239.3%	-	242.3%
$10,000 to $20,000	303	4.2%	6.8%	-	7.8%	51.9%	-	52.9%
$20,000 to $50,000	677	9.3%	3.7%	-	4.7%	28.4%	-	29.8%
$50,000 to $100,000	715	9.9%	2.2%	-	2.5%	15.1%	-	17.7%
$100,000 to $500,000	2,029	28.0%	0.7%	-	0.8%	5.1%	-	5.4%
$500,000 to $1 million	705	9.7%	0.3%	-	0.4%	2.1%	-	2.2%
Over $1 million	1,104	15.2%	0.1%	-	0.1%	0.5%	-	0.5%

Note: Details may not add to totals due to rounding.

Table 11

Money Burden and Total Monetized Burden as a Percent of Total Assets by Asset Size

	Taxpayers (Thousands)		*Money Burden Percent of Assets*			*(Time Monetized @$45.4/hr) Percent of Assets*		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	0.4%	-	0.5%	2.6%	-	2.9%
Total Assets								
$0 or Less	1,394	19.2%	n.a.	-	n.a.	n.a.	-	n.a.
Less than $10,000	872	12.0%	35.1%	-	43.7%	237.6%	-	288.2%
$10,000 to $20,000	399	5.5%	11.6%	-	12.1%	60.2%	-	61.4%
$20,000 to $50,000	783	10.8%	5.0%	-	5.5%	31.5%	-	35.8%
$50,000 to $100,000	780	10.8%	2.7%	-	2.9%	15.6%	-	16.1%
$100,000 to $500,000	1,684	23.3%	0.9%	-	0.9%	5.8%	-	6.0%
$500,000 to $1 million	515	7.1%	0.4%	-	0.5%	2.0%	-	2.1%
Over $1 million	816	11.3%	0.1%	-	0.1%	0.7%	-	0.8%

Note: Details may not add to totals due to rounding.

Table 12

Money Burden and Total Monetized Burden as a Percent of Total Receipts by Asset Size

	Taxpayers (Thousands)		*Money Burden Percent of Receipts*			*(Time Monetized @$45.4/hr) Percent of Receipts*		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	0.2%	-	0.3%	1.5%	-	1.6%
Total Assets								
$0 or Less	1,394	19.2%	1.2%	-	1.4%	9.9%	-	11.5%
Less than $10,000	872	12.0%	1.2%	-	1.4%	7.8%	-	9.5%
$10,000 to $20,000	399	5.5%	0.9%	-	1.0%	4.8%	-	4.9%
$20,000 to $50,000	783	10.8%	0.6%	-	0.6%	3.6%	-	4.1%
$50,000 to $100,000	780	10.8%	0.4%	-	0.5%	2.5%	-	2.6%
$100,000 to $500,000	1,684	23.3%	0.3%	-	0.3%	2.1%	-	2.1%
$500,000 to $1 million	515	7.1%	0.2%	-	0.3%	1.2%	-	1.3%
Over $1 million	816	11.3%	0.1%	-	0.1%	0.5%	-	0.6%

Note: Details may not add to totals due to rounding.

to provide some comparability across these size measures (Tables 12 and 13).

As an extension to the comparison with employees, in Table 14 we also present a comparison of burden to payroll. It is important to note that while corporations include owner compensation in payroll, partner compensation in partnerships received different treatment. To help control for this difference across business structures, we included ordinary income for partnership returns in addition to any payroll paid to employees.

Table 15 presents the results by industry, but as a percentage of total receipts to provide a snapshot at differences across industries, controlling for differences in relative sizes across industries.

Time and Money Correlation

Previously we have discussed two key facts about the relationship between time and money. First, there is an inherent trade-off between time and money. We hypothesize that one major reason taxpayers outsource tax compliance activities to paid professionals is to minimize their own time spent, suggesting a substitution relationship between time and money. Additionally, the results from the previous section indicate that time and

Table 13
Money Burden and Total Monetized Burden per Employee by Asset Size

	Taxpayers (Thousands)		*Money Burden Per Employee*			*(Time Monetized @$45.4/hr) Per Employee*		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	$ 349	-	$ 383	$ 2,159	-	$ 2,336
Total Assets								
$0 or Less	1,394	19.2%	$ 752	-	$ 826	$ 5,975	-	$ 6,951
Less than $10,000	872	12.0%	$ 647	-	$ 805	$ 4,374	-	$ 5,304
$10,000 to $20,000	399	5.5%	$ 575	-	$ 600	$ 2,985	-	$ 3,048
$20,000 to $50,000	783	10.8%	$ 415	-	$ 459	$ 2,614	-	$ 2,972
$50,000 to $100,000	780	10.8%	$ 412	-	$ 441	$ 2,351	-	$ 2,431
$100,000 to $500,000	1,684	23.3%	$ 319	-	$ 333	$ 2,065	-	$ 2,106
$500,000 to $1 million	515	7.1%	$ 290	-	$ 320	$ 1,388	-	$ 1,476
Over $1 million	816	11.3%	$ 237	-	$ 264	$ 1,354	-	$ 1,434

Note: Details may not add to totals due to rounding.

money both linearly increase with the size of a business, implying strong correlation between time and money through similar relationships with respect to the size of a business. Table 16 investigates potential trade-offs between expenditures of time and money by showing how total money burden changes relative to the amount of total time burden. Vice verse, total time burden is also shown across varying amounts of total money burden.

The results show that, in general, average time burden increases monotonically with size of total money burden (once over a minimal expenditure level) and similarly, average money burden increases monotonically with size of total time burden. Since time and money burden are highly correlated, correctly identifying the inherent substitution effect of money and time will be a challenge in the future to tease out econometrically.

SUMMARY AND CONSIDERATIONS FOR FUTURE RESEARCH

We have discussed small business taxpayer income tax compliance costs and their distribution across a variety of taxpayer characteristics. Many of our key findings meet our prior expectations regarding the pattern of burden for these taxpayers:

1. An overwhelming proportion of the time burden is spent on recordkeeping.
2. Most money burden is spent on securing the help of paid professionals.
3. Preparation method generally follows our hypothesis that businesses paying a professional to prepare their taxes are substituting monetary expenditures for spending time on tax compliance.
4. Some industry groups have higher tax compliance burden because of the nature of those businesses (e.g., transaction oriented retail businesses have the highest time burden while equipment heavy manufacturing businesses have the highest money burden).
5. Both time and money tax compliance burden show a monotonically increasing relationship with business size measured several ways, consistent with an explanation of some initial fixed compliance burden costs coupled with decreasing marginal burden as size increases.

We would like to conclude with a suggestion on how to interpret the data presented in this paper. It is common in the public finance literature to consider compliance burden as a percentage of revenue collected for a population. We suggest that such a measure may be misleading for the small business population in that most of the taxable activity is passed through to the owners/partners/members, typically individual taxpayers. We thus suggest that it may be more informative to add small business

Table 14
Money Burden and Total Monetized Burden as a Percentage of Payroll, by Asset Size

	Taxpayers (Thousands)		Money Burden Percent of Payroll			(Time Monetized @$45.4/hr) Percent of Payroll		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	1.1%	-	1.2%	7.0%	-	7.6%
Total Assets								
$0 or Less	1,394	19.2%	5.7%	-	6.3%	45.6%	-	53.1%
Less than $10,000	872	12.0%	3.8%	-	4.8%	26.0%	-	31.5%
$10,000 to $20,000	399	5.5%	2.9%	-	3.0%	15.0%	-	15.3%
$20,000 to $50,000	783	10.8%	1.5%	-	1.7%	9.6%	-	10.9%
$50,000 to $100,000	780	10.8%	1.6%	-	1.7%	9.1%	-	9.4%
$100,000 to $500,000	1,684	23.3%	1.2%	-	1.3%	7.8%	-	7.9%
$500,000 to $1 million	515	7.1%	1.0%	-	1.1%	4.7%	-	5.0%
Over $1 million	816	11.3%	0.6%	-	0.6%	3.2%	-	3.4%

Note: Details may not add to totals due to rounding.

Table 15
Money Burden and Total Monetized Burden as a Percentage of Total Receipts, by Industry

	Taxpayers (Thousands)		Money Burden Percent of Receipts			(Time Monetized @$45.4/hr) Percent of Receipts		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	0.2%	-	0.3%	1.5%	-	1.6%
Industry								
Agriculture, Forestry & Fisheries	314	4.3%	0.3%	-	0.4%	2.3%	-	2.3%
Mining & Utilities	53	0.7%	0.2%	-	0.2%	1.2%	-	1.3%
Construction	644	8.9%	0.2%	-	0.2%	1.3%	-	1.4%
Manufacturing	323	4.5%	0.1%	-	0.1%	0.8%	-	0.8%
Wholesale Trade	334	4.6%	0.1%	-	0.1%	0.5%	-	0.5%
Retail Trade	734	10.1%	0.1%	-	0.1%	0.9%	-	1.0%
Transportation & Warehousing	163	2.3%	0.3%	-	0.3%	1.4%	-	1.6%
Professional & Scientific	1,357	18.7%	0.3%	-	0.3%	1.6%	-	1.6%
Finance, Insurance & Real Estate	1,946	26.9%	1.4%	-	1.6%	7.3%	-	8.2%
Education & Health	394	5.4%	0.2%	-	0.2%	1.3%	-	1.4%
Arts & Entertainment	798	11.0%	0.3%	-	0.3%	2.4%	-	2.5%
Industry n.e.c.	182	2.5%	0.4%	-	0.5%	2.6%	-	5.9%

Note: Details may not add to totals due to rounding.

taxpayer burden to individual taxpayer burden and then divide this sum by the sum of individual and small business taxes.

Future research will need to refine the outlier treatments and missing data imputations for this income tax compliance burden data and applying similar treatments to corresponding small business employment tax compliance burden data. Once these imputations are finalized, development is planned for predictive econometric models supporting analysis of the compliance burden impact on this population expected to result from changes to the tax system. This research program is discussed in further detail in Guyton et al. (2004) and is expected to complement the individual taxpayer burden simulation modeling discussed in Guyton et al. (2003), Lerman and Lee (2004), and Holtzblatt (2004).

Table 16
Time and Money Burden, by Size of Total Money and Total Time, Respectively

	Taxpayers (Thousands)		Time Burden: Amount (Millions of Hours)			Time Burden: Average (Hours)		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	1,709.0	-	1,844.2	236	-	255
Size of Total Money								
Less than $100	1,278	17.6%	285.5	-	295.0	223	-	231
$100 to $200	410	5.7%	61.9	-	59.4	151	-	145
$200 to $300	380	5.2%	61.2	-	70.1	160	-	186
$300 to $400	373	5.1%	62.5	-	72.9	167	-	197
$400 to $500	455	6.3%	89.7	-	90.2	197	-	199
$500 to $1,000	1,340	18.5%	268.6	-	269.6	200	-	202
$1,000 to $2,000	1,181	16.3%	275.6	-	299.0	232	-	255
$2,000 to $3,000	586	8.1%	145.4	-	146.7	247	-	251
$3,000 to $4,000	314	4.3%	87.6	-	96.1	280	-	306
$4,000 to $5,000	223	3.1%	73.9	-	73.4	331	-	332
$5,000 to $10,000	423	5.8%	177.5	-	194.6	417	-	465
Over $10,000	283	3.9%	119.6	-	177.4	465	-	578

	Taxpayers (Thousands)		Money Burden: Amount (Millions of Dollars)			Money Burden: Average (Dollars)		
	N	*Percent*	*Low*	-	*High*	*Low*	-	*High*
All Businesses	7,243	100.0%	$14,976.5	-	$16,411.1	$2,068	-	$2,266
Size of Total Time								
Under 10 Hours	801	11.1%	$514.5	-	$533.6	$641	-	$667
10 to 20 Hours	416	5.7%	$597.2	-	$579.6	$1,433	-	$1,398
20 to 50 Hours	953	13.2%	$1,268.9	-	$1,281.5	$1,322	-	$1,357
50 to 75 Hours	1,056	14.6%	$1,778.5	-	$1,830.8	$1,676	-	$1,742
75 to 100 Hours	458	6.3%	$1,244.8	-	$1,267.9	$2,702	-	$2,788
100 to 200 Hours	1,465	20.2%	$3,438.2	-	$3,670.3	$2,340	-	$2,514
200 to 500 Hours	1,213	16.7%	$3,540.9	-	$3,964.8	$2,929	-	$3,261
500 to 1,000 Hours	475	6.6%	$1,297.1	-	$1,528.2	$2,765	-	$3,181
Over 1,000 Hours	408	5.6%	$1,296.4	-	$1,754.4	$3,288	-	$4,154

Note: Details may not add to totals due to rounding.

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Notes

[1] President's Advisory Panel on Federal Tax Reform (2005: 2).

[2] One might reasonably add the IRS budget of $10.6 billion in FY 2006 to the total compliance burden of the system.

[3] U.S. Department of Treasury (2007, Table 1).

[4] See, for example, Slemrod and Blumenthal (1995), and Slemrod and Venkatesh (2004). Also see Stavrianos and Greenland (2002), Arena et al. (2002) and Guyton et al. (2003).

[5] Moody (2002).

[6] Arthur D. Little, Inc. (1988).

[7] Chris Evans (2003).

[8] This study is described in further detail in DeLuca et al. (2003), Guyton et al. (2004), DeLuca et al. (2005), and DeLuca et al. (2007).

[9] The monetization rate was derived using the same methodology outlined in Moody (2005: 15). It is important to note that the BLS estimates have since been slightly revised, resulting in a wage rate of $45.40 as opposed to Moody's rate of $45.37 under the same methodology. Please refer to Moody's paper for further discussion of methodology.

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